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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),

Springfield Water and Sewer Commission

are authorized to discharge from a facility located at:

Springfield Regional Waste Water Treatment Facility
Route 5 Bondi Island
Agawam, MA 01001

And

Combined Sewer Overflow (CSO) discharges at 24 locations

to receiving waters named: **Connecticut River Segment MA 34-05 (Waste Water Treatment Facility Outfall # 001 and CSO outfalls # 007, 008, 010, 011, 012, 013, 014, 015A, 015B,016, 018, 042 and 049), Chicopee River Segment MA36-25 (CSO outfalls # 034, 035, 036A, and 037) and Mill River Segment MA34-29 (CSO outfalls # 017, 019, 024, 025, 045, 046, and 048)**

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

The Towns of Agawam, East Longmeadow, Longmeadow, Ludlow, West Springfield and Wilbraham are co-permittees for Part C, Unauthorized Discharges; Part D., Operation and Maintenance, which include conditions regarding the operation and maintenance of the collection systems owned and operated by the Towns; and Part E., Alternate Power Source.

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the terms and conditions of Part C, Part D. and Part E of this permit. The permittee and each co-permittee are severally liable under Part C, Part D and Part E for their own activities and required reporting with respect to the portions of the collection system that they own or operate. They are not liable for violations of Part C, Part D and Part E committed by others relative to the portions of the collection system owned and operated by others. Nor are they responsible for any reporting that is required of other permittees under Part C, Part D and Part E. The responsible Town departments are:

Town of Agawam **Department of Public Works** **1000 Suffield St** **Agawam, MA 01001**	**Town of East Longmeadow** **Department of Public Works** **60 Center Square, 2nd Floor** **East Longmeadow, MA 01028**	**Town of Longmeadow** **Department of Public Works** **31 Pondside Road** **Longmeadow, MA 01106**
Town of Ludlow **Department of Public Works** **198 Sportsmans Road** **Ludlow, MA 01056**	**Town of West Springfield** **Department of Public Works** **26 Central Street, Suite 17** **West Springfield, MA 01089**	**Town of Wilbraham** **Department of Public Works** **240 Springfield St.** **Wilbraham, MA 01095**

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

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

This permit supersedes the permit signed on December 8, 2000.

This permit consists of 24 pages in Part I including effluent limitations and monitoring requirements, **Attachment A (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011)**, **Attachment B (Freshwater Chronic Toxicity Test Procedure and Protocol, April 2013), Attachment C (Reassessment of Technically Based Industrial Discharge Limits), Attachment D (NPDES Permit Requirement for Industrial Pretreatment Annual Report),** and **Part II** (25 pages including NPDES Part II Standard Conditions).
Signed this day of

_____
Lynne A. Hamjian, Acting Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

_____
Lealdon Langley, Director
Massachusetts Wetlands and Wastewater Programs
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

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

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PART I

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to the Connecticut River. Such discharges shall be limited and monitored by the permittee as specified below. A bypass of secondary treatment is allowed when wet weather influent flow exceeds the wet weather capacity of the secondary treatment.

Effluent Characteristic		**Discharge Limitation**			**Monitoring Requirement** [*4]	
Parameter	**Units**	**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type**
Effluent Flow [*2, *3]	MGD	67	—	Report	Continuous	Recorder
BOD_5 [*5]	mg/l lbs/day	30 16763	45 25145	Report Report	1/Day 1/Day	24-Hour Composite[*6] 24-Hour Composite[*6]
TSS [*5]	mg/l lbs/day	30 16,763	45 25,145	Report Report	1/Day 1/Day	24-Hour Composite[*6] 24-Hour Composite[*6]
pH Range[*1]	Standard Units	6.5 – 8.3 (See Permit Part I.A.1.b.)			1/Day	Grab
Escherichia coli [*1, *7] (April 1 - October 31)	cfu/100 ml	126	—	409	5/Week	Grab
Total Residual Chlorine [*1, *8]	mg/l	0.26	—	0.46	5/Week	Grab

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Part I.A.1. (Continued)

Effluent Characteristic	Units	Discharge Limitation			Monitoring Requirement[4]	
Parameter		**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type**
Ammonia Nitrogen, Total	mg/l lbs/day	Report Report	— —	Report Report	1/Week 1/Week	24-Hour Composite[*6] 24-Hour Composite[*6]
Nitrogen, Total [*9]	mg/l lbs/day	Report Report	— —	Report —	1/Week 1/Week	24-Hour Composite[*6] 24-Hour Composite[*6]
Nitrite+Nitrate, Total	mg/l lbs/day	Report Report	— —	Report —	1/Week 1/Week	24-Hour Composite[*6] 24-Hour Composite[*6]
Kjeldahl Nitrogen, Total	mg/l lbs/day	Report Report	— —	Report —	1/Week 1/Week	24-Hour Composite[*6] 24-Hour Composite[*6]
Whole Effluent Toxicity [*10, *11, *12, *13]	%	Acute LC_{50} $\geq$ 100%			4/Year	24-Hour Composite[*6]
Hardness[*13]	mg/l	Report			4/Year	24-Hour Composite[*6]
Ammonia Nitrogen as N [*13]	mg/l	Report			4/Year	24-Hour Composite[*6]
Total Recoverable Aluminum [*13]	mg/l	Report			4/Year	24-Hour Composite[*6]
Total Recoverable Cadmium [*13]	mg/l	Report			4/Year	24-Hour Composite[*6]
Total Recoverable Copper [*13]	mg/l	Report			4/Year	24-Hour Composite[*6]
Total Recoverable Nickel [*13]	mg/l	Report			4/Year	24-Hour Composite[*6]
Total Recoverable Lead [*13]	mg/l	Report			4/Year	24-Hour Composite[*6]
Total Recoverable Zinc [*13]	mg/l	Report			4/Year	24-Hour Composite[*6]

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Footnotes:

*1. Required for State Certification.

*2. Report annual average, monthly average, and the maximum daily flow. The limit is an annual average, which shall be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months.

*3. The following information shall be reported and submitted as an attachment to the monthly DMRs for each day there was a bypass of secondary treatment: date and time of initiation, total influent flow at time of initiation, date and time of termination, total influent flow at time of termination, total duration of flow, and total volume of flow. A bypass of secondary treatment also is subject to the requirements of Part II.B.4.c. and Part II.D.1.e. of this permit.

Flows shall be measured using a meter.

The permittee shall not accept septage during any calendar day in which a bypass of secondary treatment is anticipated.

Monitoring Location	Date and Time of Initiation of Flow	Influent Flow at Time of Initiation (MGD)	Date and Time of Termination of Flow	Influent Flow at Time of Termination (MGD)	Total Duration of Flow (Hours)	Total Volume of Flow (MGD)
Secondary Bypass[a]						

[a.] Flows shall be measured using a meter.

*4. All required effluent samples shall be collected at a representative point following treatment and the comingling of secondary effluent with flows which bypass secondary treatment. Bacteria and TRC samples shall be collected after exiting the chlorine contact chamber.

A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report. Any changes to the routine sampling program must be reviewed and approved in writing by EPA and MassDEP.

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

*5. Sampling is required for influent and effluent.

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*6. A 24-hour composite sample will consist of at least twenty-four (24) grab samples taken during one consecutive 24 hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

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

*8. Total residual chlorine monitoring is required whenever chlorine is added to the treatment process (i.e. TRC sampling is not required if chlorine is not added for disinfection or other purpose). The limitations are in effect year-round. For months when chlorine is not added to the treatment system a no data indicator (NODI) of C shall be reported on the monthly discharge monitoring report.

The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G. One of these methods must be used to determine total residual chlorine. For effluent limitations less than 20 ug/l, the compliance level will be the ML. Sampling results less than the detection limit shall be reported as "≤ [detection limit]" on the Discharge Monitoring Report.

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

*9. See Part 1.H. SPECIAL CONDITIONS for requirements regarding optimization and reporting for nitrogen removal.

*10. The permittee shall conduct acute toxicity tests four times per year. The permittee shall test the daphnid, *Ceriodaphnia dubia*, only. Toxicity test samples shall be collected during the same week each time during the months of March, June, September and December. The test results shall be submitted by the last day of the month following the completion of the test. The results are due April 30th, July 31st, October 31st, and January 31st, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachments A and B** of this permit.

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Test Dates during the month of:	**Submit Results By:**	**Test Species**	**Acute Limit** LC_{50}	**Chronic Limit C-NOEC**
March June September December	April 30 July 31 October 31 January 31	*Ceriodaphnia dubia* (Daphnid)	≥ 100%	Report

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

*12. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachments A and B, Section IV., DILUTION WATER,** in order to obtain permission to use an alternate dilution water. In lieu of individual approvals for alternate dilution water required in **Attachments A and B**, EPA-New England has developed a Self-Implementing Alternative Dilution Water Guidance document (called "Guidance Document") which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of the NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs) which is sent to all permittees with their annual set of DMRs and may also be found on the EPA, Region I web site at http://www.epa.gov/region01/enforcementandassistance/dmr.html. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachments A and B**. Any modification or revocation to this guidance shall 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 **Attachments A and B**. If the permittee uses an alternative dilution water, the ambient water will still need to be tested.

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

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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 nor greater than 8.3 Standard Units (S.U.) at any time.

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

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

e. The permittee's treatment facility will maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand during dry weather. Dry weather is defined as any calendar day on which there is less than 0.1 inch of rain and no snow melt. The percent removal shall be calculated as a monthly average using the influent and effluent BOD_5 and TSS values collected during dry weather days.

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

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

h. If the average annual flow in any calendar year exceeds 80 percent of the facility's design flow [80% x 67 MGD= 54 MGD], the permittee shall submit a report to MassDEP by **April 30** of the following calendar year describing its plans for further flow increases and describing how it will maintain compliance with the effluent 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 which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and

b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For purposes of this paragraph, adequate notice will 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) will not pass through the POTW or interfere with the operation or performance of the works.

4. Toxics Control

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

b. Any toxic components of the effluent will 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

a. 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. COMBINED SEWER OVERFLOWS (CSOs)

1. Effluent Limitations

During wet weather, the permittee is authorized to discharge storm water/wastewater from the CSO outfalls listed below:

Outfall No.	**Location**	**Latitude Longitude**
To Connecticut River		
007	Rowland St.	42º 12’ 72º 62’
008	Washburn St. 4	42º 11’ 72º 62’
010	Clinton St.	42º 10’ 72º 60’
011	Liberty St.	42º 10’ 72º 59’
012	Worthington St.	42º 10’ 72º 59’
013	Bridge St.	42º 10’ 72º 59’
014	Elm St.	42º 10’ 72º 59’
015A	Union St.	42º 10’ 72º 59’
015B	Union St.	42º 10’ 72º 59’
016	York St.	42º 09’ 72º 59’
018	Longhill St.	42º 06’ 72º 58’
049	Springfield St.	42º 10’ 72º 62’
042	Bondi Island	
To Chicopee River		
034	Main St.	42º 16’ 72º 51’

035	Front & Oak Sts.	42º 16’ 72º 50’
036A	Pinevale & Water Sts.	42º 16’ 72º 50’
037	Cedar St. 4	42º 16’ 72º 50’
To Mill River		
017	Fort Pleasant (Blake Hill)	42º 09’ 72º 58’
019	Mill, Orange, & Locust Sts.	42º 09’ 72º 57’
024	Rifle & Central Sts.	42º 10’ 72º 56’
025	Allen & Oakland Sts.	42º 10’ 72º 56’
045	Fort Pleasant Ave.	42º 06’ 72º 58’
046	Belmont St.	42º 06’ 72º 58’
048	Allen & Rifle Sts.	42º 10’ 72º 56’

2. The effluent discharged from these CSOs is subject to the following limitations:

a. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgment (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control includes the implementation of Nine Minimum Controls (NMC) specified below. These Nine Minimum Controls and the Nine Minimum Controls Minimum Implementation Levels which are detailed further in Part I.B.3. are requirements of this permit.

(1) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows;

(2) Maximum use of the collection system for storage;

(3) Review and modification of the pretreatment program to assure CSO impacts are minimized;

(4) Maximization of flow to the POTW for treatment;

(5) Prohibition of dry weather overflows from CSOs;

(6) Control of solid and floatable materials in CSOs;

(7) Pollution prevention programs that focus on contaminant reduction activities;

(8) Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts;

(9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

b. The discharges shall not cause or contribute to violations of federal or state Water Quality Standards.

3. Nine Minimum Controls Minimum Implementation Levels

a. The permittee must implement the nine minimum controls in accordance with the documentation provided to EPA and MassDEP or as subsequently modified to enhance the effectiveness of the controls. This implementation must include the following controls plus other controls the permittee can reasonably undertake as set forth in the documentation.

b. Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected, at a minimum of once per month, to insure that they are in good working condition and adjusted to minimize combined sewer discharges (NMC # 1, 2 and 4). The following inspection results shall be recorded: the date and time of inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The permittee shall maintain all records of inspections for at least three years.

Annually, no later than April 30th, the permittee shall submit a certification to MassDEP and EPA which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained.

MassDEP and EPA have the right to inspect any CSO related structure or outfall at any time without prior notification to the permittee.

c. Discharges to the combined system of septage, holding tank wastes, or other material which may cause a visible oil sheen or containing floatable material are prohibited during wet weather when CSO discharges may be active (NMC # 3, 6, and 7).

d. Dry weather overflows (DWOs) are prohibited (NMC # 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and MassDEP orally within 24 hours of the time the permittee becomes aware of the circumstances and a written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. See also Paragraph D.1.e of Part II of this permit.

e. The permittee shall quantify and record all discharges from combined sewer outfalls (NMC # 9). Quantification shall be through direct measurement. The following information must be recorded for each combined sewer outfall for each discharge event, as set forth in Part I.B.4.:

- Duration (hours) of discharge;
- Volume (gallons) of discharge;
- National Weather Service precipitation data from the nearest gage where precipitation

is available at daily (24-hour) intervals and the nearest gage where precipitation is available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated.

The permittee shall maintain all records of discharges for at least six years after the effective date of this permit.

f. The permittee shall install and maintain identification signs for all combined sewer outfall structures (NMC # 8). The signs must be located at or near the combined sewer outfall structures and easily readable by the public from the land and water. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against a green background, and shall contain the following information:

SPRINGFIELD WATER AND SEWER COMMISSION
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

Where easements over property not owned by the permittee must be obtained to meet this requirement, the permittee shall identify the appropriate landowners and obtain the necessary easements, to the extent practicable.

The permittee, to the extent feasible, shall place additional signs in Spanish or add a universal wet weather sewage discharge symbol to existing signs.

g. Within 90 days of the effective date of the permit, the permittee shall submit to EPA and MassDEP a public notification plan (NMC #8). As part of this plan, notification shall be provided electronically to any interested party, and a posting made on the permittee's website, of a probable CSO activation within one 24 hours of the initiation of any CSO discharge(s). Subsequently, within 24 hours of the termination of any CSO discharges(s), the permittee shall provide the following information on their website and in a follow-up electronic communication to any interested party:

CSO number and location
Confirmation of CSO discharge
Total volume discharged from the CSO
Date, start time and stop time of the CSO discharge

This notification procedure and the public notification plan shall be implemented no later than 180 days following the effective date of the permit.

4. Nine Minimum Controls Reporting Requirement

Annually, no later than April 30th, the permittee shall submit a report summarizing activities during the previous calendar year relating to compliance with the nine minimum controls including the required information on the number of activations for each CSO as well as the volume of each discharge from each CSO.

5. Combined Sewer Outfalls

For each combined sewer outfall (CSO **outfalls #007, 008, 010, 011, 012, 013, 014, 015A, 015B, 016, 018, 042, 049, 034, 035, 036A, 037 017, 019, 024, 025, 045, 046, and 048)**, the permittee must monitor and report the following information in each monthly DMR.

Parameters	**Reporting Requirements**	**Monitoring Requirements**	
	Total Monthly	**Measurement Frequency**	**Sample Type**
Total Flow	Report Gallons	Daily, when discharging	Continuous
Total Flow Duration (Duration of flow through CSO)	Report Hours	Daily, when discharging	Continuous
Number of CSO Discharge Events	Report Monthly Count	Daily, when discharging	Count

a. For Total Flow, measure the total flow discharged from each CSO outfall during the month. For Total Flow Duration provide the total duration (hours) of discharges for each CSO outfall during the month.

b. For those months when a CSO discharge does not occur, the permittee must still complete the monthly DMR with the appropriate no discharge (NODI) code for each outfall.

C. 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 outfalls listed in Part I.A.1.and Part I.B.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 Part II.D.1.e. (1) of the General Requirements of this permit (Twenty-four-hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes MassDEP

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

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the collection system owned and operated respectively by the Towns of Agawam, East Longmeadow, Longmeadow, Ludlow, West Springfield and Wilbraham shall be in compliance with the General Requirements of Part II and the terms and conditions of Part C, Part D and Part E of this permit. Each of the Towns of Agawam, East Longmeadow, Longmeadow, Ludlow, West Springfield and Wilbraham shall only be responsible under Part II, Part C, Part D and Part E of this permit for only its own infrastructure, activities and required reporting with respect to the portions of the collection system that each owns or operates.

Operation and maintenance of that portion of the collection system and the entirety of the treatment system owned and operated by the Springfield Water and Sewer Commission shall be in compliance with the terms and conditions of Part C, Part D and Part E of this permit and the General Requirements of Part II. The Springfield Water and Sewer Commission shall only be responsible under Part C, Part D and Part E of this permit and the General Requirements of Part II for its own infrastructure, activities and required reporting with respect to the portion of the collection and treatment system that it owns or operates. No Permittee shall be responsible for violations of Part C, Part D and Part E of this permit and/or the General Requirements of Part II committed by another Permittee relative to the portions of the collection system owned and operated by such other Permittee. In the event of any conflict between the above provisions and any other term or provision of this Permit, the above provisions shall control. The permittee and each co-permittee are required to complete the following activities for the respective portions of the collection system which they operate:

1. Maintenance Staff

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

2. Preventative Maintenance Program

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

3. Infiltration/Inflow:

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

4. Collection System Mapping

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

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

5. Collection System Operation and Maintenance Plan

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

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

(1) A description of the collection system management goal, 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 all recent studies and construction activities; and

(3) A schedule for the development and implementation of the full Collection System O & M Plan including the elements in paragraphs b.1. through b.8. below.

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

(1) The required submittal from paragraph 5.a. above, update to reflect current information;

(2) A preventative maintenance and monitoring program for the collection system;

(3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;

(4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;

(5) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;

(6) A description of the permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts;

(7) An educational public outreach program for all aspects of I/I control, particularly private inflow; and

(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 co-permittees shall each submit a summary report of activities related to the implementation of its Collection System O & M Plan during the previous calendar year. The report shall be submitted to EPA and MassDEP **annually by April 30**. The summary report shall, at a minimum, include;

a. A description of the staffing levels maintained during the year;

b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;

c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;

d. A map with areas identified for investigation/action in the coming year;

e. If treatment plant flow has reached 80% of its design flow [53.6 mgd] based on the annual average flow during the reporting year, or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year; and

f. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit.

E. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the permittee and co-permittee shall provide an alternate power source with which to sufficiently operate the wastewater facility, as defined at 40 C.F.R. § 122.2, which references the definition at 40 C.F.R. § 403.3(q).

F. SLUDGE CONDITIONS

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

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

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

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

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

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

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

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

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

less than 290	1/ year
290 to less than1500	1 /quarter
1500 to less than 15000	6 /year
15000 +	1 /month

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

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

8. The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§503.18 (land application), §503.28 (surface disposal), or §503.48 (incineration)) by **February 19th** (*see also* "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* "EPA Region 1 - NPDES Permit Sludge

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

Compliance Guidance"). Reports shall be submitted electronically using EPA's Electronic Reporting tool ("NeT") (see "Monitoring and Reporting" section below). If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:

a. Name and address of contractor(s) responsible for sludge preparation, use or disposal

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

G. INDUSTRIAL USERS AND PRETREATMENT PROGRAM

1. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within 120 days of the effective date of this permit, the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form (see **Attachment C – Reassessment of Technically Based Industrial Discharge Limits**) with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004).

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

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

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

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

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

3. The permittee shall provide the EPA and MassDEP with an annual report describing the permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in **Attachment D** (NPDES Permit Requirement for Industrial Pretreatment Annual Report) of this permit and shall be submitted no later than **March 31st** of each year.

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

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

6. The permittee must modify its pretreatment program, if necessary, to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the permittee must address in its written submission the following areas: (1) Enforcement response plan; (2) revised sewer use ordinances; and (3) slug control evaluations. The permittee will implement these proposed changes pending EPA Region I's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.1.

H. SPECIAL CONDITIONS

1. Nitrogen

a. The Permittee shall continue to optimize the treatment facility operations relative to total nitrogen ("TN") removal through continued ammonia removal, maximization of solids retention time while maintaining compliance with BOD5 and TSS limits, and/or other operational changes designed to enhance the removal of nitrogen in order to maintain the annual average mass discharge of total nitrogen at less than the existing mass loading of 2,279 lbs/day.

b. The permittee shall submit an annual report to EPA and the MassDEP by **February 1st** of each year, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous calendar year. If, in any year, the treatment facility discharges in excess of 2,279 lbs/day TN on an annual average basis, the annual report shall include a detailed explanation of the reasons why

TN discharges have increased, including any changes in influent flows/loads and any operational changes. The report shall also include all supporting data.

c. **Annually, no later than April 30th**, the permittee shall submit a report evaluating the impact of CSO abatement projects on nitrogen loads discharged from the WWTF. The report shall include a comparison of 2012-2016 conditions with conditions as of the date of the report with respect to the volume of sanitary sewage and of stormwater discharged through CSOs and through the WWTF. The report shall also include the expected change in volume and nitrogen load from the WWTF from sanitary sewage and stormwater flows in connection with CSO mitigation projects not included in the analysis of conditions as of the report date, but expected to be completed within the following five years.

I. MONITORING AND REPORTING

The monitoring program in the permit specifies sampling and analysis, which will provide continuous information on compliance and the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures found in 40 CFR Part 136 are required unless other procedures are explicitly required in the permit. The Permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit.

Unless otherwise specified in this permit, the permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

The permittee may consolidate reporting information which are on similar reporting schedules, in order to reduce or eliminate redundancy.

1. Submittal of DMRs Using NetDMR

   The permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP no later than the 15th day of the month electronically using NetDMR. When the permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or MassDEP.

2. Submittal of Reports as NetDMR Attachments

   Unless otherwise specified in this permit, the permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. Permittees shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. (See Part I.E.5. for more information on state reporting.) Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR.

3. Submittal of Pre-treatment Related Reports

All reports and information required of the permittee in the Industrial Users and Pretreatment Program section of this permit shall be submitted to the Office of Ecosystem Protection's Pretreatment Coordinator in Region 1 EPA's Office of Ecosystem Protection (OEP). These requests, reports and notices include:

A. Annual Pretreatment Reports,
B. Pretreatment Reports Reassessment of Technically Based Industrial Discharge Limits Form,
C. Revisions to Industrial Discharge Limits,
D. Report describing Pretreatment Program activities, and
E. Proposed changes to a Pretreatment Program

This information shall be submitted to EPA/OEP as a hard copy at the following address:

U.S. Environmental Protection Agency
Office of Ecosystem Protection
Regional Pretreatment Coordinator
5 Post Office Square - Suite 100 (OEP06-03)
Boston, MA 02109-3912

4. Submittal of Biosolids/Sewage Sludge Reports

By **February 19** of each year, the permittee must electronically report their annual Biosolids/Sewage Sludge Report for the previous calendar year using EPA's NPDES Electronic Reporting Tool found on the internet at https://www.epa.gov/compliance/npdes-ereporting.

5. Submittal of Requests and Reports to EPA/OEP

The following requests, reports, and information described in this permit shall be submitted to the EPA/OEP NPDES Applications Coordinator in the EPA Office Ecosystem Protection (OEP).

A. Transfer of Permit notice
B. Request for changes in sampling location
C. Request for reduction in testing frequency
D. Request for reduction in WET testing requirement
E. Report on unacceptable WET dilution water / request for alternative dilution water.

These reports, information, and requests shall be submitted to EPA/OEP electronically at R1NPDESNotices.OEP@epa.gov or by hard copy mail to the following address:

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP NPDES Applications Coordinator
5 Post Office Square – Suite 100 (OEP06-03)
Boston, MA 02109-3912

6. Submittal of Reports in Hard Copy Form

The following notifications and reports shall be submitted as hard copy with a cover letter describing the submission. These reports shall be signed and dated originals submitted to EPA.

A. Written notifications required under Part II
B. Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting
C. CSO Public Notification Plan
D. Collection System Operation and Maintenance Plan
E. Report on annual activities related to O&M Plan

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

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

7. State Reporting

Unless otherwise specified in this permit, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.F.3., I.F.4. and I.F.5. also shall be submitted to the State at the following addresses:

MassDEP – Western Region
Bureau of Water Resources
436 Dwight Street, Suite 402
Springfield, MA 01103

Copies of toxicity tests and nitrogen optimization reports only shall be submitted to:

Massachusetts Department of Environmental Protection
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606

6. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA and to MassDEP. This includes verbal reports and notifications which require reporting

within 24 hours. (As examples, see Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.) Verbal reports and verbal notifications shall be made:

EPA's Office of Environmental Stewardship: 617-918-1510

and to

MassDEP's Emergency Response: 888-304-1133.

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 CMR 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under §401(a) of the Federal Clean Water Act, 40 CFR 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 will have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit will be effective only with respect to the Agency taking such action, and will 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 will remain in full force and effect under Federal law as an 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 will remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

Attachment A

USEPA Region I Freshwater Acute Toxicity Test Procedure and Protocol

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

http://water.epa.gov/scitech/methods/cwa/wet/disk2_index.cfm

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

III. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for chemical and physical analyses required. The remaining sample shall be measured for total residual chlorine and dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. If dechlorination is necessary, a thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) must also be run in the WET test.

All samples held overnight shall be refrigerated at 1- 6°C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. In the case where an alternate dilution water has been agreed upon an additional receiving water control (0% effluent) must also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S).** Written requests for use of an alternate dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
5 Post Office Sq., Suite 100 (OEP06-5)
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
5 Post Office Sq., Suite 100 (OES04-4)
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcement/water/dmr.html *for further important details on alternate dilution water substitution requests.*

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

V. TEST CONDITIONS

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

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

1.	Test type	Static, non-renewal
2.	Temperature (°C)	20 ± 1°C or 25 ± 1°C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hour light, 8 hour dark
5.	Test chamber size	Minimum 30 ml
6.	Test solution volume	Minimum 15 ml
7.	Age of test organisms	1-24 hours (neonates)
8.	No. of daphnids per test chamber	5
9.	No. of replicate test chambers per treatment	4
10.	Total no. daphnids per test concentration	20
11.	Feeding regime	As per manual, lightly feed YCT and Selenastrum to newly released organisms while holding prior to initiating test
12.	Aeration	None
13.	Dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^R or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	≥ 0.5, must bracket the permitted RWC
15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution

		series.
16.	Effect measured	Mortality-no movement of body or appendages on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection.
19.	Sample volume required	Minimum 1 liter

Footnotes:

1. Adapted from EPA-821-R-02-012.
2. Standard prepared dilution water must have hardness requirements to generally reflect the characteristics of the receiving water.

EPA NEW ENGLAND TEST CONDITIONS FOR THE FATHEAD MINNOW (PIMEPHALES PROMELAS) 48 HOUR ACUTE TEST[1]

1.	Test Type	Static, non-renewal
2.	Temperature (°C)	20 ± 1 ° C or 25 ± 1°C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hr light, 8 hr dark
5.	Size of test vessels	250 mL minimum
6.	Volume of test solution	Minimum 200 mL/replicate
7.	Age of fish	1-14 days old and age within 24 hrs of each other
8.	No. of fish per chamber	10
9.	No. of replicate test vessels per treatment	4
10.	Total no. organisms per concentration	40
11.	Feeding regime	As per manual, lightly feed test age larvae using concentrated brine shrimp nauplii while holding prior to initiating test
12.	Aeration	None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.)
13.	dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^R or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	≥ 0.5, must bracket the permitted RWC

15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection.
19.	Sample volume required	Minimum 2 liters

Footnotes:

1. Adapted from EPA-821-R-02-012
2. Standard dilution water must have hardness requirements to generally reflect characteristics of the receiving water.

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, oxygen, hardness, alkalinity and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour intervals in all dilutions. The following chemical analyses shall be performed on the 100 percent effluent sample and the upstream water sample for each sampling event.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3]	x		0.02
Alkalinity	x	x	2.0
pH	x	x	--
Specific Conductance	x	x	--
Total Solids	x		--
Total Dissolved Solids	x		--
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Metals			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 2340B (hardness by calculation)
     - Method 2340C (titration)
2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 4500-CL E Low Level Amperometric Titration
     - Method 4500-CL G DPD Colorimetric Method
3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

- Probit Method
- Spearman-Karber
- Trimmed Spearman-Karber
- Graphical

See the flow chart in Figure 6 on p. 73 of EPA-821-R-02-012 for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See the flow chart in Figure 13 on p. 87 of EPA-821-R-02-012.

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

Attachment B

Freshwater Chronic Toxicity Test Procedure and Protocol

FRESHWATER CHRONIC TOXICITY TEST PROCEDURE AND PROTOCOL

USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

Chronic toxicity data shall be reported as outlined in Section VIII.

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6° C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code OEP06-5
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
Five Post Office Square, Suite 100
Mail Code OES04-4
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥3 standard deviations for IC25 values and ≥ two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 2340B (hardness by calculation)
  -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 4500-CL E Low Level Amperometric Titration
  -Method 4500-CL G DPD Colorimetric Method
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  -Method 330.5

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://water.epa.gov/scitech/methods/cwa/ . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value, for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
  - Facility name
  - NPDES permit number
  - Outfall number
  - Sample type
  - Sampling method
  - Effluent TRC concentration
  - Dilution water used
  - Receiving water name and sampling location
  - Test type and species
  - Test start date
  - Effluent concentrations tested (%) and permit limit concentration
  - Applicable reference toxicity test date and whether acceptable or not
  - Age, age range and source of test organisms used for testing
  - Results of TAC review for all applicable controls
  - Test sensitivity evaluation results (test PMSD for growth and reproduction)
  - Permit limit and toxicity test results
  - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

Attachment C

Reassessment of Technically Based Industrial Pretreatment Discharge Limits

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

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

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

Please read direction below before filling out form.

ITEM I.

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

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

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

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

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

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

ITEM II.

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

ITEM III.

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

ITEM IV.

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

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

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

ITEM V.

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

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

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

Item VI.

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

(Item VI. continued)

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

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

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

ITEM VII.

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

ITEM VIII.

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

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

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

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

REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS (TBLLs)

POTW Name & Address : _____

NPDES PERMIT # :

_____

Date EPA approved current TBLLs : _____

Date EPA approved current Sewer Use Ordinance :

_____

ITEM I.

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

ITEM II.

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

ITEM III.

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

ITEM IV.

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

_____

_____

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

If yes, explain.

_____

_____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.

Pollutant	Column (1) Influent Data Analyses Maximum (lb/day)	Average (lb/day)	Column (2) MAHL Values (lb/day)	Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

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

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

*Hardness Dependent (mg/l - $CaCO_3$)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.

Column (1) NEW PERMIT Pollutants Limitations (ug/l)		Column (2) OLD PERMIT Pollutants (ug/l)	Limitations

ITEM VIII.

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

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

Attachment D

NPDES Permit Requirement for Industrial Pretreatment Annual Report

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

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

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

2. Permit Actions

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

3. Duty to Provide Information

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

4. Reopener Clause

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

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

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

5. Oil and Hazardous Substance Liability

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

6. Property Rights

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

7. Confidentiality of Information

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

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

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

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

8. Duty to Reapply

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

9. State Authorities

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

10. Other Laws

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

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

b. Bypass not exceeding limitations

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

c. Notice

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

d. Prohibition of bypass

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

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

5. Upset

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

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

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

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

e. Twenty-four hour reporting.

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

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

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

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

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

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

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

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

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

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

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

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

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

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

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

EPA means the United States "Environmental Protection Agency".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Commonly Used Abbreviations

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

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

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

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

FACT SHEET

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

NPDES PERMIT NUMBER: **MA0101613** [This draft permit is also integrating existing permit MA0103331[1]]

PUBLIC NOTICE START AND END DATES: **November 15, 2017 – December 14, 2017**

NAME AND MAILING ADDRESS OF APPLICANT:

Springfield Water and Sewer Commission
P.O. Box 995
Springfield, MA 01101-0995

The Massachusetts municipalities of Agawam, East Longmeadow, Longmeadow, Ludlow, West Springfield, and Wilbraham are co-permittees for specific activities required by the draft permit, as described in Section IX. of this Fact Sheet and as set forth in Sections I.C. and I.D. of the draft permit. The responsible municipal departments are:

Town of Agawam **Department of Public Works** **1000 Suffield St** **Agawam, MA 01001**	**Town of East Longmeadow** **Department of Public Works** **60 Center Square, 2nd Floor** **East Longmeadow, MA 01028**	**Town of Longmeadow** **Department of Public Works** **31 Pondside Road** **Longmeadow, MA 01106**
Town of Ludlow **Department of Public Works** **198 Sportsmans Road** **Ludlow, MA 01056**	**Town of West Springfield** **Department of Public Works** **26 Central Street, Suite 17** **West Springfield, MA 01089**	**Town of Wilbraham** **Department of Public Works** **240 Springfield St.** **Wilbraham, MA 01095**

[1] See Section X of this Fact Sheet

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Springfield Regional Waste Water Treatment Facility ("SRWWTF" or the "Facility" or "Bondi Island")
Route 5 Bondi Island
Agawam, MA 01001

And

24 Combined Sewer Overflows located in Springfield and Agawam, MA

RECEIVING WATER(S):

Connecticut River
Chicopee River
Mill River

RECEIVING WATER CLASSIFICATION(S):
All receiving waters are **Class B – Warm Water Fishery**

Contents

Attachments

I. PROPOSED ACTION, TYPE OF FACILITY, AND DISCHARGE LOCATION

The Springfield Water and Sewer Commission ("SWSC" or the "Commission") has applied to the U.S. Environmental Protection Agency ("EPA") for reissuance of its National Pollutant Discharge Elimination System ("NPDES") permit to discharge into the designated receiving waters. The existing permit was issued on December 8, 2000 and expired in February 2006. A complete and timely application for the permit re-issuance was submitted to EPA, and the existing permit was administratively continued pursuant to 40 C.F.R. § 122.6. Upon becoming effective, the draft permit and the authorization to discharge shall supersede the existing permit.

The existing permit authorizes the discharge from outfall 001 (formerly designated at outfall 041), which discharges treated municipal and industrial wastewater and stormwater from the SWSC's publicly owned treatment works ("POTW") to the Connecticut River. The SWSC also has been issued NPDES Permit No. MA0103331, which authorizes discharges of combined sanitary wastewater and stormwater from the Commission's 25 Combined Sewer Overflows ("CSOs") to the Connecticut, Chicopee and Mill Rivers. EPA's practice is to include CSO requirements in permits that authorize discharges from POTWs when the permittee owns and operates both a POTW and CSOs; therefore EPA is proposing to integrate the Commission's two NPDES permits into a single permit and terminate permit MA0103331. This is reflected in the conditions of the draft permit (see discussion of the separate permit in Section X of this Fact Sheet.). The locations of outfall 001 and the CSO outfalls are provided in **Attachments A** and **D**, respectively.

Additionally, EPA is adding six co-permittees to the draft permit. The towns of Agawam, Longmeadow, East Longmeadow, Ludlow, West Springfield and Wilbraham, Massachusetts own and operate sanitary wastewater collection systems that discharge flows to the SRWWTF for treatment[2.] These municipalities are co-permittees for certain activities pertaining to proper operation and maintenance of their respective collection systems (see Part I.C. and I.D of the draft permit). Adding them to the draft permit ensures that they comply with requirements to operate and maintain the collection systems so as to avoid discharges of sewage from the collection systems. These co-permittees did not apply for permit coverage; with letters sent November 3, 2015, EPA waived application requirements for the six co-permittees.

II. DESCRIPTION OF DISCHARGE

A quantitative description of the effluent discharged from outfall 001, based on recent monitoring data, is shown in **Attachment C**. Annual CSO discharge volumes from 2011-2016 are provided in **Attachment D.**

[2]Two other municipalities, the Town of Chicopee and the City of Springfield, contribute flows to the SWSC's collection system. Less than 1,000 residents in the Town of Chicopee are served by sewers discharging to the Commission's system; the remainder of the Town is served by a Town collection system and treatment plant. Because of the relatively small amount of sewers contributing flows, the Town of Chicopee was not added as a co-permittee. The City of Springfield also contributes sewage; however, all sanitary sewers in the City are owned and maintained by the Commission, not by the City. Therefore, the City is not a co-permittee.

III. RECEIVING WATER DESCRIPTION

The segments of the Connecticut River (segment MA34-05) and Mill River (segment MA34-29) at the points of discharge are located within the Connecticut River Basin. The segment of the Chicopee River into which several of the SWSC's CSO outfalls discharge (segment MA36-24) is located within the Chicopee River Basin. The Massachusetts Surface Water Quality Standards ("MA SWQS"), found at 314 Code of Massachusetts Regulations ("CMR") 4.06 Tables 6 and 8, classifies these river segments as Class B. The Connecticut and Chicopee Rivers are also classified as Warm Water Fisheries. The MA SWQS designate Class B Waters as having the following uses: (1) a habitat for fish, other aquatic life, and wildlife; (2) primary and secondary contact recreation; (3) a source of public water supply (i.e., where designated and with appropriate treatment); (4) suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses; and (5) shall have consistently good aesthetic value (314 CMR 4.05(3)(b)).

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

The segments of the receiving waters into which the discharges occur are identified in the MA SWQS with a CSO qualifier, indicating that these waters "are identified as impacted by the discharge of combined sewer overflows; however, a long term control plan has not been approved or fully implemented for the CSO discharges" 314 CMR 4.06(1)(d)(10).

Sections 303(d) and 305(b) of the Clean Water Act ("CWA") require that states complete a water quality inventory and develop a list of impaired waters. Specifically, section 303(d) requires states to identify those waterbodies that are not expected to meet water quality standards following the implementation of technology-based controls and, as such, require the development of a total maximum daily load ("TMDL"). In Massachusetts, these two evaluations have been combined into an Integrated List of Waters. The integrated list format provides the status of all assessed waters in a single, multi-part list.

The Final *Massachusetts Year 2014 Integrated List of Waters (MassDEP 2015)*(the "*2014 Integrated List*"), lists the segment of the Connecticut River into which outfall 001 and combined sewer overflow outfalls # 007, 008, 010, 011, 012, 013, 014, 015A, 015B, 016, 018, 042 and 049 discharge (segment MA 34-05) as a Category 5 water (waters requiring a TMDL for pollutants identified as causing impairment(s)). The pollutants listed as causing the impairment(s) and requiring a TMDL are *E. coli*, total suspended solids, and PCBs in fish tissue (*2014 Integrated List*). The segment of the Mill River into which combined sewer overflow outfalls #017, 019, 024, 025, 045, 046 and 048 discharge (segment 34-29) is listed as a category 5 water due to impairment(s) caused by *Escherichia coli (E. coli*). The segment of the Chicopee River into which combined sewer outfalls #034, 035, 036A and 037 discharge (segment 36-24) is listed as a Category 5 water due to impairment(s) caused by fecal coliform.

IV. LIMITATIONS AND CONDITIONS

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedule (if required) may be found in the draft permit.

V. PERMIT BASIS: STATUTORY AND REGULATORY AUTHORITY

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

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

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

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

In addition, a permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of CWA Section 402(o) and 40 C.F.R. §122.44(l). States are also required to develop antidegradation policies pursuant to 40 C.F.R. § 131.12. No lowering of water quality is allowed, except in accordance with the antidegradation policy.

VI. FACILITY INFORMATION

The Springfield Water and Sewer Commission's Bondi Island treatment plant processes wastewater from the following municipalities, with the population served for each one (based on information submitted in 2005)

Springfield	156983
Agawam	29000
West Springfield	25935
Ludlow	19596
Longmeadow	15409
East Longmeadow	14504
Wilbraham	13092
Chicopee	566

The wastewater collection system consists of both sanitary sewers, which transport domestic, industrial, and commercial wastewater; and combined sewers, which transport domestic, industrial, and commercial wastewater plus stormwater. Under normal flow conditions, wastewater is conveyed to the Facility through interceptor sewers. During wet weather events in which the combined flow exceeds the hydraulic capacity of the interceptor sewer and/or the wastewater treatment plant, discharges of untreated combined sanitary wastewater and stormwater occur from the CSOs listed in **Attachment D** to the Connecticut, Mill and Chicopee Rivers.

The SRWWTF is a publicly owned treatment works ("POTW") with an annual average design of flow 67 million gallons per day ("MGD"). The Facility has the capacity to provide primary treatment for flows up to 180 MGD and secondary treatment for flows up to 134 MGD.

The treatment process train includes mechanical screens, primary clarification, aerated biological treatment, secondary clarification, chlorine disinfection, dechlorination, sludge thickening and sludge dewatering. Treated effluent is discharged through outfall 001 to the Connecticut River. During wet weather events in which the secondary treatment capacity of the facility is exceeded, flows in excess of 134 MGD bypass secondary treatment (receiving only primary treatment, chlorination, and dechlorination) in order to prevent damage to the operation of the secondary treatment system. At this time, there no feasible alternatives to this bypass have been identified without the discharge of additional untreated sewage in system's CSOs. Alternatives continue to be evaluated as part of long term CSO abatement planning. In addition, flows in excess of 180 MGD are discharged from CSO Outfall 042 (receiving no treatment). Currently, continuous sampling of the effluent is carried out on the secondarily-treated flow, at a point before the secondary bypass flow rejoins. Grab samples for bacteria and Total Residual Chlorine are collected from a point after dechlorination and include flow that bypassed secondary treatment. The draft permit requires that all samples be collected after comingling of the secondary effluent with flow that bypassed secondary treatment. A flow process diagram of the facility is provided in **Attachment B**. The facility is operated by SUEZ Water Environmental Services, Inc. under a twenty-year Service Agreement begun with the Commission in 2000.

VII. DERIVATION OF EFFLUENT LIMITS UNDER THE FEDERAL CWA AND THE COMMONWEALTH OF MASSACHUSETTS WATER QUALITY STANDARDS

EFFLUENT FLOW

The draft permit maintains the 12 month rolling average effluent flow limitation of 67 MGD that is in the current permit. This limit is based upon the annual average design flow of the facility, as reported in Form 2A, Part A, Section a.6. of the permit application. The draft permit requires continuous flow measurement, and also requires reporting of the average monthly and maximum daily flows. Effluent flow data that was collected and submitted by the permittee from 2011-2015 is shown in **Attachment C**.

Sewage treatment plant discharge is encompassed within the definition of "pollutant" and is subject to regulation under the CWA. The CWA defines "pollutant" to mean, inter alia, "municipal . . . waste" and "sewage…discharged into water." 33 U.S.C. § 1362(6).

EPA may use design flow of effluent both to determine the necessity for effluent limitations in the permit that comply with the Act, and to calculate the limits themselves. EPA practice is to use design flow as a reasonable and important worst-case condition in EPA's reasonable potential and water quality-based effluent limitations ("WQBEL") calculations to ensure compliance with water quality standards under Section 301(b)(1)(C). Should the effluent discharge flow exceed the flow assumed in these calculations, the instream dilution would decrease and the calculated effluent limits may not be protective of WQS. Further, pollutants that do not have the reasonable potential to exceed WQS at the lower discharge flow may have reasonable potential at a higher flow due to the decreased dilution. In order to ensure that the assumptions underlying the Region's reasonable potential analyses and derivation of permit effluent limitations remain sound for the duration of the permit, the Region may ensure its "worst-case" effluent wastewater flow assumption through imposition of permit conditions for effluent flow. Thus, the effluent flow limit is a component of WQBELs because the WQBELs are premised on a maximum level of flow. In addition, the flow limit is necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQS.

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

Similarly, EPA's reasonable potential regulations require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," 40 C.F.R. § 122.44(d)(1)(ii), which is a function of both the wastewater effluent flow and receiving water flow. EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. EPA accordingly is authorized to carry out its reasonable potential calculations by presuming that a plant is operating at its design flow when assessing reasonable potential.

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

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

Dilution Factor

Water quality-based limitations are established with the use of a calculated available dilution factor. 314 CMR 4.03(3)(a) of the MA SWQS requires that effluent dilution be calculated based on the receiving water 7Q10. The 7Q10 is the lowest observed mean river flow for 7 consecutive days, recorded over a 10-year recurrence interval. Additionally, the plant's design flow is used to calculate available effluent dilution.

The 7Q10 flow data used to calculate the proposed effluent limitations in the draft permit is based on measurements of flow in the Connecticut River above the Springfield WWTP, which was collected by the United States Geological Survey (USGS) gaging station 01170500 on the Connecticut River at Montague City, MA (period of record 1985-2015), as well as estimates of the drainage basin area above the outfall. The drainage basin area at the outfall (9,088 mi^2) was estimated by adding the drainage area of the Connecticut River, 1.1 mile upstream from the Westfield River (9,055 mi^2), to the drainage area of the Mill River, just upstream of the outfall (33 mi^2)[3]

The 7Q10 flow at the USGS gaging station 01170500 was divided by the drainage area in the river at the location of the station (7,860 mi^2) to derive a flow factor. This flow factor was then multiplied by the drainage area of the Connecticut River where outfall 001 is located to calculate a 7Q10 value of 2,435 cubic feet per second ("cfs") just above outfall 001. See Table 1.

[3] *Gazetteer of Hydrologic Characteristics of Streams in Massachusetts; Connecticut River Basin*. U.S. Geological Survey, Water-Resources Investigations Report 84-4282. 1984.

Table 1: Calculation of 7Q10 at Outfall 001 (formerly 041)

	USGS Gage 01170500	Just Above Outfall 001
Drainage Area (mi^2)	**7,860**	**9,088**
7Q10 (cfs)	**2,103**	**2,435**
Flow Factor (cfs/mi^2)	**0.268**	**NA**

The available dilution (dilution factor) at the point of discharge was then derived from the design flow of the facility (67 MGD) and the estimated 7Q10 at the point of discharge (2,435 cfs) as follows:

Dilution = (design flow (cfs) + $7Q10_{0utfall\ 041}$ (cfs)) / design flow of facility

Design Flow in cfs = (67 MGD * 1.55 cfs/MGD) = 103.8 cfs

Dilution Factor = (103.8 cfs + 2,435 cfs) / 103.8 cfs = 24

CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS)
Effluent concentration limits for biochemical oxygen demand (BOD_5) and total suspended solids (TSS) are technology-based limits based on the minimum level of effluent quality attainable by secondary treatment as set forth in 40 C.F.R. §133.102(a) and (b), respectively.

The requirements of 40 C.F.R. §133.102(a) and (b), which provide for effluent limits for BOD_5 and TSS of 30 mg/l (average monthly) and 45 mg/l (average weekly), are reflected in the draft permit. The draft permit also includes mass-based limits for BOD_5 and TSS, in accordance with the requirements of 40 C.F.R. §122.45(f). Mass loads for BOD_5 and TSS are calculated from concentration limits and the design flow, as shown below:

L = C x Q x 8.34

Where:

L = Mass loading (lbs/day)
C = Effluent concentration (limit) (mg/l)
Q = Design flow of the facility (MGD)
8.34 = Factor to convert effluent concentration, in mg/l, and design flow, in MGD, to lbs/day.

Average Monthly Mass Limit = 30 mg/l x 67 MGD X 8.34 = 16,763 lbs/day

Average Weekly Mass Limit = 45 mg/l x 67 MGD X 8.34 = 25,145 lbs/day

These concentration and mass-based limits are unchanged from the existing permit.

Percent removal requirements are also included in the secondary treatment standards of 40 C.F.R. §133.102(a)(3) and (b)(3), requiring that the average monthly percent removal for BOD_5 and TSS be not less than 85%. However, combined sewer systems may receive case-by-case consideration under 40 C.F.R. §133.103(a), which states:

> *Treatment works subject to this part may not be capable of meeting the percentage removal requirements . . . during wet weather where the treatment works receive flows from combined sewers (i.e. sewers which are designed to transport both storm water and sanitary sewage). For such treatment works, the decision must be made on a case-by-case basis as to whether any attainable percentage removal level can be defined, and if so, what the level should be.*

Additionally, 40 C.F.R. §133.103(e) states

> *The Regional Administrator or, if appropriate, the State Director is authorized to substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements set forth in §§ 133.102(a)(3), 133.102(a)(4)(iii), 133.102(b)(3), 133.105(a)(3), 133.105(b)(3) and 133.105(e)(1)(iii) provided that the permittee satisfactorily demonstrates that: (1) The treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits, but the percent removal requirements cannot be met due to less concentrated influent wastewater; (2) to meet the percent removal requirements, the treatment works would have to achieve significantly more stringent effluent concentrations than would otherwise be required by the concentration-based standards; and (3) the less concentrated influent wastewater does not result from either excessive infiltration or clear water industrial discharges during dry weather periods.*

The existing permit suspended the 85% removal requirement because the large area of combined system makes meeting the requirement difficult in wet weather.

EPA's general approach has been to suspend the percent removal requirements in wet weather only for CSO areas. There is no documentation that the percent removal requirements cannot be met in dry weather by the treatment works (in fact, using a monthly average that includes both wet and dry weather, the treatment works have met the percent removal requirement every month in the last five years). Therefore, the draft permit suspends the 85% removal requirement during wet weather, but implements the requirement during dry weather.

The Connecticut River is listed as impaired for TSS. The state water quality standard for suspended solids, at 314 CMR 4.05(3)(b)5, states

> *These waters shall be free from floating, suspended and settleable solids in concentrations and combinations that would impair any use assigned to this Class, that would cause*

aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

In addition to the numeric technology-based limitations in the draft permit for TSS, EPA has included narrative water quality limits and conditions in Parts I.A.1.a., c., and d. of the draft permit to limit solids discharged from this facility and to ensure attainment of the water quality standard established at 314 CMR 4.05(3)(b)5.

BOD_5 and TSS influent and discharge data from 2011-2015 is shown in **Attachment C**. There have been no reported exceedances for BOD_5 or TSS limits at the facility in that time.

pH

The technology-based secondary treatment requirements for pH are a minimum of 6.0 and maximum of 9.0 SU (40 C.F.R. §133.102(c)). The MA SWQS establishes that for class B waters, pH "[s]hall be in the range of 6.5 through 8.3 standard units and not more than 0.5 units outside of the natural background range." (314 CMR 4.05(4)(b)3).

The pH limits in the existing permit, which are a minimum of 6.5 standard units and a maximum of 8.3 standard units, are maintained in the draft permit, and are a condition of state certification.

Discharge data for pH for 2011-2015 is shown in **Attachment C**. There have been no reported exceedances for pH limits at the facility in that time.

Bacteria

Limitations for fecal coliform bacteria in the existing permit are based upon state water quality standards to protect seasonal recreational uses that were in effect at the time that permit was issued.

The bacteria limits are modified in the draft permit to reflect the new seasonal *Escherichia coli (E. coli*) recreational criteria in the revisions to the MA SWQS, 314 CMR 4.05(3)(b), approved by EPA in 2007. The monthly average limitation in the draft permit is 126 colony forming units ("cfu") per 100 ml, and shall be expressed as a monthly geometric mean. The daily maximum limitation in the draft permit is 409 cfu/100 ml (this is the 90% distribution of the geometric mean of 126 cfu/100ml).

The February 23, 1990, *Massachusetts Water Quality Standards Implementation Policy For The Control Of Toxic Pollutants In Surface Waters* requires disinfection "seasonally (April 1 through October 15) in segments designated for primary contact recreation". The *E. coli* limits in the draft permit are in effect from April 1 through October 31, which is the same seasonality as the bacteria limits in the existing permit and protect recreational uses during the bathing season.

The monitoring frequency is maintained at five times per week.

Bacteria discharge data from 2011-2015 is shown in **Attachment C.** There has been only a single reported exceedance for bacteria limits at the facility from 2011-2015 (occurring in June 2015).

NON-CONVENTIONAL AND TOXIC POLLUTANTS

Total Residual Chlorine ("TRC")
Chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. Effluent limits are based on water quality criteria for total residual chlorine ("TRC") which Massachusetts adopted by reference to EPA's *2002 National Recommended Water Quality Criteria* (EPA-822-R-02-047). The acute and chronic fresh water aquatic life criteria for TRC are 19 µg/l (Criterion Maximum Concentration) and 11 µg/l (Criterion Continuous Concentration), respectively. Given a dilution factor of 24, the total residual chlorine limitations are calculated as follows:

Total Residual Chlorine Limitations based on criteria:

(acute criteria x dilution factor) = Acute (Maximum Daily) Limit[4]
(19 µg/l x 24) = 456 µg/l = 0.46 mg/l

(chronic criteria x dilution) = Chronic (Monthly Average) Limit
(11 µg/l x 24) = 264 µg/l = 0.26 mg/l

In the existing permit, Total Residual Chlorine limits are in effect April through October. It is expected that chlorine will only be used seasonally, during the period that bacteria limits are in effect. However, in order to fully protect aquatic life, the draft permit clarifies that the chlorine limit is in effect year-round and that effluent sampling for total residual chlorine is only required when chlorine is added to the treatment process.

TRC discharge data from 2011-2015 is shown in **Attachment C**.

Metals
The release of metals into surface waters from anthropogenic activities such as discharges from municipal wastewater treatment facilities can result in their accumulation to levels that are highly toxic to aquatic life. Therefore, it is imperative to evaluate the downstream effects of discharges of metals from POTWs. The results of metals analyses conducted on both the effluent and upstream receiving water in conjunction with Whole Effluent Toxicity tests from 2010-2015 were evaluated during the development of the draft permit (See **Attachment E**).

Metals may be present in both dissolved and particulate forms in the water column. Extensive studies suggest that it is the dissolved fraction that is biologically available, and therefore, presents the greatest risk of toxicity to aquatic life inhabiting the water column. (https://www.epa.gov/sites/production/files/2014-10/documents/handbook-chapter3.pdf. See section 3.6). As a result, water quality criteria are established in terms of dissolved metals. However, regulations at 40 C.F.R. 122.45(c) require, with limited exceptions, that metals limits in NPDES permits be expressed as total recoverable metals. This accounts for the potential for a transition from the particulate to dissolved form as the effluent mixes with the receiving water (*The Metals*

[4] The table in Part I.A. of the existing permit contains a typographical error in which the acute limit of 0.38 mg/l chlorine is in the "Average Weekly" column, rather than "Maximum Daily" column. The draft permit correctly sets the acute limit as a Maximum Daily limit.

Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (USEPA 1996 [EPA- 823-B96-007]).

The applicable water quality criteria for metals are the *EPA National Recommended Water Quality Criteria 2002* (USEPA 2002 {EPA-822-R-02-047}), which have been incorporated into the Massachusetts SWQS by reference at 314 CMR 4.05 (5)(e). For cadmium, copper, nickel, lead and zinc the water quality criteria are hardness dependent. Because the reasonable potential analysis is performed using dilution under 7Q10 conditions, a projected receiving water hardness under 7Q10 conditions is calculated using the same mass balance equations and the median hardness of the effluent (91 mg/l) and upstream receiving water (43 mg/l), as reported in WET test reports for analyses conducted between 2010 and 2015 (see **Attachment E**) for a calculated downstream hardness of 45 mg/l. The applicable criteria are shown below in table 1.

Table 1 Factors Used to Calculate Acute and Chronic Total Recoverable Metals Criteria

Metal	Parameters				Total Recoverable Criteria	
	ma	ba	mc	bc	Acute Criteria (CMC) (ug/L)	Chronic Criteria (CCC) (ug/L)
Aluminum	—	—	—	—	750	87
Cadmium	1.0166	-3.924	0.7409	-4.719	0.95	0.15
Copper	0.9422	-1.700	0.8545	-1.702	6.60	4.72
Lead	1.273	-1.46	1.273	-4.705	29.54	1.15
Nickel	0.846	2.255	0.846	0.0584	238.75	26.54
Zinc	0.8473	0.884	0.8473	0.884	60.91	60.91

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

EPA analyzed the available effluent and receiving water metals data to determine whether these pollutants "are or may be discharged at a level that causes, has reasonable potential to cause, or contributes to an excursion above" the water quality standard. 40 C.F.R. 122.44(d)(1)(i).

The effluent was characterized using a statistical analysis of effluent metals data, as reported in WET test reports from 2010-2015 (see **Attachment E**), to establish the 95th percentile of the lognormal distribution of the effluent data, which represents the maximum effluent concentration that can be expected to occur 95 percent of the time (i.e., the upper bound of the lognormal distribution of the data). The statistical approach to characterizing the effluent is described in **Attachment F.**

The receiving water concentration of metals downstream from the discharge is calculated taking into account dilution at 7Q10 conditions, through a mass balance equation that accounts for metals concentrations in the Connecticut River upstream of the discharge as reported in the facility's WET test reports (**Attachment E**). The ambient aluminum, copper and lead results that were used in the reasonable potential analysis calculations shown in Table 2 were submitted by the SWSC during the permit development process following discussions with EPA regarding elevated sample results from

2010-2015, which would have resulted in a positive reasonable potential determination, as possibly being due to contamination introduced during sample collection and analysis. The recently-submitted data are from samples that were collected in August 2016 and September 2016 using clean sampling techniques.

The equation used to calculate the downstream metals concentration is as follows:

$$\text{Receiving water concentration } (C_r) = \frac{(C_d * Q_d + C_s * Q_s)}{(Q_d + Q_s)}; \text{ where}$$

C_d = Upper bound effluent metals concentration data (95th percentile)
Q_d = Design flow of facility
C_s = Median metals concentration in [receiving water] upstream of discharge
Q_s = 7Q10 streamflow in [receiving water] upstream of discharge

The resultant in-stream concentrations (for both acute and chronic conditions) are then compared to the criteria for each metal. The results of this analysis with respect to aluminum, cadmium, copper, lead, nickel and zinc are shown below in Table 2.

As indicated in table 2, based on the 95th percentile of the distribution of effluent data and the median upstream concentrations, there is no reasonable potential (for either acute or chronic conditions) that the discharge of metals will cause or contribute to an exceedance of the applicable water quality criteria and, therefore, limitations for metals have not been included in the draft permit. The draft permit does, however, require the permittee to monitor for metals in conjunction with quarterly WET tests, as discussed below (see Whole Effluent Toxicity).

Table 2 Results of Reasonable Potential Analysis for Metals

Metal	Qd	Cd (95th Percentile)	Qs	Cs (Median)	Qr	Cr = (QdCd+QsCs)/Qr	Criteria		Acute Reasonable Potential	Chronic Reasonable Potential	Limits	
	MGD	ug/l	MGD	ug/l	MGD	ug/l	Acute (ug/l)	Chronic (ug/l)	Cd & Cr > Criteria	Cd & Cr > Criteria	Acute (ug/l)	Chronic (ug/l)
Aluminum	67	128	1574	44.5	1641	47.9	750	87	N	N	N/A	N/A
Cadmium		0		0		0.00	0.95	0.15	N	N	N/A	N/A
Copper		66		1.1		3.75	6.60	4.72	N	N	N/A	N/A
Lead		7.1		0		0.29	29.54	1.15	N	N	N/A	N/A
Nickel		68		5.5		8.05	238.75	26.54	N	N	N/A	N/A
Zinc		71.6		16.2		18.5	60.91	60.91	N	N	N/A	N/A

Nitrogen

It has been determined that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. In December 2000, the Connecticut Department of Energy and Environmental Protection ("CT DEEP") completed a Total Maximum Daily Load ("TMDL") for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a Waste Load Allocation ("WLA") for point sources and a Load Allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL. See TMDL--*A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound* (CT DEP 2000).

The TMDL targeted a 25% reduction in the TN from out-of-basin point source loadings at the time the TMDL was developed. The TMDL estimated baseline loading and targets for each watershed are shown on Table 3. In 2006, in order to facilitate the TMDL in out-of-basin NPDES permits, EPA completed an analysis of the out-of-basin point sources, using 2004-05 discharge data, to determine compliance with the TMDL requirement of a 25% reduction. As can be seen from the summary in Table 3, the total estimated loading from the Connecticut River was 13,836 lbs/day in 2004-2005. Of that amount, Springfield's annual average TN load was 1,648 lbs/day. The 2004-2005 estimated loadings for all of the out-of-basin facilities are provided in **Attachment G.**

Table 3 Estimated Baseline Out-Of-Basin Loadings of Total Nitrogen from the Connecticut, Housatonic and Thames Rivers

Basin	TMDL Baseline[5] (lbs/day)	TMDL Target[6] (lbs/day)	Estimated 2004-2005 Loading[7] (lbs/day)
Connecticut River	21,672	16,254	13,836
Housatonic River	3,286	2,464	2,151
Thames River	1,253	939	1,015
Totals	26,211	19,657	17,002

As can be seen from Table 3, the overall TMDL target of a 25 percent aggregate reduction from baseline loadings to the Connecticut River above the Massachusetts-Connecticut border was met as of 2004-05. In order to ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25 percent reduction over baseline loadings, EPA has included permit conditions for all existing treatment facilities in Massachusetts and New Hampshire that discharge to the Connecticut, Housatonic and Thames River watersheds, requiring the permittees to evaluate alternative methods of operating their treatment plants to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Facilities not currently engaged in optimization efforts are also required to implement optimization measures sufficient to ensure that their nitrogen loads do not increase, and that the aggregate 25% reduction is maintained. EPA has

[5] Estimated loading from TMDL (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998).
[6] Reduction of 25% from baseline loading.
[7] Estimated loading from 2004 – 2005 DMR data. Detailed summary is provided in Attachment G.

worked with the State of Vermont to ensure that similar requirements are included in its discharge permits.

The existing Springfield permit requires monthly monitoring for nitrogen (ammonia, nitrite and nitrate, and total Kjeldahl nitrogen). From 2012-2016, the annual average TN load discharged from this facility ranged from 1,650 lbs/day to 2,534 lbs/day and averaged 2,279 lbs/day. Nitrogen discharge data from 2001-2016 are shown in **Attachment H**.

Invitation for Public Comment on Three Options for Addressing Nitrogen Discharges from the Springfield Regional Wastewater Treatment Facility:

The draft permit proposes, in part I.H, special conditions requiring the facility to optimize system operation to meet an annual average mass-based TN optimization benchmark of 2,279 lbs/day. EPA invites the public to also comment on two alternatives to the optimization benchmark in the draft permit. No final determination with respect to nitrogen conditions has been made. Therefore, EPA encourages the public to comment on the benefits and/or drawbacks of all three options. EPA also welcomes the proposal of alternative approaches to ensuring that discharges of TN from the Springfield WWTF are consistent with the TMDL. The three options are summarized in Table 4 and described below.

Table 4 Options for Total Nitrogen Optimization Benchmarks

Option	Loading Benchmark	Concentration Benchmark
Draft Permit Proposal	2,279 lbs/day	None
Alternative 1	2,534 lbs/day	8 mg/L
Alternative 2	None	8 mg/L

Draft Permit TN Optimization Requirement

In order to ensure that the LIS TMDL waste load allocation for out-of-basin point sources continues to be met, the draft permit includes a requirement for the facility to continue to optimize operations to meet a benchmark based on the current annual average TN load of 2,279 lbs/day. This benchmark was derived by averaging the TN load discharged from the facility over the last five years (2012-2016).

The current annual average TN load is 631 lbs/day greater than the 2004-2005 estimated load from this facility. Applying the revised Springfield benchmark to the estimated 2004-2005 loading results in a revised estimated loading of 14,467 for the other facilities which is still less than the TMDL target for the Connecticut River of 16,254 lbs/day (see Table 5).

Table 5 Out-Of-Basin Loadings of Total Nitrogen from the Connecticut, Housatonic and Thames Rivers Accounting for Optimization Benchmark of 2,279 lb/day

Basin	TMDL Baseline[8] (lbs/day)	TMDL Target[9] (lbs/day)	Revised Estimated Loading[10] (lbs/day)
Connecticut River	21,672	16,254	14,467
Housatonic River	3,286	2,464	2,151
Thames River	1,253	939	1,015
Totals	26,211	19,657	17,633

Monitoring and reporting requirements have been included in the draft permit to ensure that there is no increase in discharges of total nitrogen from this facility compared to the existing annual average loading from this facility (2,279 lbs/day). This value is considered to be likely achievable by the permittee using existing facilities while still meeting the objectives of the TMDL. Specifically, the draft permit requires continued optimization of the treatment facility operations to enhance the removal of nitrogen in order to maintain the annual average mass discharge of total nitrogen at less than the existing mass loading of 2,279 lbs/day. In addition, the draft permit requires the permittee to submit an annual report which includes: a summary of activities related to optimizing nitrogen removal efficiencies; documents the nitrogen load discharged from the facility; and, for any year in which the annual average nitrogen load discharged from the facility exceeds 2,279 lbs/day, a description of what may have led to the increased loading (including any changes in influent flows/loads and any operational changes) and any supporting data.

EPA is aware of discussions between communities in the Springfield area regarding the consolidation and treatment of wastewater flows at the Springfield WWTP. Should a facility divert flows to the Springfield WWTF and terminate its NPDES permit, the TN mass loading optimization benchmark that was allocated to that facility could be applied to Springfield's TN optimization benchmark of 2,279 lbs/day that is proposed in the draft permit. This approach is consistent with the objectives of the TMDL, as there would not be a net increase in the TN load being discharged to the Connecticut River.

Nitrogen Optimization Benchmark Alternative 1

The first alternative includes an annual average concentration based optimization benchmark of 8 mg/L combined with a higher annual average mass based optimization benchmark of 2,534 lbs/day (which was the maximum annual average TN load discharged from the facility from 2012-2016 (See Attachment H.). This approach would provide Springfield with the flexibility necessary for some future growth without allocating all of the remaining assimilative capacity of the receiving water to

[8] Estimated loading from TMDL (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998).
[9] Reduction of 25% from baseline loading.
[10] Estimated loading from 2004 – 2005 DMR data, with the exception of the Springfield WWTF, whose loading was based on the average loading from 2012-2016 (2,279 lbs/day). See Attachments G and H.

one facility. Further, the TMDL target of a 25% reduction in TN loadings from baseline loadings would be achieved, since the estimated load to the Connecticut River from out-of-basin point sources would be 14,772 lbs/day[11]. This is less than the TMDL target of 16,254 lbs/day, allowing for non-POTW point source loadings as well as any possible new point source discharges.

Nitrogen Optimization Benchmark Alternative 2

The second alternative includes an annual average concentration based optimization benchmark of 8 mg/l without a specific load based benchmark to encourage a consistent level of treatment regardless of changes in flow at Springfield. An effluent TN concentration of 8 mg/l at Springfield's existing annual average effluent flow of 38 MGD (the average of the annual average effluent flow values from 2012-2016) results in an annual average mass loading of 2,535 lbs/day.

Based on current facility operation, the TMDL target of a 25% reduction in TN loadings from baseline loadings would be achieved, since recent data indicates that the estimated load to the Connecticut River from out-of-basin point sources has actually decreased well below the 2004-2005 estimate. The sum of the DMR TN data for out-of-basin discharges was 11,820 lbs/day in 2014 during a year when Springfield discharged 2,342 lbs/yr. Assuming other dischargers remain at 2014 levels and Springfield discharges 2,535 lbs/day, the total out-of-basin load would be 12,013 lbs/day which is still well below the 13,836 lbs/day estimate of out-of-basin loads from 2004-2005 data (see Table 3) and the TMDL target of 16,254 lbs/day. While modest increases in TN mass loading could be expected under this approach if Springfield adds additional sewer users, the total out-of-basin load is unlikely to be exceeded.

Future Nitrogen Limits

EPA and state agencies expect to update the estimate of all out-of-basin total nitrogen loads and may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a revised TMDL, or other new information that may warrant the incorporation of numeric permit limits. In December 2015, EPA signed a letter detailing an EPA Nitrogen Reduction Strategy. EPA's strategy recognizes that more work must be done to reduce nitrogen levels, further improve dissolved oxygen conditions, and attain other related water quality criteria necessary to meet designated aquatic life uses in Long Island Sound. EPA is working to establish thresholds for Western Long Island Sound and several coastal embayments, including the mouth of the Connecticut River. Documents regarding the EPA Nitrogen Reduction Strategy are available for public review on EPA's Long Island Sound website (http://longislandsoundstudy.net/issues-actions/water-quality/nitrogen-strategy/). Upon completion of establishing thresholds, allocations of total nitrogen loadings will be made where further reductions are necessary. If further reductions are needed for the Springfield discharge, a water quality-based limit will be added in a future permit action. EPA is exploring possible trading approaches and more details will follow in the future as part of the permitting process.

[11]An annual average TN load of 2,534 lbs/day is 886 lbs/day greater than the TN load discharged in 2004, which was used in EPA's 2006 analysis of out-of basin point sources to the CT River Watershed (see Table 3 and Attachments G and H). This increase would bring the total estimated loadings to the CT River from out-of-basin point sources to 14,772 lbs/day, which is below the TMD target of 16,254 lbs/day.

Ammonia

Ammonia can be toxic to aquatic life and is also an oxygen-demanding pollutant whose biological decomposition may cause reduced dissolved oxygen concentrations in the receiving water.

In addition to the ammonia effluent monitoring required under the existing permit, samples of the receiving water collected upstream from the discharge are also analyzed for ammonia in conjunction with whole effluent toxicity (WET) testing. Effluent and ambient ammonia monitoring data from 2010-2015 are provided in **Attachments C and G**.

The applicable Massachusetts ammonia criteria are those found in the 1999 *Update of Ambient Water Quality Criteria for Ammonia*, as referenced in the EPA *National Recommended Water Quality Criteria 2002* (USEPA 2002 [EPA-822-R-02-047]), which were incorporated into the Massachusetts SWQS, 314 CMR 4.05(5)(e) by reference.

Acute criteria are a function of receiving water pH, and are calculated using two equations: one for waters where salmonids may be present; and another for waters where salmonids are not present[12]. Chronic criteria are calculated as a function of receiving water pH and temperature using two equations: one for waters where early life stages of fish are present and another for waters where early life stages of fish are absent. These criteria, as they relate to the Springfield WWTF's discharge, were calculated for both the summer (June 1 – October 31) and winter (November 1 – May 31) periods based on the presence of salmonids and early life stages of fish, and are presented in Table 3. These equations, from the 1999 *Update of Ambient Water Quality Criteria for Ammonia*, as referenced in the EPA *National Recommended Water Quality Criteria 2002* (USEPA 2002 [EPA-822-R-02-047]), are shown below.

$$CMC = \frac{0.275}{1 + 10^{7.204-pH}} + \frac{39.0}{1 + 10^{pH-7.204}}$$

$$CCC = \left(\frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \right) * MIN(2.85, (1.45*10^{0.028(25-T)})$$

Using the median pH value for ambient water in WET tests, and assumptions for temperature, the criteria are therefore.

[12]Equations for calculating acute (CMC) and chronic (CCC) criteria are found in the 1999 *Update of Ambient Water Quality Criteria for Ammonia*, as referenced in the EPA *National Recommended Water Quality Criteria 2002* (USEPA 2002 [EPA-822-R-02-047]).

Acute Criteria (CMC) = $(0.275/1+10^{7.204-pH}) + (39.0/1+10^{pH-7.204})$

Chronic Criteria (CCC) = $\{(0.0577/1+10^{7.688-pH}) + (2.487/1+10^{pH-7.688})\} * MIN (2.85, 1.45*10^{0.028*(25-T)})$

Table 6 Freshwater Ammonia Criteria

Season	Warm (June 1-Oct 31)	Cold (Nov 1-May 31)
Receiving Water pH, SU	6.9	6.9
Water Temperature, C	25	10
Fish Early Life Stages	Present	Present
Salmonids	Present	Present
Acute Criteria (mg/l as N)	26.2	26.2
Chronic Criteria (mg/l as N)	2.1	6.1

Reasonable Potential Analysis

EPA ammonia criteria recommend using the 30Q10 flow conditions in the receiving water (the lowest 30-day average daily flow with a 10-year expected recurrence interval) when establishing effluent limits. The 30Q10 flow data was not immediately available, so the analysis was done with the 7Q10 flow data. The 7Q10 flow (lowest 7-day average daily flow with 10-year expected recurrence) will be lower than 30Q10, providing less dilution. Therefore, if there is no reasonable potential to exceed water quality standards in stream with 7Q10 flow, there is no reasonable potential with 30Q10.

EPA evaluated the available effluent and ambient ammonia data for winter and summer to determine whether reasonable potential exists for the discharge to cause or contribute to instream excursions above the applicable ammonia criteria under 7Q10 conditions with effluent flow equal to design flow. From 2010 – 2015, the ambient median ammonia concentration from WET testing during the summer period (April through October) was 0.110 mg/l and the 95th percentile ammonia concentration of the effluent was 8.50 mg/l. The ambient median concentration of ammonia detected during this time period in the winter (November through March) was 0.235 mg/l and the 95th percentile concentration detected in samples of the effluent was 11.2 mg/l (see **Attachments C** and **G**). Using the formula below, the projected downstream ammonia concentrations from April through October, and from November through March, were calculated.

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

Where:

C_r = resultant downstream ammonia concentration (mg/l)
Q_d = effluent flow (design flow = 67 MGD)
C_d= 95th percentile effluent ammonia concentration (mg/l)
Q_s = upstream 7Q10 flow (1574 MGD)
C_s = median instream ammonia concentration, upstream from the discharge (mg/l)
Q_r = 7Q10 flow just downstream from the discharge ($Q_r = Q_s + Q_d$= 1641 MGD)

$$C_r = (Q_s C_s + Q_d C_d) / Q_r$$

The projected downstream concentrations of ammonia in the summer and winter periods, during the less-diluted 7Q10 conditions, are 0.46 and 0.68 mg/l, respectively, which are below both the acute and chronic criteria. Therefore, reasonable potential does not exist for the discharge of ammonia from the Facility to cause or contribute to a violation of water quality standards under critical flow (7Q10 or 30Q10 flows in the receiving water and effluent flow equal to the Facility's design flow) conditions.

The monitoring requirements for Nitrogen species are being increased to once per week in the draft permit from once per month in the existing permit in order to adequately evaluate discharges (see Nitrogen discussion above) and to ensure that discharges of ammonia from the facility remain below the level at which the receiving water would be negatively impacted.

Whole Effluent Toxicity

National studies conducted by EPA have demonstrated that domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents and aromatic hydrocarbons among others. The Region's current policy is to include toxicity testing requirements in all municipal permits, while Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts

Based on the reasonable potential for toxicity resulting from domestic and industrial contributions, the low level of dilution at the discharge location, water quality standards, and in accordance with EPA regulation and policy, the draft permit includes chronic and acute toxicity limitations and monitoring requirements. (See, e.g., "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 50 Fed. Reg. 30,784 (July 24, 1985); see also, EPA's Technical Support Document for Water Quality-Based Toxics Control). EPA Region I has developed a toxicity control policy. The policy requires wastewater treatment facilities to perform toxicity bioassays on their effluents. The MassDEP requires bioassay toxicity testing for state certification.

Pursuant to EPA Region I Policy, and MassDEP's *Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 1990), dischargers having a dilution factor greater than 20 and less than or equal to 100 are required to conduct acute toxicity testing four times per year. In accordance with the above guidance, the acute toxicity limit (LC50 of > 100%) in the existing permit has been maintained in the draft permit. Toxicity testing shall be conducted quarterly, during the months of March, June, September and December. Tests shall be conducted using the daphnid, Ceriodaphnia dubia, as the test organism and shall be performed in accordance with the Acute and Chronic WET test procedures included as **Attachments A** and **B**, respectively, to the draft permit.

The results of WET tests conducted from 2010 through 2015 indicate the facility had no violations of the WET permit limits. The results of WET tests that were conducted from 2010-2015 are provided in **Attachment C**.

EPA and MassDEP may use the results of the toxicity tests and chemical analyses conducted by the permittee, required by the permit, as well as national water quality criteria, state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants.

The draft permit adds requirements for the reporting of several selected parameters, including ammonia nitrogen (as N); hardness; alkalinity; and total recoverable aluminum, cadmium, copper, lead, nickel, and zinc, the results of which are determined through analyses conducted on samples of the 100 % effluent sample in conjunction with WET tests.

VIII. INDUSTRIAL PRETREATMENT PROGRAM

The permittee is required to administer a pretreatment program based on the authority granted under 40 C.F.R. 122.44(j), 40 C.F.R. Part 403 and Section 307 of the Act. The permittee's pretreatment program received EPA approval on December 9, 1998 and, as a result, appropriate pretreatment program requirements were incorporated into the previous permit, which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

The Federal Pretreatment Regulations in 40 C.F.R. Part 403 were amended in October 1988, in July 1990, and again in October 2005. Those amendments established new requirements for implementation of pretreatment programs. Upon reissuance of this NPDES permit, the permittee is obligated to modify its pretreatment program to be consistent with current Federal Regulations. Those activities that the permittee must address include, but are not limited to, the following: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; (3) develop an enforcement response plan; (4) implement a slug control evaluation program; (5) track significant noncompliance for industrial users; and (6) establish a definition of and track significant industrial users.

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

In addition to the requirements described above, the draft permit requires the permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes to permittee's pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the draft permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect. Lastly, the permittee must continue to submit, annually by March 31st, a pretreatment report detailing the activities of the program for the twelve-month period ending 60 days prior to the due date.

IX. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

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

EPA regulations also specify a standard condition to be included in all NPDES permits that specifically imposes on permittees a “duty to mitigate.” See 40 C.F.R. § 122.41(d). This condition is specified in Part II.B.3 of the draft permit and it requires permittees to take all reasonable steps –

which in some cases may include operations and maintenance work - to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment.

Proper operation of collection systems is critical to prevent blockages and equipment failures that would cause overflows of the collection system (sanitary sewer overflows, or SSOs), and to limit the amount of non-wastewater flow entering the collection system (inflow and infiltration or I/I). I/I in a collection system can pose a significant environmental problem because it may displace wastewater flow and thereby cause, or contribute to causing, SSOs. Moreover, I/I could reduce the capacity and efficiency of the treatment plant and cause bypasses of secondary treatment. Therefore, reducing I/I will help to minimize any SSOs and maximize the flow receiving proper treatment at the treatment plant. MassDEP has stated that the inclusion in NPDES permits of I/I control conditions is a standard State Certification requirement under Section 401 of the CWA and 40 C.F.R. § 124.55(b). Therefore, specific permit conditions have been included in Part I.B. and I.C. of the draft permit. These requirements include mapping of the wastewater collection system, preparing and implementing a collection system operation and maintenance plan, reporting unauthorized discharges including SSOs, maintaining an adequate maintenance staff, performing preventative maintenance, controlling infiltration and inflow to the extent necessary to prevent SSOs and I/I-related effluent violations at the wastewater treatment plant, and maintaining alternate power where necessary. These requirements are intended to minimize the occurrence of permit violations that have a reasonable likelihood of adversely affecting human health or the environment.

Several of the requirements in the draft permit were not included in the existing permit, including collection system mapping, and preparation of a collection system operation and maintenance plan. EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance of the collection system and has included schedules for completing these requirements in the draft permit.

Because the municipalities of Agawam, East Longmeadow, Longmeadow, Ludlow, West Springfield, and Wilbraham each own and operate collection systems that discharge to the SRWWTF, these municipalities have been included as co-permittees for the specific permit requirements discussed in the paragraph above. The historical background and legal framework underlying this co-permittee approach is set forth in **Attachment I** to this Fact Sheet, EPA Region 1 NPDES Permitting Approach for Publicly Owned Treatment Works that Include Municipal Satellite Sewage Collection Systems.

X. COMBINED SEWER OVERFLOWS

Description

The wastewater collection system that conveys flow to the SRWWTF consists partially of combined sewers that convey both sanitary sewage and stormwater runoff during rain events. During wet weather, the combined flow exceeds the capacity of the interceptor sewers and the wastewater treatment plant, and a portion of the combined flow is discharged to the Connecticut, Chicopee, and Mill Rivers through combined sewer overflows (CSOs). CSOs have been identified as a significant source of pollution to the Connecticut and Chicopee Rivers. See *2003 Connecticut River Water Quality Assessment Report* (MassDEP 2003) and *Chicopee River Watershed 2003 Water Quality Assessment Report* (MassDEP, October 2008).

The system currently has 24 CSO outfalls which discharge to the Connecticut, Mill and Chicopee Rivers (see list in **Attachment D**). CSO 042, which is the CSO outfall located at the treatment plant, was inadvertently omitted from the list of outfalls from which discharges are authorized by the existing CSO permit. It is incorporated here for completeness.

Attachment D includes CSO discharge data for 2011-2016. In 2016, the system had combined overflows of 160 million gallons, as well as discharges of 6.7 million gallons of partially treated sewage from the treatment plant through a CSO-related bypass of secondary treatment.

SWSC CSO Permitting History

In 1995, EPA issued a separate permit for discharges from the CSOs (NPDES Permit No. MA010333 ("CSO permit")). The City of Springfield, which at that time owned and operated both the treatment plant and the collection system, had requested separate permits because different divisions within the City were responsible for the treatment plant and the collection system. In 1996, the Springfield Water and Sewer Commission was established and it subsequently took ownership of both the treatment plant and the collection system in the City of Springfield (while ownership of satellite collection systems remains with those municipalities). The CSO permit was re-issued on September 30, 2009. Because the City of Springfield no longer operates either the treatment plant or collection system, there is no longer a reason for separate permits. EPA's general practice is to integrate treatment plant and CSO authorization in a single permit, therefore this draft permit integrates authorization for CSO discharges into the current treatment plant permit and EPA is proposing to terminate the existing CSO permit, and incorporate the CSO requirements into this draft permit.

Regulatory Framework

CSOs are point sources subject to NPDES permit requirements for both water-quality based and technology-based requirements but are not subject to the secondary treatment regulations applicable to publicly owned treatment works in accordance with 40 C.F.R. §133.103(a). Section 301(b)(1)(C) of the Clean Water Act of 1977 mandated compliance with water quality standards by July 1, 1977. Technology-based permit limits must be established for best conventional pollutant control technology (BCT) and best available technology economically achievable (BAT) based on best professional judgment (BPJ) in accordance with Section 301(b) and Section 402(a) of the Water Quality Act Amendments of 1987 (WQA). The framework for compliance with Clean Water Act requirements for CSOs is set forth in EPA's National CSO Control Policy, 59 Fed. Reg. 18688 (1994). It sets the following objectives:

1) To ensure that if the CSO discharges occur, they are only as a result of wet weather;
2) To bring all wet weather CSO discharge points into compliance with the technology-based requirements of the CWA and applicable federal and state water quality standards; and
3) To minimize water quality, aquatic biota, and human health impacts from wet weather flows.

Among the elements established to achieve these objectives, the CSO Policy set forth the minimum BCT/BAT controls (i.e., technology-based limits) that represent the BPJ of the Agency on a

consistent, national basis. These are the Nine Minimum Controls ("NMCs") defined in the CSO Policy and set forth in Part I.B. of the draft permit: (1) proper operation and regular maintenance programs for the sewer system and the combined sewer overflows; (2) maximum use of the collection system for storage; (3) review and modification of the pretreatment programs to assure CSO impacts are minimized; (4) maximization of flow to the POTW for treatment; (5) prohibition of dry weather overflows; (6) control of solid and floatable materials in CSOs; (7) pollution prevention programs which focus on contaminant reduction activities; (8) public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and (9) monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

To reflect advances in technologies, the draft permit includes more specific public notification implementation level requirements to ensure that the public receives adequate notification of CSO occurrences and CSO impacts. The draft permit requires the permittee to develop a public notification plan to fulfil NMC #8. As part of this plan, notification shall be provided electronically to any interested party, and a posting made on the permittee's website, of a probable CSO activation within 24 hours of the initiation of any CSO discharge(s). Subsequently, within 24 hours of the termination of any CSO discharges(s), the permittee shall provide follow-up information on their website and in a follow-up electronic communication to any interested party. EPA invites comment on this new requirement during the public comment period with a goal of a workable public notification plan.

The Commission submitted documentation of its plan for implementing the Nine Minimum Controls, titled "Nine Minimum Control Measures Report" in 1997.

The CSO Policy also recommended that each community that has a combined sewer system develop and implement a long-term CSO control plan ("LTCP") that will ultimately result in compliance with the requirements of the CWA. The Commission submitted a Draft Long Term Control Plan Phase I Program in 2000, a revised draft LTCP in May 2012, and an Integrated Wastewater Plan (including an updated LTCP) in May 2014. The LTCP has not been completely approved. The SWSC is currently operating under federal administrative orders (latest being Administrative Order Docket No. 14-007 issued September 2014), requiring various projects to reduce or eliminate CSO discharges.

Permit Requirements

In accordance with the National CSO Policy, the draft permit contains the following conditions for the CSO discharges:

(i) Dry weather discharges from CSO outfalls are prohibited. Dry weather discharges must be immediately reported to EPA and MassDEP.

(ii) During wet weather, the discharges must not cause any exceedance of water quality standards.

(iii) The permittee shall meet the technology-based Nine Minimum Controls described above and shall comply with the implementation levels as set forth in Part I.B. of the draft permit.

(iv) The permittee shall review its entire NMC program and revise it as necessary. Documentation of this review and any resultant revisions made to the NMC program shall be submitted to EPA and MassDEP within 6 months of the effective date of the

permit. An annual report shall be provided by April 30th of each year which describes any subsequent revisions made to the NMC program and shall also include monitoring results from CSO discharges, and the status of CSO abatement projects.

XI. SLUDGE

Section 405(d) of the CWA requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations were signed on November 25, 1992, published in the Federal Register on February 19, 1993, and became effective on March 22, 1993. Domestic sludge that is land applied, disposed of in a surface disposal unit, or fired in a sewage sludge incinerator is subject to Part 503 technical standards. Part 503 regulations have a self-implementing provision, however, the CWA requires implementation through permits. Domestic sludge which is disposed of in municipal solid waste landfills are in compliance with Part 503 regulations provided the sludge meets the quality criteria of the landfill and the landfill meets the requirements of 40 CFR §258. Sludge generated at the SRWWTF is trucked off site for disposal in a municipal solid waste landfill.

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

XII. ESSENTIAL FISH HABITAT

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C.§ 1801 et seq. (1998)), EPA is required to consult with 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" 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.

Essential fish habitat is only designated for fish species for which Federal Fisheries Management Plans exist. 16 U.S.C. § 1855(b)(1)(A). The U.S. Department of Commerce approved EFH designations for New England on March 3, 1999. Anadromous Atlantic salmon (*Salmo salar*) is the only managed species that would occur in the area which encompasses the discharge sites. The Connecticut River has been designated as EFH for Atlantic salmon adults, juveniles, and eggs and larvae. Observations of Atlantic salmon as far upstream as the Holyoke Dam from 2000 through 2014

have ranged from a low of 24 in 2001 to a high of 132 in 2005.[13] The USFWS discontinued its Atlantic salmon restocking program in 2012, although the state of Connecticut still stocks salmon in its rivers. Wild Atlantic salmon were observed spawning in the Farmington River in Connecticut for the first time in more than a century in 2015.

EPA has determined that the draft permit has been conditioned in such a way to be protective of EFH for Atlantic salmon for the following reasons:

- This permit action is a reissuance of an existing NPDES permit (i.e., not a new source of pollutants);
- The facility withdraws no water from the Connecticut River, so there is no potential for mortality to EFH species life stages from impingement or entrainment;
- Effluent dilution is calculated to be 24:1 under 7Q10 low flow conditions, and is likely much higher during wet weather when discharges from CSOs may occur;
- The draft permit prohibits discharges from CSOs during dry weather;
- The draft permit prohibits the discharge of pollutants or combinations of pollutants in toxic amounts;
- The draft permit prohibits a violation of water quality standards;
- Effluent limits and requirements were developed to be protective of aquatic life;
- Acute and chronic toxicity tests will be performed quarterly; and
- Limits specifically protective of aquatic organisms have been established for total residual chlorine based on water quality criteria.

EPA believes that the limitations and conditions in the draft permit adequately protect aquatic life, including those with designated EFH in the receiving water, and therefore additional mitigation is not warranted. If adverse impacts to EFH are detected as a result of this permit action, or if new information is received that changes the basis for our conclusion, NMFS will be notified and an EFH consultation will be initiated.

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

XIII. ENDANGERED SPECIES ACT

The Endangered Species Act (ESA) of 1973, as amended, imposes requirements on Federal agencies related to the potential effects of their actions on endangered or threatened species of fish, wildlife, or plants (listed species) and their designated “critical habitat.” Section 7 of the ESA requires, in general, that Federal agencies insure that any actions they authorize, fund, or carry out, in the United States or upon the high seas, are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated “critical habitat” for those species. Federal agencies carry out their responsibilities under the ESA in consultation with, and assisted by, the Departments of Interior (DOI) and/or Commerce (DOC), depending on the species involved. The

[13] Historic fish counts at Holyoke Dam reported by the Connecticut River Coordinator available at https://www.fws.gov/r5crc/Fish/hist.html.

United States Fish & Wildlife Service (USFWS) of the DOI administers Section 7 consultations for freshwater species, while the National Marine Fisheries Service (NMFS) of DOC does so for marine species and anadromous fish.

As the federal agency charged with authorizing the discharges from this facility, EPA has reviewed available habitat information developed by the Services to see if one or more of the federal endangered or threatened species of fish, wildlife, or plants may be present within the influence of the discharge.

Based on the information available, EPA has determined that subadult and adult Atlantic sturgeon (*Acipenser brevirostrum*) are unlikely to be present in the action area of this discharge. However, because individuals have been observed on rare occasions in the Connecticut River upstream of the discharge, EPA has evaluated the potential impacts to this species in its assessment. Subadult and adult shortnose sturgeon (*Acipenser oxyrinchus*) are likely to be present in the action area of this discharge. Early life stages of shortnose sturgeon are unlikely to be present in the action area, however, EPA has considered the potential impacts to early life stages in its assessment as rare occurrences have been reported. In addition to the listed species described above, NMFS designated critical habitat for the Atlantic sturgeon in the Connecticut River from the mouth to the Holyoke Dam (New York Bight Unit 1 Connecticut River), effective September 18, 2017, which includes the action area. *See* 82 Fed. Reg. 39160 (August 17, 2017).

The dwarf wedgemussel (*Alasmidonta heterodon*) has been extirpated from most New England rivers but still has a viable population on the upper Connecticut River in Vermont and New Hampshire.[14] Dwarf wedgemussels have been observed in tributaries of the Connecticut River in Hampshire County, Massachusetts upstream of the action area. The Fort River, more than 16 miles upstream from the action area, currently supports a small population of dwarf wedgemussel. In addition, the Mill River in Northampton and Hatfield, MA sustains a patchily distributed population of dwarf wedgemussel.[15] The Mill River (and its tributaries) that support this population is not the same Mill River (in Springfield and Wilbraham) that receives discharges from the CSOs at issue. Dwarf wedgemussels rely on host fish species, such as tessellated darter, for dispersing larval stages (glochidia). McLain and Ross (2005) suggest that low host dispersal may result in patchy distributions of mussels over relatively small areas (such as those observed in the tributaries of the Connecticut River) and may inhibit natural recolonization and recovery of this species. Based on the

[14] Nedeau, E. 2009. Distribution, threats, and conservation of the dwarf wedgemussel (*Alasmidonta heterodon*) in the middle and northern macrosites of the Upper Connecticut River. Prepared for Vermont Fish and Wildlife Department and New Hampshire Fish and Game. April 2009.

U.S. Fish and Wildlife Service. 1993. Dwarf Wedgemussel (*Alasmidonta heterodon*) Recovery Plan. Region 5 USFWS. February 1993.

[15] U.S. Fish and Wildlife Service. 2013. Dwarf Wedgemussel (*Alasmidonta heterodon*) 5 Year Review: Summary and Evaluation. USFWS New England Field Office. April 2013.

McLain, D.C., M.R. Ross. 2005. Reproduction based on local patch size of *Alasmidonta heterodon* and dispersal by its darter host in the Mill River, Massachusetts, USA. J. N. Am. Benthol. Soc. 24:139-147.

known and expected distribution of dwarf wedgemussel, it is extremely unlikely that individuals are currently present in the action area. EPA has not considered this species further in this assessment. Having said that, the middle Connecticut River may support habitat suitable for dwarf wedgemussel should the population recover. The Draft Permit includes limitations and conditions designed to protect water quality in the Connecticut, Chicopee, and Mill Rivers, and, as such, will ensure protection of physical habitat suitable for the dwarf wedgemussel.

It is EPA's preliminary determination that any effects resulting from the operation of this facility and the discharge from the CSO outfalls, as governed by the permit action, on shortnose sturgeon, Atlantic sturgeon, or designated critical habitat for Atlantic sturgeon will be insignificant. The reasoning to support this position is set forth in a letter seeking concurrence from NMFS regarding this determination, included as **Attachment J** to this Fact Sheet. Based on this analysis EPA has determined that the reissuance of the Springfield WWTF NPDES permit is not likely to adversely affect any listed species or critical habitat under USFWS' or NMFS' jurisdiction. During the public comment period, EPA has provided a copy of the draft permit and Fact Sheet to both NMFS and USFWS.

XIV. MONITORING

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

As noted on page 6 of the permit, a routine sampling program shall be developed in which samples are taken at the same location, same time and same day(s) of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable Discharge Monitoring Report (DMR) that is submitted to EPA.

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

All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR, unless otherwise specified in the permit. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

XV. STATE CERTIFICATION REQUIREMENTS

EPA may not issue a permit unless MassDEP certifies that the effluent limitations included in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards or it is determined that this certification is waived. EPA has requested

permit certification by the State pursuant to 40 CFR §124.53 and expects the draft permit will be certified.

XVI. COMMENT PERIOD, HEARING REQUESTS, AND PROCEDURES FOR FINAL DECISIONS

All persons, including applicants, who believe any condition of the permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to U.S.EPA, Office of Ecosystem Protection, Att: Meridith Timony, Municipal Permits Unit (OEP06-1), 5 Post Office Square, Suite 100, Boston, MA 02109-3912 or to timony.meridith@epa.gov and to Claire Golden, Massachusetts Department of Environmental Protection, 205B Lowell Street, Wilmington, MA 01887 or to claire.golden@state.ma.us . Any person prior to such date may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

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

XVII. EPA and MassDEP CONTACTS

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

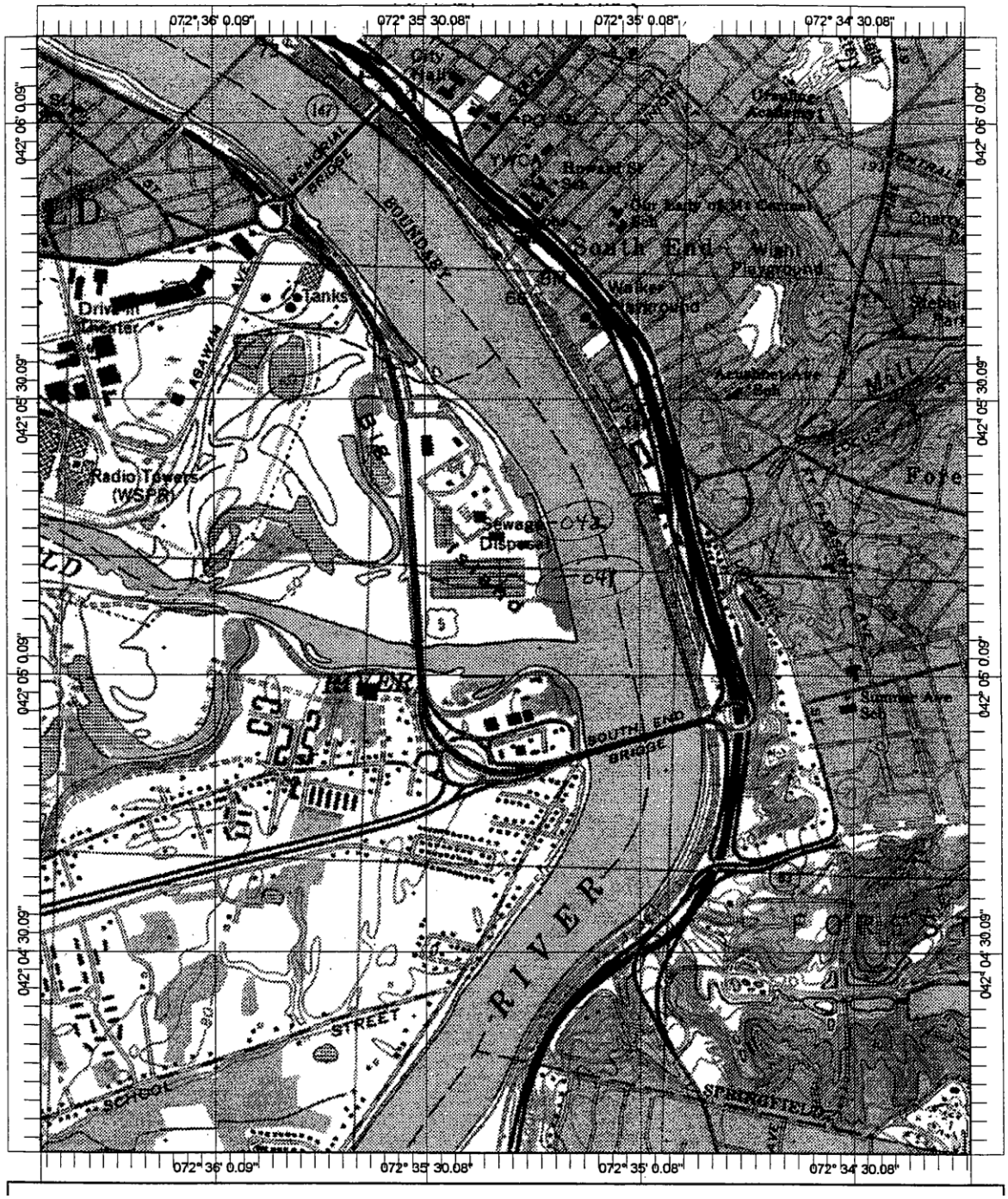
Meridith Timony
U.S. Environmental Protection Agency
Office of Ecosystem Protection (OEP06-1)
5 Post Office Square, Suite 100
Boston, MA 02109 – 3912
Telephone: (617) 918-1533
Fax: (617) 918-0533
E-mail: timony.meridith@epa.gov

Claire A. Golden
Massachusetts Department of Environmental Protection
Bureau of Water Resources
205B Lowell Street
Wilmington, MA 01887
Telephone: 978-694-3244
Fax: (978) 694-3498
Email: claire.golden@state.ma.us

November 15, 2017
Date

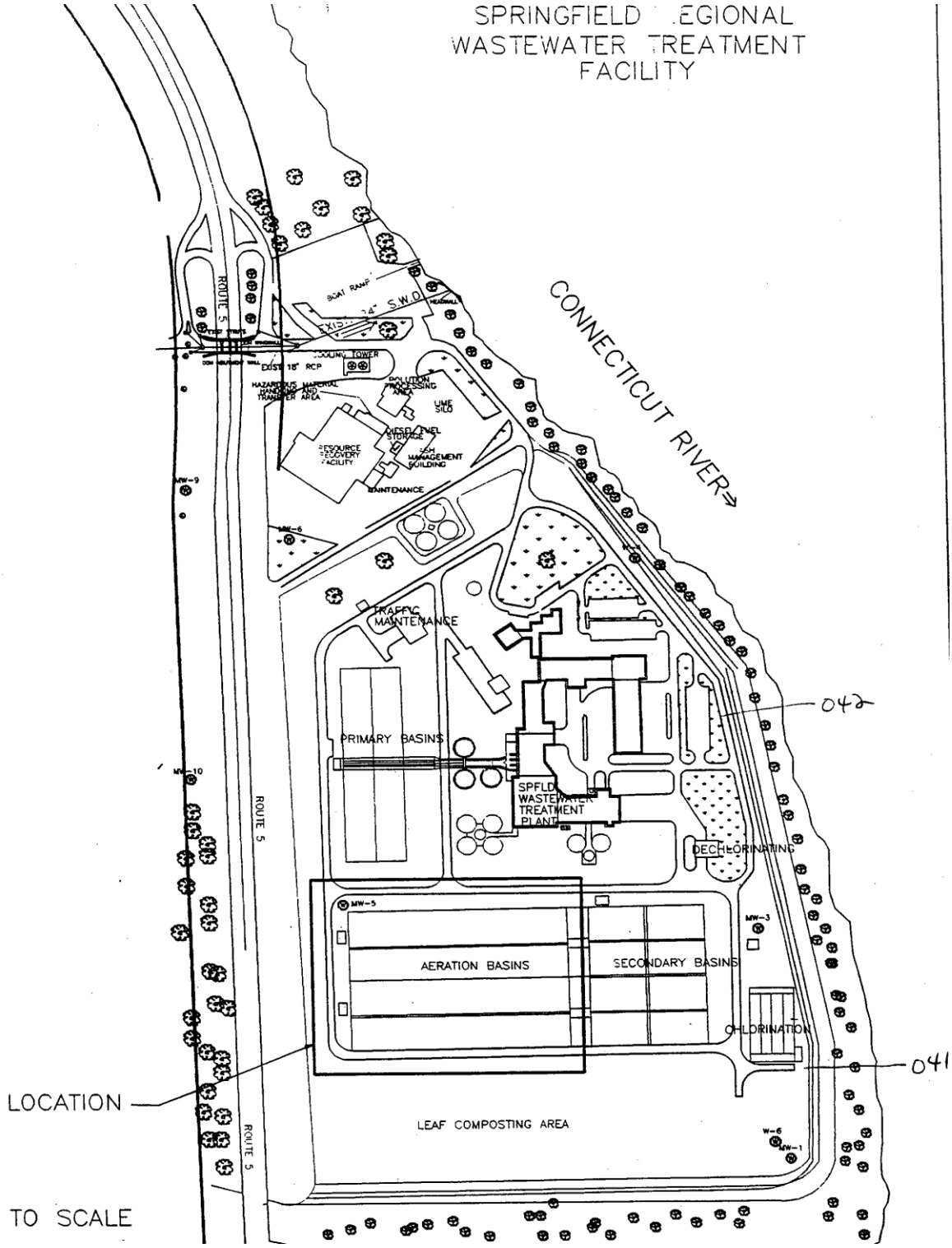
Lynne A. Hamjian, Acting Director
U.S. Environmental Protection Agency
Office of Ecosystem Protection
U.S. Environmental Protection Agency

Attachment A
Site Location



Location of SRWTF, Outfall 001 (previously Outfall 041) and Outfall 042

Attachment A
Site Location

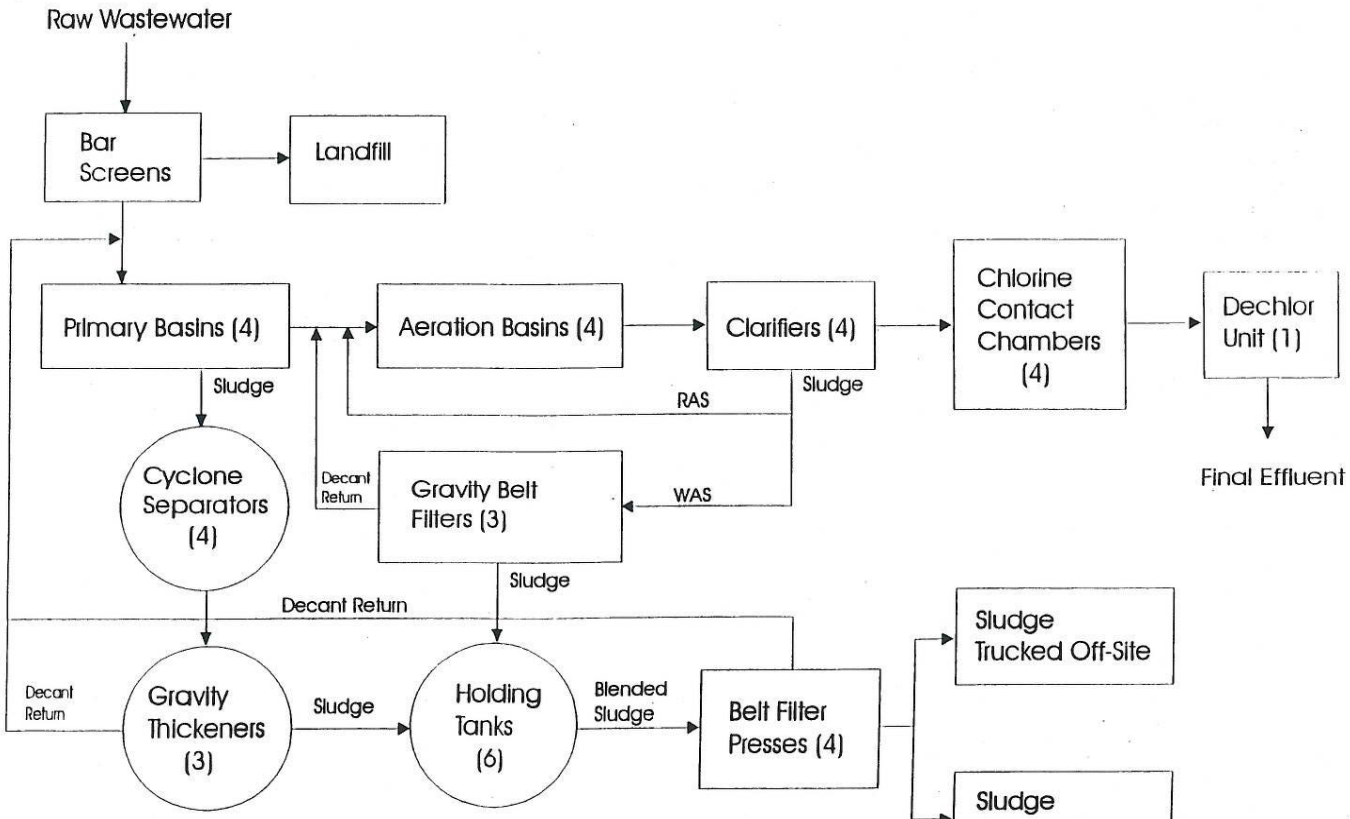


Location of SRWTF, Outfall 001 (previously Outfall 041) and Outfall 042

Additional Information

Attachment B
Process Flow Diagram

SPRINGFIELD REGIONAL WASTEWATER TREATMENT FACILITY
PROCESS FLOW DIAGRAM



Springfield Regional Wastewater Treatment Facility
NPDES 0101613 Form 2A Question B3

Attachment C

DMR Data

Effluent Data

Monitoring Period End Date	**Flow**		**BOD_5**						**TSS**					
	Daily Max	Monthly Average	Daily Max		Monthly Average		Weekly Average		Daily Max		Monthly Average		Weekly Average	
	MGD	MGD	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day
31-Jan-11	35.6	37.5	8	2125	5	1316	6	1554	6	1612	4	1096	5	1214
28-Feb-11	74.8	37.3	47	29320	8	2911	12	5840	67	41797	8	3054	14	7230
31-Mar-11	123.1	38.1	84	51968	16	8860	28	25145	60	61599	15	8405	22	17760
30-Apr-11	86.7	38.4	100	47571	15	7347	25	12412	166	78968	18	8414	34	15942
31-May-11	74.7	39.3	54	28093	11	4801	17	8772	104	54106	12	5282	25	12650
30-Jun-11	65.5	40.4	42	21020	8	3589	13	5287	70	35034	10	4408	14	6338
31-Jul-11	48.8	41.1	6	2442	4	1208	5	1925	7	2812	4	1345	7	2632
31-Aug-11	100.8	42.1	7	3039	3	1144	3	1299	4	2521	3	1096	3	1146
30-Sep-11	106.3	43.8	55	28903	7	3212	13	6131	124	65162	10	5085	27	12947
31-Oct-11	76.4	44.9	33	21019	7	3288	9	4438	36	16560	6	2827	9	3675
30-Nov-11	88.3	46.1	49	23187	9	4149	11	5072	101	47794	10	4565	19	8648
31-Dec-11	89.5	47.4	74	34450	10	4553	15	6593	79	36778	7	3450	15	6553
31-Jan-12	65.5	48.5	68	34787	11	4626	22	9201	66	33764	10	4152	19	8287
29-Feb-12	50.6	48.7	56	23618	10	3435	15	5586	50	21088	7	2495	12	4389
31-Mar-12	51.1	47.2	13	4419	7	2445	9	3174	9	3838	5	1696	7	2363
30-Apr-12	61.6	46	19	8454	11	3546	15	4281	14	6962	7	2297	8	3235
31-May-12	54.5	45	10	2867	5	1509	7	2147	10	2867	4	1353	7	2091

Attachment C

DMR Data

Effluent Data (Continued)

Monitoring Period End Date	**Flow**		**BOD_5**						**TSS**					
30-Jun-12	77.2	44.1	16	6924	6	1879	6	2271	19	8222	5	1676	6	2246
31-Jul-12	53.7	43.6	37	16565	5	1678	9	3402	29	12983	5	1398	8	2851
31-Aug-12	59	43	43	13689	9	2878	19	6611	55	23809	9	3303	23	8594
30-Sep-12	63.7	41.4	20	7081	5	1556	7	2060	17	6019	4	1217	6	1781
31-Oct-12	54.5	40.2	80	36389	11	3793	26	9759	80	36389	7	2500	18	7264
30-Nov-12	38	38.6	23	6503	8	2306	10	2923	6	1641	4	1164	5	1324
31-Dec-12	51.6	37	99	31441	12	3723	27	9361	153	48591	12	3884	37	12974
31-Jan-13	55.8	36.1	80	37236	17	5274	18	5369	58	21411	9	2885	10	3000
28-Feb-13	61.7	35.7	67	21407	14	4289	29	10563	62	18522	11	3518	19	6708
31-Mar-13	58.3	35.7	128	62215	9	3560	22	9952	201	97697	10	4352	31	14792
30-Apr-13	46.9	35.6	64	25023	7	2410	13	4833	67	26196	6	2060	13	4650
31-May-13	65.1	35.7	108	54295	14	5514	29	13440	163	81946	14	6252	37	18055
30-Jun-13	88	37	28	18749	8	3776	10	5835	17	11384	6	2974	12	6001
31-Jul-13	71	37.8	23	13610	8	2879	11	4484	14	8284	4	1731	6	2299
31-Aug-13	75.3	38	36	21355	14	4672	18	5607	24	11934	7	2468	10	3080
30-Sep-13	53.2	38.1	38	14334	10	3127	13	3810	48	18106	7	2356	11	3894
31-Oct-13	47.7	37.9	33	9523	10	2823	21	5730	24	6441	9	2552	16	4509
30-Nov-13	85.8	37.9	12	7158	7	1999	9	2383	14	5727	7	2012	10	2484
31-Dec-13	60.9	37.9	46	23356	10	3105	10	2778	29	14724	7	2318	7	2394
31-Jan-14	78.4	38.5	18	10923	9	3271	13	5184	14	8995	6	2176	9	3496
28-Feb-14	51	38.5	19	8121	10	3021	13	4115	12	5129	5	1551	7	2376
31-Mar-14	88.9	38.7	74	34579	14	5565	19	7738	45	21028	8	3072	11	4381

Attachment C

DMR Data

Effluent Data (Continued)

Monitoring Period End Date	**Flow**		**BOD_5**						**TSS**					
30-Apr-14	78.2	40	137	81980	14	6866	14	8245	202	120876	14	7248	11	4795
31-May-14	94.9	41	74	37184	12	5539	31	17906	128	64318	10	4783	36	21077
30-Jun-14	57.8	39.9	14	5376	6	2012	7	2411	9	3456	5	1618	6	2028
31-Jul-14	55.1	39.6	25	8882	8	2744	10	3346	46	16343	8	2648	13	4267
31-Aug-14	77.9	39.4	9	3241	5	1535	6	2030	10	3896	5	1421	5	1797
30-Sep-14	40.4	39.2	10	2981	5	1316	8	2412	6	2022	4	987	4	1307
31-Oct-14	62.5	39.4	20	8228	4	1439	7	2166	25	10285	4	1434	8	2643
30-Nov-14	56.6	39.5	10	4722	4	1240	6	1736	6	2833	3	784	3	1010
31-Dec-14	83.8	40	15	9787	7	2610	8	3374	9	6292	5	1647	5	2133
31-Jan-15	76.2	39.7	19	12076	8	2699	9	3830	14	8898	5	1656	7	2745
28-Feb-15	32.8	39.4	15	3968	9	2438	10	2767	6	1616	5	1310	6	1478
31-Mar-15	58	39.3	61	29481	15	5661	22	9713	93	44947	15	5873	29	13137
30-Apr-15	59.5	38.8	104	47028	13	5201	21	9105	125	56524	13	5294	21	9460
31-May-15	41.4	37.4	80	27609	13	3859	13	3645	77	26573	9	2822	9	2440
30-Jun-15	72.7	37.4	92	42047	15	5908	33	13479	146	66727	18	7848	40	17406
31-Jul-15	49.3	37.1	19	6668	9	2673	12	4560	19	6668	8	2273	12	5512
31-Aug-15	46.4	36.7	63	24364	6	1765	13	4558	67	25911	6	1850	13	4698
30-Sep-15	64.3	36.6	9	3607	4	1160	5	1420	7	2806	4	1076	4	1188

Attachment C

DMR Data

Effluent Data (Continued)

Monitoring Period End Date	**Flow**		**BOD_5**						**TSS**					
31-Oct-15	51.4	36.2	9	3364	5	1221	5	1493	7	1869	4	935	4	1105
30-Nov-15	45.1	35.8	11	4136	5	1252	6	1664	8	3008	4	897	5	1165
Existing Permit Limit	Report	67	Report	Reprt	30	16,763	45	25,145	Report	Reprt	30	16,763	45	25,145
Minimim	32.8	35.6	6	2125	3	1144	3	1299	4	1612	3	784	3	1010
Maximum	123.1	48.7	137	81980	17	8860	33	25145	202	120876	18	8414	40	21077
Average	65.1	40	44	20585	9.0	3291	14	5711	53	25158	7.6	2930	14	5723
Standard Deviation	18.4	3.42	33.9	17262	3.6	1704	7.5	4378	53	27100	3.7	1931	9.8	5119
No. Measurements	59	59	59	59	59	59	59	59	59	59	59	59	59	59

Attachment C

DMR Data

Effluent Data (Continued)

Monitoring Period End Date	**Chlorine, total residual**			**Coliform, fecal general**		**pH**	
	Daily Max	Monthly Average	Weekly Average	Daily Max	Monthly Geo Mean	Max	Min
	mg/l	mg/l	mg/l	CFU/100ml	CFU/100ml	Standard Units	Standard Units
31-Jan-11						7.2	7
28-Feb-11						7.2	6.9
31-Mar-11						7.2	6.8
30-Apr-11	0.81	0.06	0.17	20	1	7.2	6.9
31-May-11	0.18	0.02	0.05	160	2	7.2	6.8
30-Jun-11	0.46	0.06	0.14	20	2	7.1	6.9
31-Jul-11	0.83	0.05	0.21	23	3	7.2	6.7
31-Aug-11	0.78	0.08	0.09	35	2	7.2	6.5
30-Sep-11	0.47	0.11	0.22	36	3	7.3	6.7
31-Oct-11	0.4	0.09	0.18	28	2	7.3	6.6
30-Nov-11						7.2	6.9
31-Dec-11						7.3	6.8
31-Jan-12						7.4	7
29-Feb-12						7.3	7
31-Mar-12						7.2	6.9
30-Apr-12	0	0	0	5	1	7.2	6.7
31-May-12	0.12	0.01	0.02	4	1	7.1	6.7
30-Jun-12	0.53	0.03	0.11	11	3	7.2	6.9

Attachment C

DMR Data

Effluent Data (Continued)

Monitoring Period End Date	**Chlorine, total residual**			**Coliform, fecal general**		**pH**	
31-Jul-12	0.04	0	0.01	10	2	7.3	7
31-Aug-12	1.85	0.08	0.37	106	4	7.3	6.9
30-Sep-12	0.62	0.04	0.12	14	2	7.3	7
31-Oct-12	0.61	0.03	0.15	2	1	7.3	7
30-Nov-12						7.4	7.1
31-Dec-12						7.4	6.9
31-Jan-13						7.4	7
28-Feb-13						7.3	7
31-Mar-13						7.3	6.9
30-Apr-13	0.1	0	0	5	1	7.1	6.8
31-May-13	0.19	0.01	0.04	38	2	7.3	6.7
30-Jun-13	0.51	0.06	0.16	6	2	7.1	6.7
31-Jul-13	0.42	0.03	0.11	12	2	7.3	6.9
31-Aug-13	0.17	0.01	0.03	13	2	7.4	7.1
30-Sep-13	0.12	0.01	0.02	20	1	7.4	7
31-Oct-13	0	0	0	10	10	7.3	7
30-Nov-13						7.3	6.9
31-Dec-13						7.2	6.9
31-Jan-14						7.2	6.8
28-Feb-14						7.3	7
31-Mar-14						7.3	6.8
30-Apr-14	0.22	0.03	0.07	7	2	7.2	6.7

Attachment C

DMR Data

Effluent Data (Continued)

Monitoring Period End Date	**Chlorine, total residual**			**Coliform, fecal general**		**pH**	
31-May-14	0.51	0.02	0.1	5	1	7.2	6.6
30-Jun-14	0.39	0.04	0.12	8	2	7.2	6.9
31-Jul-14	0.22	0.03	0.08	36	2	7.3	6.9
31-Aug-14	0.4	0.04	0.08	12	2	7.2	6.9
30-Sep-14	0.14	0.01	0.03	6	1	7.2	6.8
31-Oct-14	0.41	0.03	0.08	70	2	7.4	6.9
30-Nov-14						7.4	7
31-Dec-14						7.2	6.8
31-Jan-15						7.3	6.8
28-Feb-15						7.3	7.1
31-Mar-15						7.3	7
30-Apr-15	0.32	0.05	0.06	1	1	7.2	6.8
31-May-15	0.12	0.01	0.12	5	1	7.3	6.9
30-Jun-15	0.12	0.01	0.02	4200	3	7.3	7
31-Jul-15	0.13	0.01	0.03	184	2	7.3	7.1
31-Aug-15	0.37	0.02	0.07	110	2	7.3	7.1
30-Sep-15	0.22	0.01	0	17	2	7.3	6.9
31-Oct-15	0	0	0.04	6	2	7.3	7

Attachment C

DMR Data

Effluent Data (Continued)

Monitoring Period End Date	**Chlorine, total residual**			**Coliform, fecal general**		**pH**	
30-Nov-15						7.4	7
Existing Permit Limit	Report	0.22	0.38	400	200	6.5	8.3
Minimim	0	0	0	1	1	6.5	6.5
Maximum	1.9	0.11	0.37	4200	10	7.4	7.1
Average	0.37	0.03	0.09	150	2	7.3	6.9
Standard Deviation	0.35	0.03	0.08	706	2	0.1	0.1
No. Measurements	35	35	35	35	35	59	59

Attachment C

DMR Data

Influent Data

	Raw Sewage Influent			
Monitoring Period End Date	**BOD_5**		**TSS**	
	Monthly Average	Monthly Average	Monthly Average	Monthly Average
	mg/l	lbs/day	mg/l	lbs/day
31-Jan-11	295	78171	289	77289
28-Feb-11	261	79122	265	82259
31-Mar-11	138	62897	140	64730
30-Apr-11	153	64228	145	61261
31-May-11	161	66746	156	65322
30-Jun-11	166	67486	165	67980
31-Jul-11	210	71240	185	63136
31-Aug-11	195	67290	174	61612
30-Sep-11	161	69451	147	63477
31-Oct-11	147	62035	135	56771
30-Nov-11	158	67765	134	57479
31-Dec-11	143	62519	139	62648
31-Jan-12	170	62783	142	52538
29-Feb-12	191	62336	160	52307
31-Mar-12	195	65193	161	53938
30-Apr-12	221	67944	172	53209
31-May-12	212	67415	179	57285
30-Jun-12	209	66398	165	52915
31-Jul-12	231	64594	189	53046
31-Aug-12	231	68637	202	61006
30-Sep-12	212	61057	170	48955
31-Oct-12	224	65748	171	50305
30-Nov-12	239	65237	179	48897
31-Dec-12	246	68938	186	52505
31-Jan-13	240	67343	201	56736
28-Feb-13	217	62517	154	44862
31-Mar-13	189	62802	151	50572
30-Apr-13	211	63422	180	54204
31-May-13	240	76493	194	64182

Attachment C

DMR Data

Influent Data

	Raw Sewage Influent			
Monitoring Period End Date	**BOD_5**		**TSS**	
	Monthly Average	Monthly Average	Monthly Average	Monthly Average
	mg/l	lbs/day	mg/l	lbs/day
30-Jun-13	166	72114	152	67066
31-Jul-13	181	64651	163	59143
31-Aug-13	223	71381	204	65868
30-Sep-13	197	57590	184	54328
31-Oct-13	234	63577	200	54685
30-Nov-13	256	68805	213	58129
31-Dec-13	248	71716	200	58228
31-Jan-14	295	97318	199	66190
28-Feb-14	242	70425	206	60267
31-Mar-14	230	77256	178	61271
30-Apr-14	178	76087	152	65508
31-May-14	211	89531	168	71500
30-Jun-14	240	80807	185	62719
31-Jul-14	235	77340	192	64004
31-Aug-14	250	74736	205	62941
30-Sep-14	257	70770	232	64678
31-Oct-14	252	73911	196	57862
30-Nov-14	290	81553	215	61349
31-Dec-14	264	89400	163	55961
31-Jan-15	322	97909	185	56990
28-Feb-15	271	71564	189	49853
31-Mar-15	235	77303	176	58662

Attachment C

DMR Data

Influent Data

	Raw Sewage Influent			
Monitoring Period End Date	**BOD_5**		**TSS**	
	Monthly Average	Monthly Average	Monthly Average	Monthly Average
	mg/l	lbs/day	mg/l	lbs/day
30-Apr-15	185	69857	148	55957
31-May-15	286	84861	206	61128
30-Jun-15	254	84078	202	67846
31-Jul-15	268	77434	209	60853
31-Aug-15	272	71945	229	60853
30-Sep-15	254	64035	211	54921
31-Oct-15	274	70745	222	57051
30-Nov-15	281	66756	214	50686
Existing Permit Limit	Report	Report	Report	Report
Minimim	138	57590	134	44862
Maximum	322	97909	289	82259
Average	224	71242	184	59287
Standard Deviation	43.4	8645	30.7	6893
No. Measurements	59	59	59	59
No. Exceedances				

Attachment D

CSO Outfalls Locations and Volumes

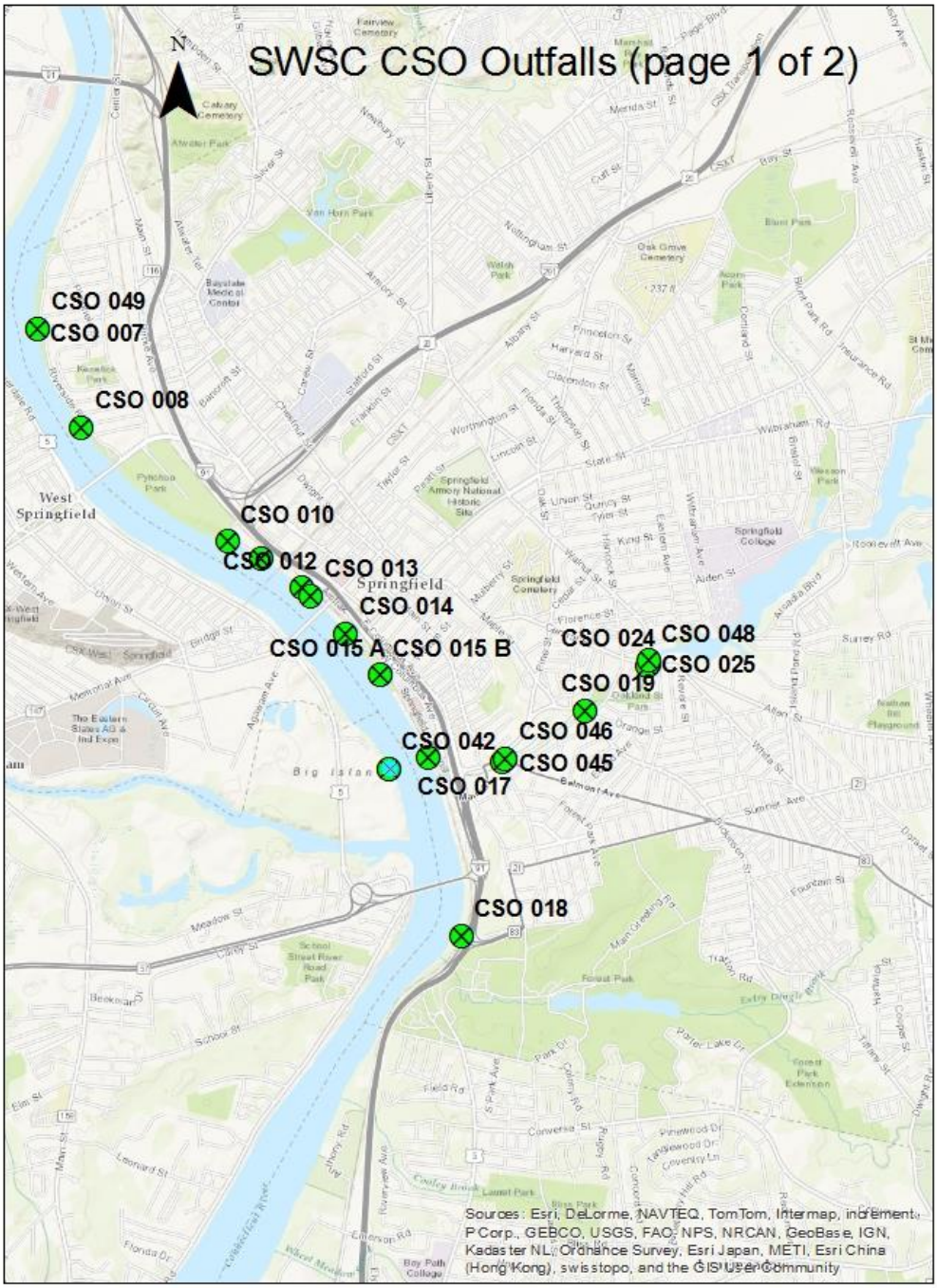
Outfall No.	Location	Latitude Longitude
To Connecticut River		
007	Rowland St.	42º 12’ 72º 62’
008	Washburn St. 4	42º 11’ 72º 62’
010	Clinton St.	42º 10’ 72º 60’
011	Liberty St.	42º 10’ 72º 59’
012	Worthington St.	42º 10’ 72º 59’
013	Bridge St.	42º 10’ 72º 59’
014	Elm St.	42º 10’ 72º 59’
015A	Union St.	42º 10’ 72º 59’
015B	Union St.	42º 10’ 72º 59’
016	York St.	42º 09’ 72º 59’
018	Longhill St.	42º 06’ 72º 58’
049	Springfield St.	42º 10’ 72º 62’
042	Bondi Island Treatment Plant	
To Mill River		
017	Fort Pleasant (Blake Hill)	42º 09’ 72º 58’
019	Mill, Orange, & Locust Sts.	42º 09’ 72º 57’
024	Rifle & Central Sts.	42º 10’ 72º 56’
025	Allen & Oakland Sts.	42º 10’ 72º 56’
045	Fort Pleasant Ave.	42º 06’ 72º 58’
046	Belmont St.	42º 06’ 72º 58’
048	Allen & Rifle Sts.	42º 10’ 72º 56’
To Chicopee River		
034	Main St.	42º 16’ 72º 51’
035	Front & Oak Sts.	42º 16’ 72º 50’
036A	Pinevale & Water Sts.	42º 16’ 72º 50’
037	Cedar St. 4	42º 16’ 72º 50’

Attachment D

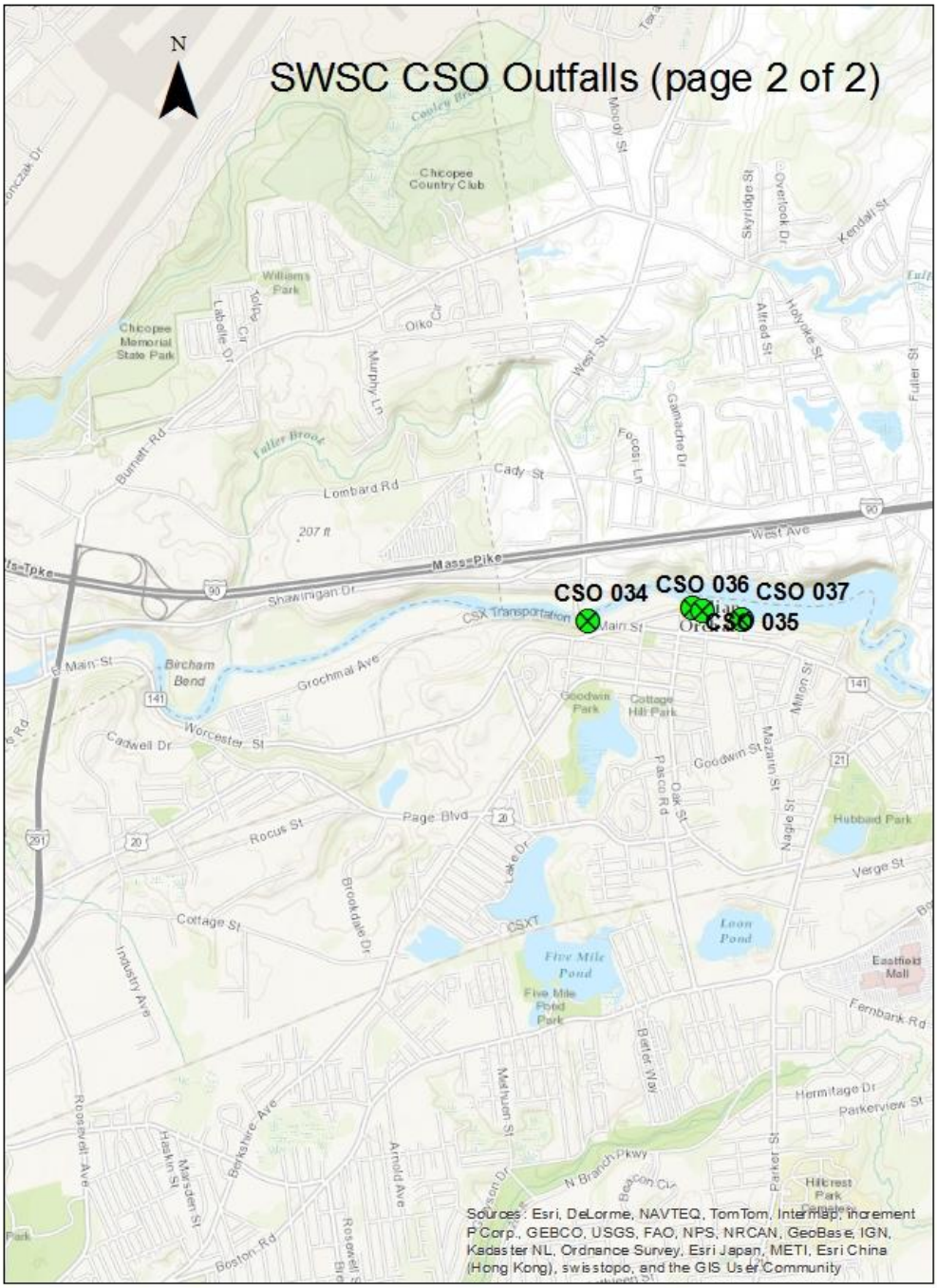
CSO overflow events, and volume (in 1,000's of gallons), as reported by SWSC

	2012		2013		2014		2015		2016	
Outfall	Number	Volume	Number	Volume	Number	Volume	Number	Volume	Number	Volume
7	2	0.3	1	83	2	941	6	550	3	450,773
8	37	65,573	7	20,903	0	0	11	14,446	2	380,020
10	32	43,179	37	74,458	47	77,494	34	48,446	36	34,047,622
11	41	86,026	4	68	4	475	1	0	4	208783
12	34	46,730	47	194,448	53	143,896	32	94,150	17	44,169,891
13	17	9,784	26	12,852	53	18,302	39	5,316	19	13,062,740
14	22	4,573	38	16,018	35	10,215	38	15,568	39	9,357,306
015A	42	9986	31	11,302	27	11,966	26	5,828	18	4,874,542
015B	0	0	9	379	11	844	6	83	1	3136
16	33	53,783	35	85,782	40	74,421	23	21,727	32	40,031,958
18	12	756	16	768	14	735	15	317	7	455784
49	13	1,639	15	1,873	25	2,486	24	4,104	11	482,649
17	13	1,635	22	1,779	18	2,616	17	1,404	7	67,851
19	17	18,650	7	8,258	9	2,150	4	8,857	3	1,142,252
24	9	448	7	1,258	9	392	7	254	1	21,126
25	11	1,241	18	2,231	18	1,342	10	534	13	1,377,830
45	15	268	24	696	19	1,545	12	670	6	1,491
46	20	1,813	23	2,425	18	3,316	10	1,293	6	618,669
48	10	4,957	12	530	16	1,319	15	6,355	11	439,059
34	14	1,648	21	4,848	21	1,278	12	841	10	61,447
35	22	2,146	11	1,754	11	2,462	10	726	5	337,987
37A	22	461	9	1,342	10	601	8	392	12	226,657
36A	24	3,680	14	3,160	17	3,485	14	2,310	5	1,327,395
042 at WWTF	10	5,532	11	4,307	16	16,313	12	6,878	8	6,435,000
CSO Total	472	361,510	445	451,522	493	378,594	386	241,049	276	159,581,968
WWTF Bypass	19	41,285	30	91,875	31	121,040	19	51,562	1	6,771,000

Attachment D



Attachment D



Attachment E
Metals Data

Effluent Data as Reported in WET Tests (all values are mg/l)

Date	Hardness	Aluminum	Copper	Cadmium	Chromium	Nickel	Lead	Zinc
6/8/2010	94.98	0.02	0.0106	0	0	0.009	0	0.0552
9/14/2010	114	0	0.0075	0	0	0.0046	0	0.0417
3/8/2011	78	0.13	0.0337	0	0	0.034	0	0.0595
6/7/2011	116.5	0	0.0066	0	0	0.045	0	0.0307
9/13/2011	94.94	0	0.0835	0	0	0.077	0	0.0655
3/7/2012	79.3	0.1	0.0913	0	0.019	0.056	0	0.0517
6/5/2012	88.55	0	0.0083	0	0	0.036	0	0.0465
9/11/2012	67.86	0.03	0.0091	0	0	0.022	0	0.0645
12/4/2012	71.6	0	0.0062	0	0	0.019	0	0.0376
3/6/2013	93.1	0	0.0051	0	0	0.019	0.008	0.0531
6/4/2013	58.51	0	0	0	0	0.046	0.006	0.0417
12/9/2013	79.49	0	0.0083	0	0	0.011	0	0.0446
3/4/2014	97.19	0.02	0.0342	0	0	0.016	0	0.0573
6/10/2014	87.47	0.02	0.0104	0	0	0.01	0	0.0543
9/9/2014	81.41	0.13	0.0354	0	0	0.007	0	0.0683
12/16/2014	99.61	0	0.0043	0	0	0.011	0	0.055
3/25/2015	102.5	0	0.0073	0	0	0.008	0	0.0516
6/9/2015	99.88	0	0.0258	0	0	0.011	0	0.0563
Median	**90.825**	**0**	**0.0087**	**0**	**0**	**0.0175**	**0**	**0.0537**

Attachment E
Metals Data

Ambient Data as Reported in WET Tests (all values are mg/l)

Date	Hardness	Aluminum	Copper	Nickel	Lead	Zinc	Ammonia	pH
6/8/2010	50.02	0.06	0.006	0.004	0	0.0143	0.1	7.04
9/14/2010	79.87	0.16	0.0063	0	0	0.0162	0	6.95
3/8/2011	27.4	0.40	0.0145	0.022	0	0.0128	0	6.94
6/7/2011	44.58	0.14	0.0365	0.049	0	0.0136	0.11	6.8
9/13/2011	32.02	0.88	0.1075	0.072	0.008	0.0343	0.35	7.05
3/7/2012	51.32	0.11	0.0435	0.026	0	0.0162	1.37	6.91
6/5/2012	31.75	0.48	0.0205	0.069	0.007	0.0201	0.11	6.79
9/11/2012	51.82	0.12	0.0084	0.028	0.011	0.0228	0	7.01
12/4/2012	40.9	0.08	0.0147	0.042	0	0.0191	0.31	6.58
3/6/2013	45.05	0.16	0.0031	0.014	0	0.0242	2.3	6.75
6/4/2013	20.95	0.02	0.0061	0	0	0.0038	0.18	6.86
12/9/2013	37.45	0.17	0.0144	0.005	0	0.0193	0.3	7.02
3/4/2014	36.61	0.08	0.0212	0.005	0	0.0104	0.1	6.95
6/10/2014	46.68	0.79	0.0063	0.004	0	0.0182	0.97	6.39
9/9/2014	53.45	0.09	0.0192	0	0	0.0071	0.13	6.86
12/16/2014	28.66	0.10	0.0033	0	0	0.0096	0.12	6.79
3/25/2015	46.12	0.07	0.0049	0.005	0	0.0096	0.17	6.63
6/9/2015	35.96	0.18	0.0244	0.006	0	0.0178	0.17	6.88
Median	**42.74**	**0.13**	**0.01445**	**0.0055**	**0**	**0.0162**	**0.15**	**6.87**

Statistical Approach to Characterizing the Effluent for Determining Reasonable Potential

EPA bases its determination of "reasonable potential" on a characterization of the upper bound of expected effluent concentrations based on a statistical analysis of the available monitoring data. As noted in the *Technical Support Document for Water Quality Based Toxics Control* (EPA 1991) ("TSD"), "[a]ll monitoring data, including results for concentrations of individual chemicals, have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty." Thus with a limited data set, the maximum concentration that has been found in the samples may not reflect the full range of effluent concentration.

To account for this, EPA has developed a statistical approach to characterizing effluent variability when the monitoring dataset includes 10 or more samples.[1] As "experience has shown that daily pollutant discharges are generally lognormally distributed," *TSD* at App. E, EPA uses a lognormal distribution to model the shape of the observed data, unless analysis indicates a different distributional model provides a better fit to the data. The model parameters (mean and variance) are derived from the monitoring data. The model parameter μ is the mean of the natural logs of the monitoring data values, while σ is the standard deviation of the natural logs of the monitoring data values.

The lognormal distribution generally provides a good fit to environmental data because it is bounded on the lower end (i.e. you cannot have pollutant concentrations less than zero) and is positively skewed. It also has the practical benefit that if an original lognormal data set X is logarithmically transformed (i.e. Y = ln[X]) the resulting variable Y will be normally distributed. Then the upper percentile expected values of X can be calculated using the z-score of the standardized normal distribution (i.e. the normal distribution with mean = 0 and variance = 1), a common and relatively simple statistical calculation. The p^{th} percentile of X is estimated by

$$X_p = \exp(\mu_y + z_p \times \sigma_y),$$

where μ_y = mean of Y
σ_y = standard deviation of Y
Y = ln[X]
z_p = the z-score for percentile "p"

For the 95^{th} percentile, $z_{95} = 1.645$, so that

$$X_{95} = \exp(\mu_y + 1.645 \times \sigma_y)$$

The 95th percentile value is used to determine whether a discharge has a reasonable potential to cause or contribute to an exceedance of a water quality standard. The combination of the upper bound effluent concentration with dilution in the receiving water is calculated to determine whether the water quality criteria will be exceeded.

[1] A different statistical approach is applied where the monitoring data set includes less than 10 samples.

Datasets including non-detect values

The *TSD* also includes a procedure for determine such percentiles when the dataset includes non-detect results, based on a delta-lognormal distribution. In the delta-lognormal procedures, nondetect values are weighted in proportion to their occurrence in the data. The values above the detection limit are assumed to be lognormally distributed values.

The statistical derivation of the delta-lognormal upper bounds is quite complex and is set forth in the TSD at Appendix E. Calculation of the 95th percentile of the distribution, however, involves a relatively straightforward adjustment of the equations given above for the lognormal distribution, as follows.

For the deltalognormal, the pth percentile of X, referred to here as X_p*, is given by

$$X_p^* = \exp(\mu_y^* + z_p^* \times \sigma_y^*),$$

where μ^*= mean of Y values for data points above the detection limit;
σ_y^*= standard deviation of Y for data points above the detection limit;
$Y = \ln[X^*]$;
X^*= monitoring data above detection limit; and
z_p^* = an adjusted z score that is given by the equation:

$$z_p^* = \text{z-score}[(p - \delta)/(1 - \delta)]$$

where δ is the proportion of nondetects in the monitoring dataset.

k = total number of dataset
r = number of nondetect values in the dataset
$\delta = r/k$

For the 95^{th} percentile, this takes the form of $z_p^* = \text{z-score}[(.95 - \delta)/(1 - \delta)]$. The resulting values of z_p^* for various values of δ is set forth in the table below; the calculation is easily performed in excel or other spreadsheet programs.

Example calculations of z_p^* for 95th percentile

δ	$(0.95 - \delta)/(1 - \delta)$	z_p^*
0	0.95	1.645
0.1	0.94	1.593
0.3	0.93	1.465
0.5	0.90	1.282
0.7	0.83	0.967

Attachment G
NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
NEW HAMPSHIRE					
Bethlehem Village District	NH0100501	0.340	0.220	19.600	35.962
Charlestown WWTF	NH0100765	1.100	0.360	19.600	58.847
Claremont WWTF	NH0101257	3.890	1.610	14.060	188.789
Colebrook WWTF	NH0100315	0.450	0.230	19.600	37.597
Groveton WWTF	NH0100226	0.370	0.290	19.600	47.405
Hanover WWTF	NH0100099	2.300	1.440	30.000	360.288
Hinsdale WWTF	NH0100382	0.300	0.300	19.600	49.039
Keene WWTF	NH0100790	6.000	3.910	12.700	414.139
Lancaster POTW	NH0100145	1.200	1.080	8.860	79.804
Lebanon WWTF	NH0100366	3.180	1.980	19.060	314.742
Lisbon WWTF	NH0100421	0.320	0.146	19.600	23.866
Littleton WWTF	NH0100153	1.500	0.880	10.060	73.832
Newport WWTF	NH0100200	1.300	0.700	19.600	114.425
Northumberland Village WPCF	NH0101206	0.060	0.060	19.600	9.808
Sunapee WPCF	NH0100544	0.640	0.380	15.500	49.123
Swanzey WWTP	NH0101150	0.167	0.090	19.600	14.712
Troy WWTF	NH0101052	0.265	0.060	19.600	9.808
Wasau Paper (industrial facility)	NH0001562		5.300	4.400	194.489

Attachment G
Out of Basin Point Source Loadings

Whitefield WWTF	NH0100510	0.185	0.140	19.600	22.885
Winchester WWTP	NH0100404	0.280	0.240	19.600	39.231
Woodsville Fire District	NH0100978	0.330	0.230	16.060	30.806
New Hampshire Total		**24.177**	**19.646**		**2169.596**

VERMONT					
Bellows Falls	VT0100013	1.405	0.610	21.060	107.141
Bethel	VT0100048	0.125	0.120	19.600	19.616
Bradford	VT0100803	0.145	0.140	19.600	22.885
Brattleboro	VT0100064	3.005	1.640	20.060	274.373
Bridgewater	VT0100846	0.045	0.040	19.600	6.539
Canaan	VT0100625	0.185	0.180	19.600	29.424
Cavendish	VT0100862	0.155	0.150	19.600	24.520
Chelsea	VT0100943	0.065	0.060	19.600	9.808
Chester	VT0100081	0.185	0.180	19.600	29.424
Danville	VT0100633	0.065	0.060	19.600	9.808
Lunenberg	VT0101061	0.085	0.080	19.600	13.077
Hartford	VT0100978	0.305	0.300	19.600	49.039
Ludlow	VT0100145	0.705	0.360	15.500	46.537
Lyndon	VT0100595	0.755	0.750	19.600	122.598
Putney	VT0100277	0.085	0.080	19.600	13.077
Randolph	VT0100285	0.405	0.400	19.600	65.386
Readsboro	VT0100731	0.755	0.750	19.600	122.598
Royalton	VT0100854	0.075	0.070	19.600	11.442
St. Johnsbury	VT0100579	1.600	1.140	12.060	114.662

Attachment G
Out of Basin Point Source Loadings

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
Saxtons River	VT0100609	0.105	0.100	19.600	16.346
Sherburne Fire Dist.	VT0101141	0.305	0.300	19.600	49.039
Woodstock WWTP	VT0100749	0.055	0.050	19.600	8.173
Springfield	VT0100374	2.200	1.250	12.060	125.726
Hartford	VT0101010	1.225	0.970	30.060	243.179
Whitingham	VT0101109	0.015	0.010	19.600	1.635
Whitingham Jacksonville	VT0101044	0.055	0.050	19.600	8.173
Cold Brook Fire Dist.	VT0101214	0.055	0.050	19.600	8.173
Wilmington	VT0100706	0.145	0.140	19.600	22.885
Windsor	VT0100919	1.135	0.450	19.600	73.559
Windsor-Weston	VT0100447	0.025	0.020	19.600	3.269
Woodstock WTP	VT0100757	0.455	0.450	19.600	73.559
Woodstock-Taftsville	VT0100765	0.015	0.010	19.600	1.635
Vermont Totals		**15.940**	**10.960**		**1727.302**

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
MASSACHUSETTS					

Attachment G
Out of Basin Point Source Loadings

Amherst	MA0100218	7.100	4.280	14.100	503.302
Athol	MA0100005	1.750	1.390	17.200	199.393
Barre	MA0103152	0.300	0.290	26.400	63.851
Belchertown	MA0102148	1.000	0.410	12.700	43.426
Charlemont	MA0103101	0.050	0.030	19.600	4.904
Chicopee	MA0101508	15.500	10.000	19.400	1617.960
Easthampton	MA0101478	3.800	3.020	19.600	493.661
Erving #1	MA0101516	1.020	0.320	29.300	78.196
Erving #2	MA0101052	2.700	1.800	3.200	48.038
Erving #3	MA0102776	0.010	0.010	19.600	1.635
Gardner	MA0100994	5.000	3.700	14.600	450.527
Greenfield	MA0101214	3.200	3.770	13.600	427.608
Hadley	MA0100099	0.540	0.320	25.900	69.122
Hardwick G	MA0100102	0.230	0.140	14.600	17.047
Hardwick W	MA0102431	0.040	0.010	12.300	1.026
Hatfield	MA0101290	0.500	0.220	15.600	28.623
Holyoke	MA0101630	17.500	9.700	8.600	695.723
Huntington	MA0101265	0.200	0.120	19.600	19.616
Monroe	MA0100188	0.020	0.010	19.600	1.635
Montague	MA0100137	1.830	1.600	12.900	172.138
N Brookfield	MA0101061	0.760	0.620	23.100	119.445
Northampton	MA0101818	8.600	4.400	22.100	810.982
Northfield	MA0100200	0.280	0.240	16.800	33.627
Northfield School	MA0032573	0.450	0.100	19.600	16.346
Old Deerfield	MA0101940	0.250	0.180	9.200	13.811
Orange	MA0101257	1.100	1.200	8.600	86.069
Palmer	MA0101168	5.600	2.400	18.800	376.301
Royalston	MA0100161	0.040	0.070	19.600	11.442
Russell	MA0100960	0.240	0.160	19.600	26.154
Shelburne Falls	MA0101044	0.250	0.220	16.900	31.008

South Deerfield	MA0101648	0.850	0.700	7.900	46.120
South Hadley	MA0100455	4.200	3.300	28.800	792.634
Spencer	MA0100919	1.080	0.560	13.600	63.517
Springfield	MA0103331	67.000	45.400	4.300	1628.135
Sunderland	MA0101079	0.500	0.190	8.700	13.786
Templeton	MA0100340	2.800	0.400	26.400	88.070

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
Ware	MA0100889	1.000	0.740	9.400	58.013
Warren	MA0101567	1.500	0.530	14.100	62.325
Westfield	MA0101800	6.100	3.780	20.400	643.114
Winchendon	MA0100862	1.100	0.610	15.500	78.855
Woronoco Village	MA0103233	0.020	0.010	19.600	1.635
Massachusetts Totals		**166.010**	**106.950**		**9938.820**

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is

assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.

4. Current total nitrogen load.

Total Nitrogen Load = 13,836 lbs/day
MA (41 facilities) = 9,939 lbs/day (72%)
VT (32 facilities) = 1,727 lbs/day (12%)
NH (21 facilities) = 2170 lbs/day (16%)
TMDL Baseline Load = 21,672 lbs/day

TMDL Allocation = 16,254 lbs/day (25% reduction)

MA Discharges to Housatonic River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
Crane	MA0000671		3.100	8.200	212.003
Great Barrington	MA0101524	3.200	2.600	17.000	368.628
Lee	MA0100153	1.000	0.870	14.500	105.209
Lenox	MA0100935	1.190	0.790	11.800	77.745
Mead Laurel Mill	MA0001716		1.500	6.400	80.064
Mead Willow Mill	MA0001848		1.100	4.600	42.200
Pittsfield	MA0101681	17.000	12.000	12.400	1240.992
Stockbridge	MA0101087	0.300	0.240	11.100	22.218
West Stockbridge	MA0103110	0.076	0.018	15.500	2.327
Massachusetts Totals			**22.218**	**101.500**	**2151.386**

Attachment G
Out of Basin Point Source Loadings

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 2151.386 lbs/day

TMDL Baseline Load = 3,286 lbs/day
TMDL Allocation = 2,464 lbs/day (25% reduction)

MA Discharges to Thames River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
MASSACHUSETTS					
Charlton	MA0101141	0.450	0.200	12.700	21.184
Leicester	MA0101796	0.350	0.290	15.500	37.488
Oxford	MA0100170	0.500	0.230	15.500	29.732
Southbridge	MA0100901	3.770	2.900	15.500	374.883
Sturbridge	MA0100421	0.750	0.600	10.400	52.042

Attachment G
Out of Basin Point Source Loadings

Webster	MA0100439	6.000	3.440	17.400	499.199
Massachusetts Totals		**11.820**	**7.660**		**1014.528**

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 1014.528 lbs/day

TMDL Baseline Load = 1,253 lbs/day

TMDL Allocation = 939 lbs/day (25% reduction)

Attachment H

Nitrogen Data

Date	Rolling Annual Average Flow	Nitrite + Nitrate total [as N]	Nitrogen, Kjeldahl, total [as N]	Total Nitrogen	Total Nitrogen	Total Nitrogen (based on rolling annual average flow)
	Million Gallons per Day	mg/l	mg/l	mg/l	lbs/day	lbs/day
28-Feb-2001	36.9	3.1	2.24	5.34	1,638	1643
31-Mar-2001	48.7	1.84	2	3.84	1,554	1560
30-Apr-2001	56.33	2.26	1.9	4.16	1,948	1954
31-May-2001	44.7	2.35	1.65	4	1,486	1491
30-Jun-2001	42.3	1.74	1.12	2.86	1,006	1009
31-Jul-2001	41.57	2.94			0	0
31-Aug-2001	40.9	1.86	1.76	3.62	1,231	1235
30-Sep-2001	37.4	2.08	1.18	3.26	1,013	1017
31-Oct-2001	40.25	1.95	1.18	3.13	1,047	1051
30-Nov-2001	41.3	3.18	1.23	4.41	1,514	1519
31-Dec-2001	40.8	6.54	3.696	10.236	3,472	3483
31-Jan-2002	39.1	3.63	2.3	5.93	1,927	1934
28-Feb-2002	38.8	1.47	1.8	3.27	1,055	1058
31-Mar-2002	37.8	2.21	1.9	4.11	1,291	1296
30-Apr-2002	36.4	3.52	1	4.52	1,368	1372
31-May-2002	36.1	2.75	1.76	4.51	1,353	1358
30-Jun-2002	35.7	3.96	1.18	5.14	1,525	1530
31-Jul-2002	35.5	4.14	1.18	5.32	1,570	1575
31-Aug-2002	35.3	3.71	1.18	4.89	1,435	1440
30-Sep-2002	35.2	0.455	1.6	2.055	601	603
31-Oct-2002	35.2	3.93	1.26	5.19	1,519	1524
30-Nov-2002	35.9	2.06	1.23	3.29	982	985
31-Dec-2002	36.3	3	1.18	4.18	1,261	1265
31-Jan-2003	37.15	2.12	1.47	3.59	1,109	1112
28-Feb-2003	37.38	3.32	4.12	7.44	2,312	2319
31-Mar-2003	38.5	3.14	3.39	6.53	2,090	2097
30-Apr-2003	39.4	2.01	1.23	3.24	1,061	1065
31-May-2003	39.8	4.52	2.24	6.76	2,236	2244
30-Jun-2003	40.9	3.65	2.94	6.59	2,240	2248
31-Jul-2003	41.6	2.82	2.46	5.28	1,826	1832

Attachment H

Nitrogen Data

Date	Rolling Annual Average Flow	Nitrite + Nitrate total [as N]	Nitrogen, Kjeldahl, total [as N]	Total Nitrogen	Total Nitrogen	Total Nitrogen (based on rolling annual average flow)
	Million Gallons per Day	mg/l	mg/l	mg/l	lbs/day	lbs/day
31-Aug-2003	42.2	3.25	1.18	4.43	1,554	1559
30-Sep-2003	40.1	2.17	1.18	3.35	1,117	1120
31-Oct-2003	44.1	0.357	2.06	2.417	886	889
30-Nov-2003	44.8	2.55	1.23	3.78	1,408	1412
31-Dec-2003	45.8	3.2	1.23	4.43	1,687	1692
31-Jan-2004	46.5	3.1	2.06	5.16	1,994	2001
29-Feb-2004	46.6	2.11	1.12	3.23	1,251	1255
31-Mar-2004	45.9	2.19	1.4	3.59	1,370	1374
30-Apr-2004	46.2	2.51	0	2.51	964	967
31-May-2004	46.5	3.11	0	3.11	1,202	1206
30-Jun-2004	45.6	2.93	1.18	4.11	1,558	1563
31-Jul-2004	45.4	3.23	1.76	4.99	1,883	1889
31-Aug-2004	45.3	4.13	0	4.13	1,555	1560
30-Sep-2004	45.2	4.4	1.12	5.52	2,074	2081
31-Oct-2004	44.5	4	0	4	1,480	1485
30-Nov-2004	43.7	4.87	1.96	6.83	2,481	2489
31-Dec-2004	43.4	3.06	0	3.06	1,104	1108
31-Jan-2005	43.2	3.06	1.47	4.53	1,627	1632
28-Feb-2005	49.9	0.988		0.988	410	411
31-Mar-2005	44.2	3.58	0	3.58	1,315	1320
30-Apr-2005	44.2	2.78	0	2.78	1,021	1025
31-May-2005	44	2.17	1.18	3.35	1,225	1229
30-Jun-2005	43.9	2.03	2.35	4.38	1,598	1604
31-Jul-2005	43.8	3.78	1.6	5.38	1,959	1965
31-Aug-2005	43.6	4.06	3.23	7.29	2,642	2651
30-Sep-2005	43.2	2.12	1.6	3.72	1,336	1340
31-Oct-2005	45.6	2.75	0	2.75	1,042	1046
30-Nov-2005	47	4.24	1.6	5.84	2,282	2289
31-Dec-2005	47.5	4.14	1.4	5.54	2,187	2195
31-Jan-2006	48.9	1.78	0	1.78	724	726

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Nitrogen Data

Date	Rolling Annual Average Flow	Nitrite + Nitrate total [as N]	Nitrogen, Kjeldahl, total [as N]	Total Nitrogen	Total Nitrogen	Total Nitrogen (based on rolling annual average flow)
	Million Gallons per Day	mg/l	mg/l	mg/l	lbs/day	lbs/day
28-Feb-2006	49.9	0.988		0.988	410	411
31-Mar-2006	49.7	1.95	1.76	3.71	1,533	1538
30-Apr-2006	48.4	2.79	1.4	4.19	1,686	1691
31-May-2006	48.7	1.57	2.52	4.09	1,656	1661
30-Jun-2006	49.8	1.64	2.94	4.58	1,896	1902
31-Jul-2006	50.6	1.18	2.65	3.83	1,611	1616
31-Aug-2006	51.1	3.07	2.52	5.59	2,374	2382
30-Sep-2006	51.3	2.22	5.54	7.76	3,309	3320
31-Oct-2006	49.2	2.82	0	2.82	1,153	1157
30-Nov-2006	48.4	0.118	3.08	3.198	1,287	1291
31-Dec-2006	47.5	1.81	0	1.81	715	717
31-Jan-2007	45.7	0.842	3.53	4.372	1,661	1666
28-Feb-2007	47.5	0.606	5.6	6.206	2,450	2459
31-Mar-2007	43.9	0.234	4.41	4.644	1,695	1700
30-Apr-2007	45.2	1.18	1.18	2.36	887	890
31-May-2007	44.9	0.131	2.94	3.071	1,146	1150
30-Jun-2007	43.7	2.81	2.24	5.05	1,834	1841
31-Jul-2007	42.8	6.75	3.64	10.39	3,696	3709
31-Aug-2007	42.3	3.21	2.35	5.56	1,955	1961
30-Sep-2007	41.9	3.36	1.47	4.83	1,682	1688
31-Oct-2007	41.3	266	0		0	0
30-Nov-2007	40.4	2.1	1.54	3.64	1,222	1226
31-Dec-2007	39.8	2.37	2.16	4.53	1,499	1504
31-Jan-2008	39.5	1.79	1.29	3.08	1,011	1015
29-Feb-2008	41.5	2.64	1.18	3.82	1,318	1322
31-Mar-2008	42.5	1.86	1.18	3.04	1,074	1078
30-Apr-2008	41.8	2.37	1.47	3.84	1,334	1339
31-May-2008	41.7	3.08	3.23	6.31	2,187	2194
30-Jun-2008	41.9	3.92	2.16	6.08	2,118	2125
31-Jul-2008	42.6	2.46	1.79	4.25	1,505	1510

Attachment H

Nitrogen Data

Date	Rolling Annual Average Flow	Nitrite + Nitrate total [as N]	Nitrogen, Kjeldahl, total [as N]	Total Nitrogen	Total Nitrogen	Total Nitrogen (based on rolling annual average flow)
	Million Gallons per Day	mg/l	mg/l	mg/l	lbs/day	lbs/day
31-Aug-2008	43.7	2.81	1.67	4.48	1,627	1633
30-Sep-2008	45	3.34	2.162	5.502	2,058	2065
31-Oct-2008	45.6	3.38	2.35	5.73	2,172	2179
30-Nov-2008	46.1	2.96	1.45	4.41	1,690	1696
31-Dec-2008	47.6	1.73	1.37	3.1	1,227	1231
31-Jan-2009	48.1	3.24	2.07	5.31	2,123	2130
28-Feb-2009	46.7	3.19	3.49	6.68	2,593	2602
31-Mar-2009	45.8	3.39	1.6	4.99	1,900	1906
30-Apr-2009	45.1	3.79	2.31	6.1	2,287	2294
31-May-2009	44.8	5	2.45	7.45	2,774	2784
30-Jun-2009	44.8	4.89	3.2	8.09	3,013	3023
31-Jul-2009	45.1	3.28	2.5	5.78	2,167	2174
31-Aug-2009	44.9	4.88	1.2	6.08	2,269	2277
30-Sep-2009	44	2.87	0	2.87	1,050	1053
31-Oct-2009	43.7	2.743	2.8	5.543	2,014	2020
30-Nov-2009	43.3	0.78	3.4	4.18	1,504	1509
31-Dec-2009	43.3	0.65	10	10.65	3,833	3846
31-Jan-2010	42	1.3	2.5	3.8	1,327	1331
28-Feb-2010	37.3	1.478	2.1	3.578	1,109	1113
31-Mar-2010	38.1	0.67	6.7	7.37	2,334	2342
30-Apr-2010	42.3	3.356	1.8	5.156	1,813	1819
31-May-2010	42.2	1.5	1.5	3	1,052	1056
30-Jun-2010	41.7	5.82	1.7	7.52	2,607	2615
31-Jul-2010	40.2	2.8	2.5	5.3	1,771	1777
31-Aug-2010	39	2.659	2.8	5.459	1,770	1776
30-Sep-2010	38.5	4.42	2	6.42	2,055	2061
31-Oct-2010	38.3	7.569	1.1	8.669	2,760	2769
30-Nov-2010	38.4	2.467	2.2	4.667	1,490	1495
31-Dec-2010	38.1	2.059	1.5	3.559	1,127	1131
31-Jan-2011	37.5	1.28	2.1	3.38	1,054	1057

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Nitrogen Data

Date	Rolling Annual Average Flow	Nitrite + Nitrate total [as N]	Nitrogen, Kjeldahl, total [as N]	Total Nitrogen	Total Nitrogen	Total Nitrogen (based on rolling annual average flow)
	Million Gallons per Day	mg/l	mg/l	mg/l	lbs/day	lbs/day
28-Feb-2011	37.3	1.478	2.1	3.578	1,109	1113
31-Mar-2011	38.1	0.669	6.7	7.369	2,334	2342
30-Apr-2011	38.4	0.273	7.6	7.873	2,513	2521
31-May-2011	39.3	0.158	6.4	6.558	2,142	2149
30-Jun-2011	40.4	0.354	7.1	7.454	2,503	2512
31-Jul-2011	41.1	3.17	2.8	5.97	2,040	2046
31-Aug-2011	42.1	1.986	2.1	4.086	1,430	1435
30-Sep-2011	43.8	0.339	2.8	3.139	1,143	1147
31-Oct-2011	44.9	2.363	1.1	3.463	1,292	1297
30-Nov-2011	46.1	2.31	2.1	4.41	1,690	1696
31-Dec-2011	47.4	0.445	2.4	2.845	1,121	1125
31-Jan-2012	48.5	0.016	7.8	7.816	3,151	3161
29-Feb-2012	48.7	0.455	9.6	10.055	4,070	4084
31-Mar-2012	47.2	0.017	5	5.017	1,968	1975
30-Apr-2012	46	0.884	7.2	8.084	3,091	3101
31-May-2012	45	1.766	2.5	4.266	1,596	1601
30-Jun-2012	44.1	0.339	3.9	4.239	1,554	1559
31-Jul-2012	43.6	2.173	1.9	4.073	1,476	1481
31-Aug-2012	43	2.266	1.4	3.666	1,310	1315
30-Sep-2012	41.4	2.675	1.6	4.275	1,471	1476
31-Oct-2012	40.2	0.92	8.1	9.02	3,014	3024
30-Nov-2012	38.6	1.437	13	14.437	4,632	4648
31-Dec-2012	37	0.84	8.4	9.24	2,842	2851
31-Jan-2013	36.1	0.602	9.5	10.102	3,031	3041
28-Feb-2013	35.7	0.393	11	11.393	3,381	3392
31-Mar-2013	35.7	2.848	2.1	4.948	1,468	1473
30-Apr-2013	35.6	1.58	2.9	4.48	1,326	1330
31-May-2013	35.7	0.433	8	8.433	2,503	2511
30-Jun-2013	37	3.81	2.9	6.71	2,064	2071
31-Jul-2013	37.8	2.31	2.9	5.21	1,637	1642

Attachment H

Nitrogen Data

Date	Rolling Annual Average Flow	Nitrite + Nitrate total [as N]	Nitrogen, Kjeldahl, total [as N]	Total Nitrogen	Total Nitrogen	Total Nitrogen (based on rolling annual average flow)
	Million Gallons per Day	mg/l	mg/l	mg/l	lbs/day	lbs/day
31-Aug-2013	38	0.545	10	10.545	3,331	3342
30-Sep-2013	38.1	0.23	15	15.23	4,823	4839
31-Oct-2013	37.9	2.64	2.2	4.84	1,525	1530
30-Nov-2013	37.9	4.539	2.8	7.339	2,312	2320
31-Dec-2013	37.9	5.444	3.8	9.244	2,912	2922
31-Jan-2014	38.5	0.11	2.4	2.51	803	806
28-Feb-2014	38.5	5.29	3.9	9.19	2,941	2951
31-Mar-2014	38.7	3.71	6.1	9.81	3,156	3166
30-Apr-2014	40	2.871	7.2	10.071	3,349	3360
31-May-2014	41	2.64	4.5	7.14	2,433	2441
30-Jun-2014	39.9	4.241	2.7	6.941	2,302	2310
31-Jul-2014	39.6	2.669	1.6	4.269	1,405	1410
31-Aug-2014	39.4	3.237	2.1	5.337	1,748	1754
30-Sep-2014	39.2	7.363	3.2	10.563	3,442	3453
31-Oct-2014	39.4	3.493	2.4	5.893	1,930	1936
30-Nov-2014	39.5	3.11	2.2	5.31	1,743	1749
31-Dec-2014	40	3.099	4.1	7.199	2,394	2402
31-Jan-2015	39.7	3.484	4.1	7.584	2,503	2511
28-Feb-2015	39.4	2.41	5.3	7.71	2,525	2533
31-Mar-2015	39.3	1.149	5.9	7.049	2,303	2310
30-Apr-2015	38.8	1.446	4.1	5.546	1,789	1795
31-May-2015	37.4	2.062	5.6	7.662	2,382	2390
30-Jun-2015	37.4	1.323	5.3	6.623	2,059	2066
31-Jul-2015	37.1	3.08	6.2	9.28	2,862	2871
31-Aug-2015	36.7	5.16	2.8	7.96	2,428	2436
30-Sep-2015	36.6	3.311	4.3	7.611	2,316	2323
31-Oct-2015	36.2	4.686	3.5	8.186	2,463	2471
30-Nov-2015	35.8	5.96	3.2	9.16	2,726	2735
31-Dec-2015	35.2	4.91	2.1	7.01	2,051	2058
31-Jan-2016	35	0.088	3.9	3.988	1,160	1164

Attachment H

Nitrogen Data

Date	Rolling Annual Average Flow	Nitrite + Nitrate total [as N]	Nitrogen, Kjeldahl, total [as N]	Total Nitrogen	Total Nitrogen	Total Nitrogen (based on rolling annual average flow)
	Million Gallons per Day	mg/l	mg/l	mg/l	lbs/day	lbs/day
28-Feb-2016	35.5	1.51	7.1	8.61	2,541	2549
31-Mar-2016	35.3	2.379	4.5	6.879	2,018	2025
30-Apr-2016	34.5	0.935	3.2	4.135	1,186	1190
31-May-2016	34.3	2.043	2.8	4.843	1,381	1385
30-Jun-2016	33.6	0.989	3.5	4.489	1,254	1258
31-Jul-2016	33.1	0.88	5.8	6.68	1,838	1844
31-Aug-2016	33.1	1.431	3.4	4.831	1,334	1334
30-Sep-2016	32.9	4.983	6.5	11.483	3,151	3151
31-Oct-2016	32.9	1.822	4.5	6.322	1,735	1735
30-Nov-2016	32.9	0.455	4.5	4.955	1,360	1360
31-Dec-2016	32.6	0.161	2.8	2.961	805	805
Existing Permit Limit	Report	Report	Report	Report	Report	
Minimim	33.1	0.016	0	0.988	0	0
Maximum	56.33	266	15	15.23	4823	4839
Average	41.73	3.95	2.94	5.46	1846	1852
Standard Deviation	4.39	19.37	2.47	2.36	783	786
No. Measurements	186	186	183	184	186	186
No. Exceedances	NA	NA	NA	NA	NA	NA

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

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

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

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

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

In light of these policy objectives and legal requirements, it is Region 1's permitting practice to subject all portions of the POTW to NPDES requirements in order to ensure that the treatment system as a whole is properly operated and maintained and that human health and water quality impacts resulting from excessive extraneous flow are minimized. The approach of addressing O&M concerns in a regionally integrated treatment works by adding municipal satellite

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

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).[2] While the Board "did not pass judgment" on the Region's position that its NPDES jurisdiction encompassed the entire POTW and not only the treatment plant, it held that "where the Region has abandoned its historical practice of limiting the permit only to the legal entity owning and operating the wastewater treatment plant, the Region had not sufficiently articulated in the record of this proceeding the statutory, regulatory, and factual bases for expanding the scope of NPDES authority beyond the treatment plant owner/operator to separately owned/operated collection systems that do not discharge directly to waters of the United States, but instead that discharge to the treatment plant." *Id., slip op.* at 2, 18. In the event the Region decided to include and regulate municipal satellite collection systems as co-permittees in a future permit, the Board posed several questions for the Region to address in the analysis supporting its decision:

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

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

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

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

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

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

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

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

I. Background

A sanitary sewer system (SSS) is a wastewater collection system owned by a state or municipality that conveys domestic, industrial and commercial wastewater (and limited amounts of infiltrated groundwater and some storm water runoff) to a POTW.[3] *See* 40 C.F.R. § 35.2005(b)(37) (defining "sanitary sewer"). The purpose of these systems is to transport wastewater uninterrupted from its source to a treatment facility. Developed areas that are served by sanitary sewers often also have a separate storm sewer system (*e.g.*, storm drains) that collects and conveys runoff, street wash waters and drainage and discharges them directly to a receiving

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

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.[4]

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

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

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

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

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

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

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.[5] In light of its past permitting experience and the need to effectively address

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

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

III. Legal Authority

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

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

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

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

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

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

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

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

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

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

Under section 212 of the Act,

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

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

EPA has defined POTW as follows:

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

See 40 C.F.R. §§ 403.3(q) and 122.2.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

"Discharge of a pollutant means:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

V. Conclusion

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

Exhibit A

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

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

Exhibit B

Analysis of extraneous flow trends and SSO reporting for representative systems

I. Representative POTWS

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

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

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

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

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

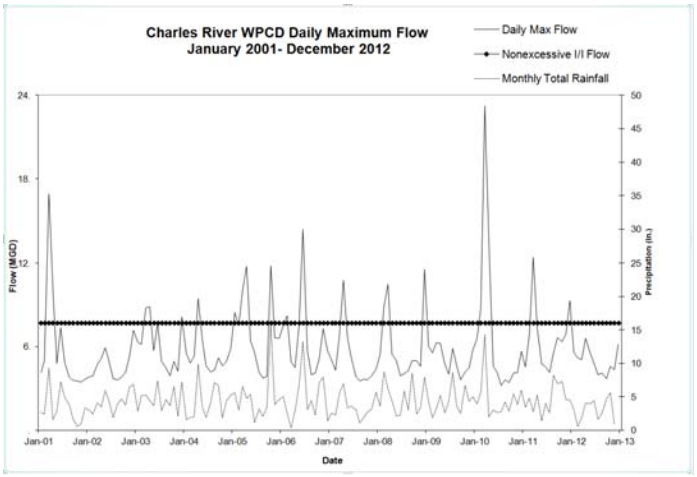
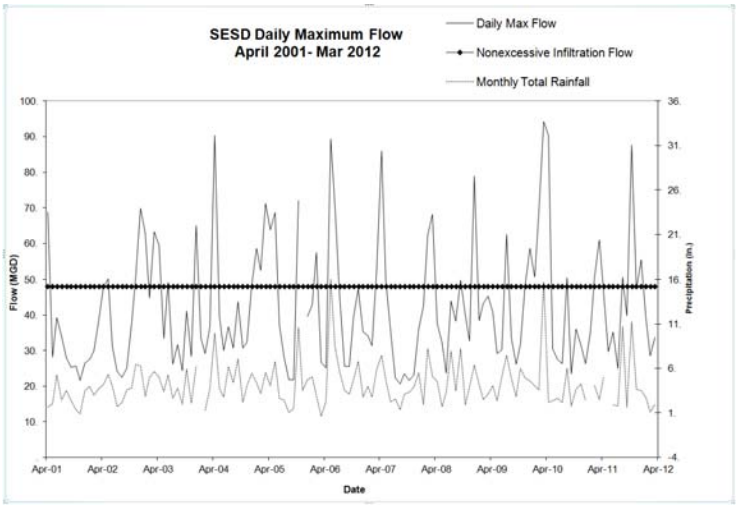


Figure 2. SESD Daily Maximum Flow Compared to Nonexcessive I/I Standard



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

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

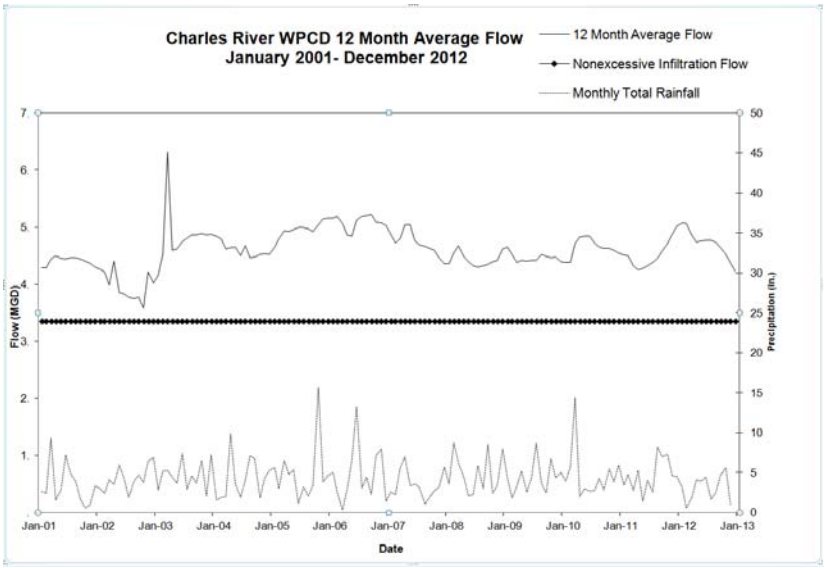
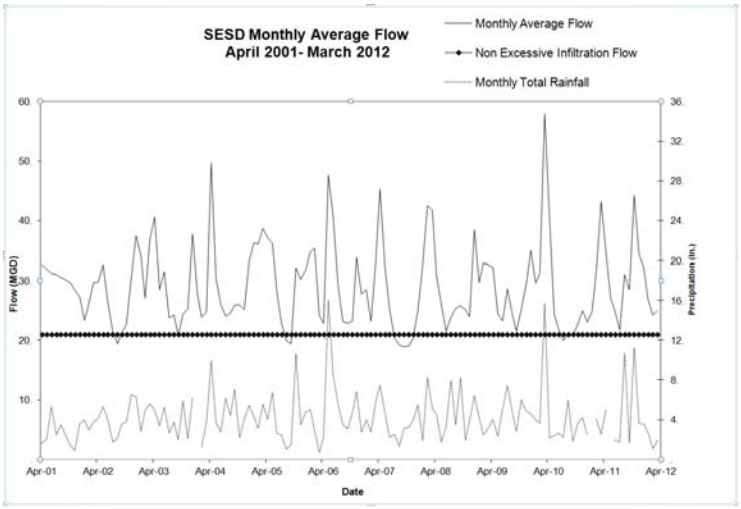


Figure 4. SESD Monthly Average Flow Compared to Nonexcessive Infiltration Standard

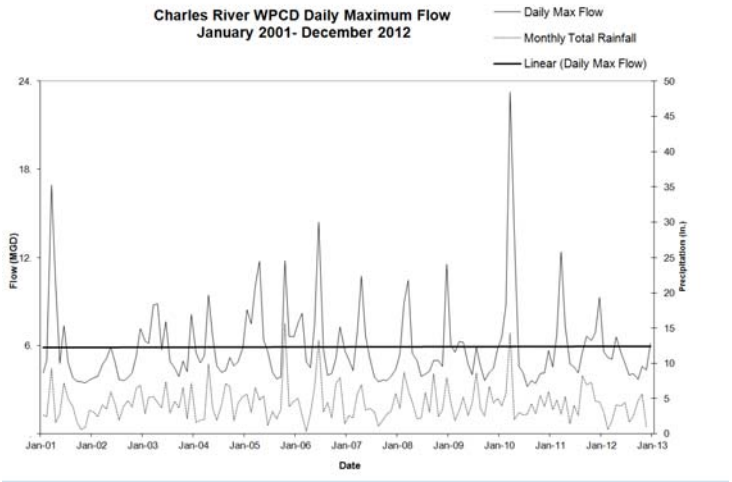


II. Flow Trends

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

Figure 5. CRPCD Daily Maximum Flow Trends

a. Reported Daily Maximum Flows



b. One Year Rolling Average of Daily Maximum Flows

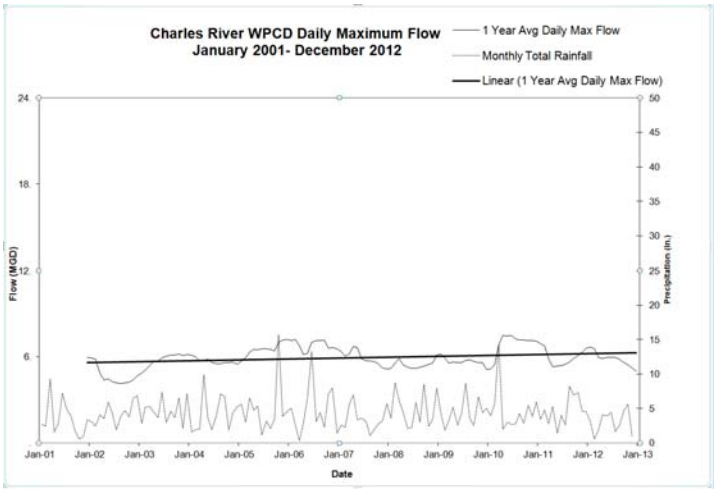
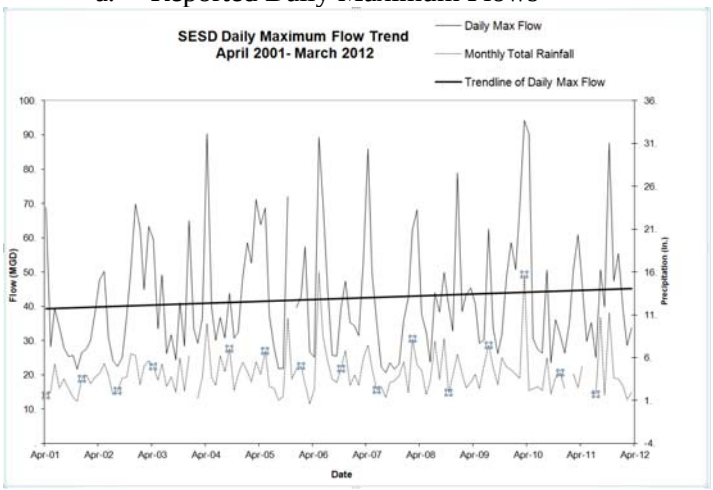
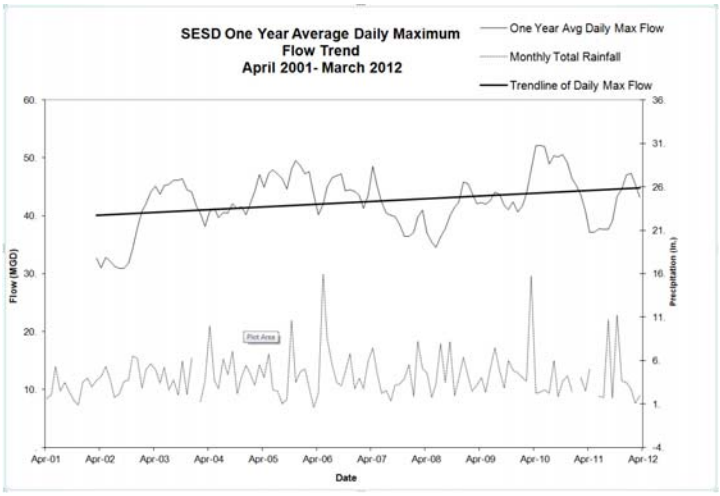


Figure 6. SESD Daily Maximum Flow Trend

a. Reported Daily Maximum Flows



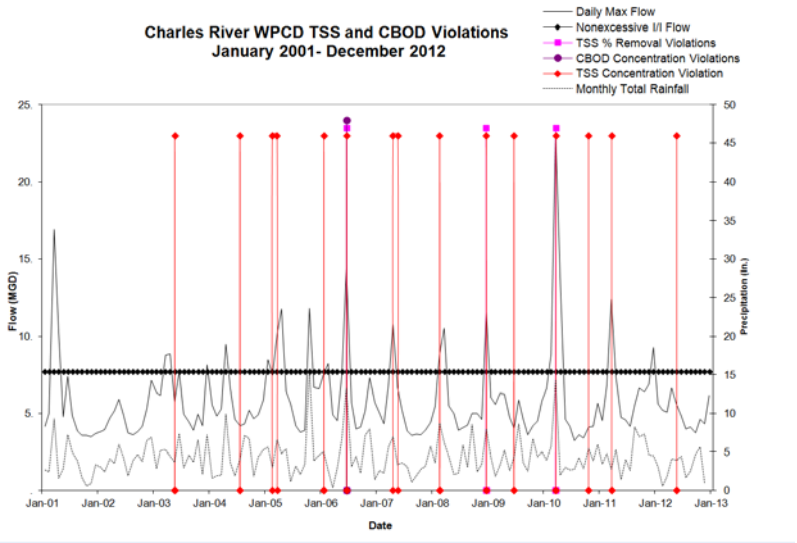
b. One Year Rolling Average of Daily Maximum Flows



III. Violations Associated with Wet Weather Flows

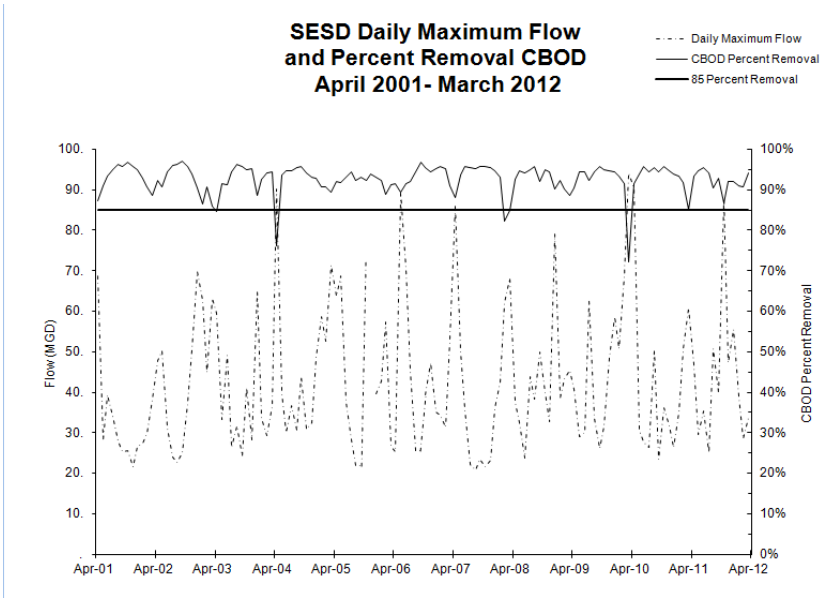
The CRPCD has experienced permit violations that appear to be related to I/I, based on their occurrence during wet weather months when excessive I/I standards are exceeded. Figure 7 shows violations of CRPCD's effluent limits for CBOD (concentration) and TSS (concentration and percent removal). Thirteen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

Figure 7. CRPCD CBOD and TSS Effluent Limit Violations



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

Figure 8. SESD CBOD Percent Removal



IV. SSO Reporting

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

Exhibit C

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

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

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

Dear _____:

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

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

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

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

Sincerely,

Regional Administrator

Attachment J

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

NOV 13 2017

Kimberly Damon-Randall
Assistant Regional Administrator
Protected Resources Division
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930

Re: Reissuance of the NPDES Permit for the Springfield Regional Wastewater Treatment Facility, Agawam, Massachusetts, Permit No. MA0101613- Endangered Species Act Correspondence

Dear Assistant Regional Administrator Damon-Randall,

The U.S. Environmental Protection Agency, Region I, New England (EPA) is preparing to reissue the NPDES permit for the Springfield Regional Wastewater Treatment Facility (Springfield WWTF) located in Agawam, MA and discharging to the Connecticut River. This permit also incorporates requirements for authorized discharges from the Springfield Water and Sewer Commission's Combined Sewer Overflows (CSOs). In other words, EPA is proposing to integrate the CSO requirements formerly covered by permit no. MA0103331 into the re-issued permit for the Springfield WWTF. The Fact Sheet and Draft Permit will be on public notice on November 15, 2017 and are available for review at: https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits.

The comment period will close on December 14, 2017. The Draft Permit is intended to replace the existing NPDES permit in governing the discharges from the WWTF and CSOs. Reissuance of the NPDES permit for this facility will extend authorization for the discharges listed above for five years from the effective date of the permit. https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits This letter is to request Endangered Species Act (ESA) concurrence from your office for the reissuance of the NPDES permit for the Springfield WWTF. We have made the determination that the proposed activity may affect, but is not likely to adversely affect, any species listed as threatened or endangered, or proposed critical habitat in the Connecticut River for Atlantic sturgeon designated by NMFS under the ESA of 1973, as amended. Our supporting analysis is provided below.

Proposed Project

The Springfield WWTF is designed to treat 67 million gallons per day (MGD) of wastewater from separate and combined sewers in Agawam, MA (lat. 42.086815, long. -72.587976). The treatment process train includes mechanical screens, primary clarification, aerated biological treatment, secondary clarification, chlorine disinfection, sludge thickening and sludge dewatering.

The wastewater collection system consists of both sanitary sewers, which transport domestic, industrial, and commercial wastewater; and combined sewers, which transport domestic, industrial, and commercial wastewater plus stormwater. The WWTF processes water from eight municipalities: Agawam, Springfield, East Longmeadow, Ludlow, West Springfield, Wilbraham, and Chicopee. The total population served (based on information submitted in 2005) is about 279,000. Under normal flow conditions, wastewater is conveyed to the facility through interceptor sewers. During wet weather events in which the combined flow exceeds the hydraulic capacity of the interceptor sewer and/or the wastewater treatment plant, discharges of untreated combined sanitary wastewater and stormwater occur from the CSOs to the Connecticut, Mill and Chicopee Rivers.

The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act ("CWA"), 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 ("WQS") at 314 CMR 4.00.

Description of the Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 C.F.R. §402.02). The Springfield WWTF is located on the west bank of the Connecticut River in the Town of Agawam, MA (river kilometer 122) between the Memorial and South End Bridges at the confluence of the Westfield and Connecticut Rivers, as shown in Attachment A. The WWTF discharges to the Connecticut River, while the CSOs discharge to the Connecticut River (13 CSOs), Mill River (7 CSOs), and Chicopee River (4 CSOs). Outfall 42, which is the CSO outfall located at the treatment plant, was not included on the existing CSO permit's list of outfalls; it is included here for completeness. A list of the CSOs is provided as Attachment B to this letter. All receiving waters are designated as Class B Warm Water Fisheries by the MassDEP under the Commonwealth of Massachusetts Surface Water Quality Standards (SWQS). *See* 314 CMR 4.06 Figures 6 and 8. The WWTF is located about 11 miles downstream of the Holyoke Dam. The confluence of the Chicopee River with the Connecticut River (the most upstream of the authorized discharges) is located about 6 miles downstream of the Holyoke Dam.

Sections 303(d) and 305(b) of the Clean Water Act "CWA" require that states complete a water quality inventory and develop a list of impaired waters. Specifically, section 303(d) requires states to identify those waterbodies that are not expected to meet water quality standards following the implementation of technology-based controls and, as

such, require the development of a total maximum daily load (TMDL). The Massachusetts Year 2014 Proposed Integrated List of Waters, as well as the final Massachusetts Year 2012 Integrated List of Waters, lists the segment of the Connecticut River into which the treatment plant and combined sewer outfalls discharge (Segment MA 34-05) as a Category 5 water (waters requiring a TMDL for pollutants identified as causing impairment(s)). The pollutants listed as causing the impairment(s) and requiring a TMDL are *E. coli*, total suspended solids, and PCBs in fish tissue (Massachusetts Year 2014 Integrated List of Waters (MassDEP 2014). The segment of the Mill River into which combined sewer overflow outfalls discharge is listed as a category 5 water due to impairment(s) caused by *E. coli*. The segment of the Chicopee River into which combined sewer outfalls discharge is listed as a Category 5 water due to impairment(s) caused by *E. coli*.

NMFS Listed Species (and Critical Habitat) in the Action Area

As the federal agency charged with authorizing the discharges from this facility, EPA has reviewed available habitat information developed by the Services to see if one or more of the federal endangered or threatened species of fish, wildlife, or plants may be present within the influence of the discharge. The following federally listed species may potentially inhabit (seasonally) the Connecticut River in the area of the facility discharge:

Common Name	Species Name	Status
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered
Atlantic Sturgeon	*Acipenser oxyrinchus oxyrinchus*	Threatened

In addition to the presence of these listed species, NMFS designated critical habitat for the Gulf of Maine, New York Bight, Chesapeake Bay, and South Atlantic Distinct Population Segments of Atlantic Sturgeon, which became effective on September 18, 2017. The designated critical habitat includes the Connecticut River from the mouth to the Holyoke Dam (New York Bight Unit 1 Connecticut River), which includes the action area. *See* 82 Fed. Reg. 39160 (August 17, 2017).

Atlantic Sturgeon

The Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) is a species of sturgeon distributed along the eastern coast of North America from Hamilton Inlet, Labrador, Canada to Cape Canaveral, Florida, USA. NMFS has delineated U.S. populations of Atlantic sturgeon into five distinct population segments (DPSs): the Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs. *See* 77 Fed. Reg. 5880 (Feb. 6, 2012); 77 Fed. Reg. 5914 (Feb. 6, 2012). NMFS has listed the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs as endangered species. See 77 Fed. Reg. 5912 and 5981-82. NMFS has listed the Gulf of Maine DPS of Atlantic sturgeon as a threatened species and extended the prohibitions under section 9(a)(1) of the ESA to this DPS. *See* 77 Fed. Reg. 5911 and 78 Fed. Reg. 69,310 (Nov. 19, 2013).

The primary factors responsible for the decline of the Atlantic sturgeon DPSs include the destruction, modification, or curtailment of habitat due to poor water quality,

dredging and the presence of dams; overutilization due to unintended catch of Atlantic sturgeon in fisheries; lack of regulatory mechanisms for protecting the fish; and other natural or manmade factors including loss of fish through vessel strikes. *See* 77 Fed. Reg. at 5905, 5967.

The general distribution of Atlantic sturgeon includes the Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Hamilton Inlet, Labrador, Canada to Cape Canaveral, Florida. After emigration from the natal estuary, subadults and adults travel within the marine environment, typically in nearshore waters less than 50 meters in depth characterized by gravel and sand substrate (Stein *et al.* 2004). Spawning typically occurs in well-oxygenated flowing water upriver of the salt front of estuaries on hard substrate such as cobble, hard clay, and bedrock. *See* 82 Fed. Reg. 39162. According to the *Status Review of Atlantic Sturgeon*, Atlantic sturgeon have been documented in the Connecticut River as far as Hadley, MA but regular migration was not thought to extend beyond the significant rapids in Enfield, CT. This species tends to remain in the lower river in the range of the salt wedge. In 2006, one Atlantic sturgeon was observed in the Holyoke Dam spillway upstream of the action area; this was the only instance of an Atlantic sturgeon reported at the Holyoke Dam (NMFS 2007).

Based on the Status Review document, subadult and adult Atlantic sturgeon are unlikely to be present in the action area of this discharge. However, because individuals have been observed on rare occasions in the Connecticut River upstream of the discharge, EPA has evaluated the potential impacts to this species below.

Shortnose Sturgeon

A population of endangered shortnose sturgeon (*Acipenser brevirostrum*) occurs in the Connecticut River. The Holyoke Dam separates shortnose sturgeon in the Connecticut River into an upriver group (from Holyoke Dam to Turners Falls) and a lower river group that occurs from the Dam to Long Island Sound. According to the most recent *Biological Assessment of Shortnose Sturgeon*, the downstream segment includes a concentration of adult and juvenile shortnose sturgeon in the 2-km reach below the Dam from spring through fall (NMFS 2010). Another year-round concentration has been observed in the 9-km reach near Agawam, MA, immediately downstream the action area. This area appears to serve both as habitat for foraging during spring, summer, and fall and as a wintering site (Kynard et al. 2012). Sturgeon may also enter the tributaries. Although no shortnose sturgeon have been observed in the Chicopee or Mill Rivers, an adult shortnose sturgeon was observed in a fish trap on the Westfield River downstream of the DSI Dam in May 2007. Ongoing modifications designed to enhance upstream passage for sturgeon and downstream passage at the dam may improve connectivity of the upstream and downstream groups of shortnose sturgeon.

Early life stages (including eggs and larvae) have been captured downstream of the Holyoke Dam periodically during surveys in the mid-1980s, in 1995, and in 1998-1999; however, evidence suggests that spawning in the downstream segment is minimal (NMFS 2010). In 2005-2006, three shortnose sturgeon larvae were captured during ichthyoplankton sampling, although no early life stages were captured during surveys conducted from Hartford to Holyoke during the same period. It is unknown whether the

captured larvae were spawned downstream of the dam or the result of downstream dispersal following a rare spawning event at the Holyoke Dam. In any case, it is evident that, while rare, early life stages of shortnose sturgeon may be present in the action area.

Atlantic Sturgeon Critical Habitat

NMFS has recently designated critical habitat for Atlantic sturgeon. *See* 82 Fed. Reg. 39160 (August 17, 2017). Critical habitat is defined as the specific areas within the geographical area occupied by the species at the time it is listed on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protections, and specific areas outside the geographical area occupied by the species at the time it is listed that are essential for the conservation of the species. *See* 16 U.S.C. 1532(5)(A) and 50 C.F.R. § 424.02(d). The physical features essential for reproduction and recruitment of Atlantic sturgeon include: hard bottom substrate for settlement of fertilized eggs, refuge, growth, and development of early life stages; aquatic habitat with gradual downstream salinity gradient of 0.5 to 30 parts per thousand and soft substrate downstream of spawning sites for juvenile foraging and development; water of appropriate depth and absent physical barriers to passage between the river mouth and spawning sites necessary to support unimpeded movement to and from spawning sites, seasonal and physiologically dependent movement of juveniles to appropriate salinity zones in the estuary, and staging, resting, or holding of subadults or spawning adults; and temperature, salinity, and oxygen values in the water that support spawning, survival, growth, development, and recruitment. *See* 82 Fed. Reg. 39161.

Based on the Status Review document, Atlantic sturgeon are unlikely to be present in the action area of this discharge. However, designated critical habitat for the New York Bight designated population segment (DPS) includes the Connecticut River from the Holyoke Dam downstream for 140 river kilometers to the mouth of the river where it discharges to Long Island Sound. The designated critical habitat encompasses the action area.

Effects Determination

Effects of this action on Atlantic sturgeon, shortnose sturgeon, and designated critical habitat for Atlantic sturgeon primarily include water quality impacts as a result of discharges of sanitary wastewater from the WWTF and untreated combined sanitary wastewater and stormwater from CSOs during wet weather. The effluent is unlikely to affect physical features essential to the conservation of the species, including the substrate, water depth, and fish passage.

The Draft Permit includes water quality-based effluent limitations on all pollutants for which the WWTF has a reasonable potential to cause, or contributes to, an exceedance of water quality standards in the receiving water. Water quality-based effluent limitations are established using available dilution at the 7Q10 low flow value, as required by state water quality standards (314 CMR 4.03(3)). For the Springfield WWTF, effluent limitations on total residual chlorine are based on a dilution factor of

25 calculated using the design flow of the WWTF (67 MGD) and a 7Q10 low flow in the Connecticut River at Outfall 041 of 2,435 cfs. The Draft Permit limits on biochemical oxygen demand and total suspended solids are consistent with the technology-based standards for secondary treatment for the protection of dissolved oxygen in the receiving waters. The Draft Permit also includes a numeric limit for acute toxicity ($LC_{50} \geq 100\%$).

EPA expects that this whole effluent toxicity requirement will ensure protection of aquatic life in the vicinity of the discharge, including from the cumulative effects of any constituents in the effluent. The effluent limits and permit conditions in the Draft Permit will ensure that the permitted activity will not change water quality in any significant way, that is, any effect are unable to be meaningfully measured, detected, or evaluated. In addition, the permitted activity is unlikely to affect the ability of critical habitat to support spawning, survival of any life stage, or larval, juvenile, or subadult growth, development, or recruitment.

Biochemical Oxygen Demand

Biological oxygen demand (BOD_5) measures the amount of oxygen used by aerobic microorganisms in the water column in order to approximate the availability of dissolved oxygen for fish, invertebrates, and other aerobic aquatic organisms. TSS and BOD_5 have the potential to affect dissolved oxygen concentrations in the vicinity of and downstream from the facility's outfall. The Massachusetts Surface Water Quality Standards for Class B Inland Water Classes (which includes the Connecticut River) require that dissolved oxygen levels shall not be less than 5.0 mg/l.

The Draft Permit includes the same BOD_5 limits as in the current permit, which are based on the secondary treatment requirements set forth at 40 C.F.R. §§ 133.102(a)(1), (2), (4) and 40 C.F.R. § 122.45(f). The mass-based limitations for BOD_5 are based on a 67 MGD design flow. The monitoring frequency is once per day.

EPA has determined that these effluent limits are sufficient to ensure that discharges from this facility do not cause an excursion below the Massachusetts Water Quality Standard, which requires that Class B waters attain a minimum DO saturation of 5.0 mg/l. Studies indicate that the average sensitivity of sturgeons to hypoxia is more than other fishes, and that hypoxic conditions impair respiratory metabolism, foraging activity, growth, and survival (Secor and Niklitschek 2002, Cech and Doloshov 2004, Niklitschek and Secor 2009). NMFS indicates that shortnose sturgeon are adversely affected upon exposure to dissolved oxygen levels below 5.0 mg/L (EPA 2004). In setting dissolved oxygen criteria for Chesapeake Bay, NMFS concurred with EPA that the instantaneous minimum dissolved oxygen criteria of 5 mg/L would protect spawning and migratory shortnose sturgeon and improve the chances for recovery of the Chesapeake Bay population (EPA 2004). The Final Rule for Atlantic Sturgeon Designated Critical Habitat identifies 6.0 mg/L or greater DO to support juvenile rearing habitat, however, the effects of the discharge are likely to be discountable because the juvenile stage is typically in brackish waters of the natal estuary, well downstream of the action area. *See* 82 Fed. Reg. 39161-62.

The BOD_5 criteria, which are established to ensure that the DO level will not be less than the Massachusetts water quality standard of 5.0 mg/L for Class B waters, will be protective of Atlantic sturgeon and shortnose sturgeon and critical habitat in the Connecticut River. As a result, the effluent will have an insignificant effect on Atlantic and shortnose sturgeon.

Total Suspended Solids

TSS may affect aquatic life by directly killing them, reducing growth rates, reducing resistance to disease, preventing the development of fish eggs and larvae, by altering natural migration and movement patterns, and by reducing their ability to forage or limiting the food supply (EPA 1976). The Draft Permit proposes the same TSS limits as in the current permit, which are based on the secondary treatment requirements set forth at 40 C.F.R. §§ 133.102(a)(1), (2), (4) and 40 C.F.R. § 122.45(f). The secondary treatment limitations are a monthly average TSS concentration of 30 mg/l and a weekly average concentration of 45 mg/l. The Draft Permit also requires the permittee to report the maximum daily TSS value each month. The mass-based limitations for TSS are based on a 67 MGD design flow. The monitoring frequency is once per day.

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

TSS may also indirectly affect sturgeon through impacts on prey species. For instance, benthic invertebrates may experience reductions in species diversity, survival, reproduction, and an increase in mortality when exposed to high concentrations of suspended solids over long time periods. However, most of the concentrations under which these impacts were observed were well above 45 mg/L, which is the maximum daily effluent limit for TSS in the Draft Permit (Bilotta and Brazier 2008). The TSS limits in the Draft Permit will likely ensure that prey species of sturgeon are not impacted by the discharge, and indirect effects to sturgeon as a result will be insignificant.

There is little research on the effects of suspended solids on shortnose sturgeon eggs and larvae. However, studies of other species suggest that these early life stages may be more sensitive to suspended solids than adults and juveniles. Auld and Schubel (1978)

observed that concentrations of up to 1,000 mg/L had no significant effect on percent hatched for blueback herring, alewife, American shad, and yellow perch eggs, while striped bass and white perch eggs tolerated exposures of up to 500 mg/L TSS without a significant effect on hatching. Striped bass and yellow perch larval survival was significantly affected at concentrations of 500 mg/L, while American shad larval survival was significantly affected at TSS concentrations of 100 mg/L. Kiørboe et al. (1981) found no effect of chronic concentrations of suspended silt up to 300 mg/L on embryonic development of herring eggs (*Clupea harengus*). In comparison, the maximum daily TSS concentration authorized in the Draft Permit is 45 mg/L, which is well below the concentrations found to affect early life stages. The authorized discharge of TSS from the facility is also unlikely to affect the temperature, salinity, or oxygen values to support spawning, survival, growth, development, or recruitment.

EPA has made the preliminary determination that the effluent from this facility is likely to have an insignificant effect on Atlantic sturgeon and shortnose sturgeon as well as critical habitat for Atlantic sturgeon.

Percent Removal of BOD_5 and TSS

Percent removal requirements are also included in the secondary treatment standards of 40 C.F.R. § 133.102, requiring a minimum of 85% percent removal for BOD_5 and TSS on an average monthly basis. However, combined sewer systems may receive case-by-case consideration because they may not be capable of meeting the percentage removal requirements during wet weather where the treatment works receive flows from combined sewers (*i.e.*, sewers which are designed to transport both storm water and sanitary sewage). *See* 40 C.F.R. § 133.103(a). The Regional Administrator or State Director (if appropriate) may substitute a lower percent removal requirement less than 85% or a mass loading limit for percent removal requirements. *See* 40 C.F.R. § 133.103(e).

In this case, the current permit had suspended the 85% removal requirement during all conditions. The Draft Permit reinstates the 85% removal requirement during dry weather because data reported over the past 5 years indicates that the treatment works would have consistently met the percent removal requirements on an average monthly basis. The Draft Permit continues to suspend the percent removal requirements during wet weather. EPA believes that establishing percent removal requirements for BOD_5 and TSS during dry weather, in combination with the technology-based limits consistent with secondary treatment requirements, will ensure that the effluent from the WWTF is likely to have an insignificant effect on Atlantic and shortnose sturgeon and critical habitat.

pH

The Draft Permit includes pH limitations which are required by state water quality standards, and are at least as stringent as pH limitations set forth at 40 C.F.R. § 133.102(c). The pH of the effluent shall not be less than 6.5 or greater than 8.3 standard units at any time. The water quality-based numeric effluent limitations for pH in the

Draft Permit are likely to protect water quality and will have an insignificant effect on Atlantic sturgeon and shortnose sturgeon as well as designated critical habitat.

Bacteria

Escherichia coli bacteria is an indicator of the presence of fecal wastes from warm-blooded animals. As this bacteria is often associated with viruses and other pathogens, the primary concern regarding elevated levels of these bacteria is for human health and exposure to pathogen-contaminated recreational waters. Fecal bacteria, such as *E. coli*, are associated with fecal matter, which is known to contain nutrients that support plant and animal growth. Algae and other organisms which utilize these nutrients can lower dissolved oxygen levels under certain environmental conditions (particularly warm water conditions). While fecal bacteria are not known to be toxic to aquatic life, elevated levels of these bacteria are indicative of water quality problems including lowered dissolved oxygen levels.

The Draft Permit's proposed limits are in accordance with the Massachusetts State Water Quality Standards for Class B Inland Waters: average monthly limit equal to a geometric mean of 126 colonies per 100 ml and an instantaneous maximum daily limit of 409 colonies per 100 ml. *See* 314 CMR 4.05(3)(b)(4)(b). Monitoring is required five times per week from April 1 through October 31.

The bacterial limits set for in the Draft Permit are designed to protect human health and also to insure that dissolved oxygen criteria are met in the receiving water body. As indicated above, the monthly dissolved oxygen level set for this receiving water (5.0 mg/L) is protective of shortnose sturgeon. As such, EPA has made the preliminary determination that the bacteria limits proposed in the Draft Permit are not likely to adversely affect shortnose sturgeon, critical habitat, or contribute to an excursion above water quality criteria set for this portion of the Connecticut River.

Total Residual Chlorine

The Springfield WWTF uses chlorination and dechlorination of secondary effluent. Chlorine can be toxic to aquatic life. In an analysis of exposure of 33 freshwater species in 28 genera, acute effect concentrations ranged from 28 µg/L for *Daphia magna* to 710 µg/L for the threespine stickleback (EPA 1986). The acute and chronic water quality criteria for chlorine defined in the 2002 EPA National Recommended Water Quality Criteria for freshwater are 13 µg/l and 7.5 µg/l, respectively. Both the nationally recommended acute and chronic criteria are set well below the minimum effect values observed in any species tested. As the water quality criteria levels have been set to be protective of even the most sensitive of the 33 freshwater species tested, EPA has judged that the criteria are also likely to be protective of shortnose sturgeon.

Given these criteria and a dilution factor of 25, the Draft Permit includes a maximum daily limit of 0.46 mg/l and average monthly limit of 0.26 mg/l for total residual chlorine. Sampling frequency is five times per week and the limits apply year-round when chlorine is in use. EPA expects that the water quality-based numeric limits are

protective of aquatic life and chlorine in the effluent will have an insignificant effect on Atlantic sturgeon, shortnose sturgeon, and designated critical habitat.

Metals

The release of metals into surface waters from anthropogenic activities such as discharges from municipal wastewater treatment facilities can result in their accumulation to levels that are highly toxic to aquatic life. EPA analyzed the available effluent and receiving water metals data from WET testing data collected from 2009 through 2014 to determine whether various metals "are or may be discharged at a level that causes, has reasonable potential to cause, or contributes to an excursion above" water quality standards. 40 C.F.R. § 122.44(d)(1)(i). The applicable water quality criteria for metals are the EPA National Recommended Water Quality Criteria 2002, which have been incorporated into the Massachusetts SWQS, 314 CMR 4.05 (5)(e).

As described in the Fact Sheet (at 14-16), based on the 95th percentile of the distribution of effluent data and the median upstream concentrations, there is no reasonable potential (for either acute or chronic conditions) that the discharge of metals will cause or contribute to an exceedance of the applicable water quality criteria. The Draft Permit establishes quarterly whole effluent toxicity (WET) testing requirements and includes an acute toxicity limit (LC_{50}) of greater than or equal to 100% survival as well as monitoring for lead, aluminum, copper, cadmium, nickel, and zinc. The quarterly WET limit and effluent monitoring requirements will likely ensure that the effluent is protective of aquatic life and as such, will have an insignificant effect on Atlantic sturgeon, shortnose sturgeon, and designated critical habitat.

Nitrogen

EPA has determined that excessive nitrogen loadings into the Connecticut River and tributaries are causing significant water quality issues in Long Island Sound which is located approximately 75 miles downstream from the facility. Nitrogen causes impairment via excessive primary productivity and while is not known to be directly toxic to aquatic life, elevated nitrogen levels are associated with eutrophication and indicative of water quality problems that may include lowered dissolved oxygen levels. These indirect impacts may affect sturgeon in the action area.

In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a Total Maximum Daily Load (TMDL) for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a Waste Load Allocation (WLA) for point sources and a Load Allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL. *See* A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound (CT DEP 2000). The overall TMDL target of a 25 percent aggregate reduction from baseline loadings to the Connecticut River above the Massachusetts-Connecticut border is currently being met.

EPA has determined that, because the TMDL limit is being met for the Connecticut River at the Massachusetts/Connecticut state line, an effluent limitation on nitrogen discharges from the Springfield WWTF is not required at this time. However, the Draft Permit increases the monitoring frequency from monthly to weekly to provide an improved baseline for assessing optimization of nitrogen removal and ensure that excessive nitrogen loading is prevented. The Draft Permit also requires the WWTF to continue optimizing operations for nitrogen.

Ammonia can be toxic to aquatic life and is also an oxygen-demanding pollutant whose biological decomposition may cause reduced dissolved oxygen concentrations in the receiving water. EPA also evaluated if the effluent had a reasonable potential to cause or contribute to an exceedance of the acute or chronic ammonia water quality criteria under both summer and winter conditions (Fact Sheet pp. 18-20). Using the 7Q10 low flow value (which is more stringent than the 30Q10 flow that EPA recommends using for the analysis but which was not available for the receiving water), the projected downstream ammonia concentrations in the summer and winder periods are 0.29 and 0.45 mg/l, respectively. Even under the more conservative assumption using 7Q10 flow, these values are less than the acute criteria of 26.7 mg/L, the summer chronic criteria of 3.14 mg/L, and the winter chronic criteria of 6.17 mg/L. Therefore, reasonable potential does not exist for the discharge of ammonia from the facility to cause or contribute to a violation of water quality standards.

Weekly monitoring of total nitrogen, total ammonia nitrogen, total nitrate+nitrite, and total kjeldahl nitrogen, coupled with optimizing operations to further reduce nitrogen loading to the Connecticut River, will likely ensure that the WWTF is not discharging nitrogen at a level that could impact dissolved oxygen levels that may affect shortnose sturgeon or designated critical habitat. EPA expects that these requirements will likely be protective of aquatic life and as such, the discharge of nitrogen will have an insignificant effect on Atlantic sturgeon, shortnose sturgeon, and designated critical habitat.

Combined Sewer Overflows

CSOs are point sources subject to NPDES permit requirements for both water-quality based and technology-based requirements but are not subject to the secondary treatment regulations applicable to publicly owned treatment works in accordance with 40 CFR §133.103(a). Section 301(b)(1)(C) of the Clean Water Act of 1977 mandated compliance with water quality standards by July 1, 1977. Technology-based permit limits must be established for best conventional pollutant control technology (BCT) and best available technology economically achievable (BAT) based on best professional judgment (BPJ) in accordance with Section 301(b) and Section 402(a) of the Water Quality Act Amendments of 1987 (WQA). The framework for compliance with Clean Water Act requirements for CSOs is set forth in EPA's National CSO Control Policy, 59 Fed. Reg. 18688 (1994).

The treatment facility's sewer collection system consists partially of combined sewers that convey both sanitary sewage and stormwater runoff during rain events. During wet

weather, the combined flow exceeds the capacity of the interceptor sewers and the wastewater treatment plant, and a portion of the combined flow is discharged to the Connecticut, Chicopee, and Mill Rivers through combined sewer overflows (CSOs). The system currently has 24 CSO outfalls where the CSOs discharge to receiving waters. A complete list of CSOs has been included as Attachment A to this letter. In 2014, the system had combined overflows of 378 million gallons, as well as discharges of 121 million gallons of partially treated sewage from the treatment plant. CSOs have been identified as a significant source of pollution to the Connecticut and Chicopee Rivers. See the Massachusetts Department of Environmental Protection's 2003 Connecticut River and 2003 Chicopee River Water Quality Assessments.

Coverage for discharges from the CSOs was provided by EPA to the City of Springfield in 1995 (Permit No. MA010333) because, at that time, the city owned and operated both the sewer system and the treatment facility. The Springfield Water and Sewer Commission (SWSC) was established in 1996 and subsequently took over ownership of both the treatment facility and the CSOs in the City of Springfield. Ownership of the satellite collection systems remained with their respective municipalities. For re-issuance of this permit, EPA has proposed combining the permit covering CSO discharges (MA010333) with this individual permit for the Springfield WWTF (MA0101613), both of which are owned and operated by the SWSC. The six municipalities that operate CSOs covered under this permit have been included as co-permittees.

The CSO Policy recommends that each community that has a combined sewer system develop and implement a long-term CSO control plan ("LTCP") that will ultimately result in compliance with the requirements of the CWA. The Commission submitted a Draft Long Term Control Plan Phase I Program in 2000, and a revised draft LTCP in May 2012. The plan has not been completely approved. The SWSC is currently operating under federal administrative orders (latest being Administrative Order Docket No. 14-007 issued September 2014), requiring various projects to reduce or eliminate CSO discharges.

When the capacity of the combined sewer collection system has been exceeded, subsequent overflows are released from CSOs into the Connecticut, Chicopee, and Mill Rivers. When these discharges occur, the receiving waters are running at high flows and volumes as a result of the storm event. TSS and bacteria are primary constituents of CSO discharges. The monthly mean streamflow of the Connecticut River (based on 10 years of record at USGS Gage 01172010 at I-391 Bridge in Holyoke, MA) ranges from 8,630 cfs in September to 36,800 cfs in April with a minimum mean flow of 2,884 cfs in September 2007. The monthly mean streamflow of the Chicopee River (based on 86 years of record at USGS Gage 01177000 at Indian Orchard, MA) ranges from 462 cfs in August to 1,830 cfs in April with a minimum mean flow of 176.5 cfs in August 1950. The USGS Gage 01178000 (Mill River at Springfield, MA) is no longer active, but based on streamflow records from 1938 to 1951, the mean daily streamflow at this gage was 43 cfs with a maximum daily flow of 306 cfs.

Streamflow increases during storm events and equates to potentially high dilution factors. A relatively high dilution factor during storm events, which is the only time

that CSOs would be discharging, will help to ensure that water quality criteria are met and dissolved oxygen levels are not reduced. CSO discharges are subject to specific conditions of the Draft Permit, including:

- Dry weather discharges from CSO outfalls are prohibited
- During wet weather, the discharges must not cause any exceedance of water quality standards. Wet weather discharges must be monitored and reported as specified in the permit.
- The permittee shall meet the technology-based nine minimum controls, set forth in the Fact Sheet, complying with the implementation levels as set forth in Part I.B.3 of the Draft Permit.
- The permittee shall submit updated documentation on its implementation of the Nine Minimum Controls within 6 months of the effective date of the permit, and shall provide an annual report on monitoring results from CSO discharges and the status of CSO abatement projects by April 30 of each year.

Conclusions

EPA has made the preliminary determination that the effluent limitations and conditions in the Draft Permit will be protective of aquatic life, including shortnose sturgeon, Atlantic sturgeon, and designated critical habitat. Based on the analysis that all effects of the proposed action will be insignificant, we have determined that the reissuance of the Springfield WWTF NPDES permit is not likely to adversely affect any listed species or critical habitat under NMFS' jurisdiction. A more detailed analysis of the effluent limitations summarized above is provided in the Fact Sheet. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to both NMFS and USFWS. We request your concurrence with this determination.

Sincerely,

David M. Webster

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cc: Christine Vaccaro, NMFS

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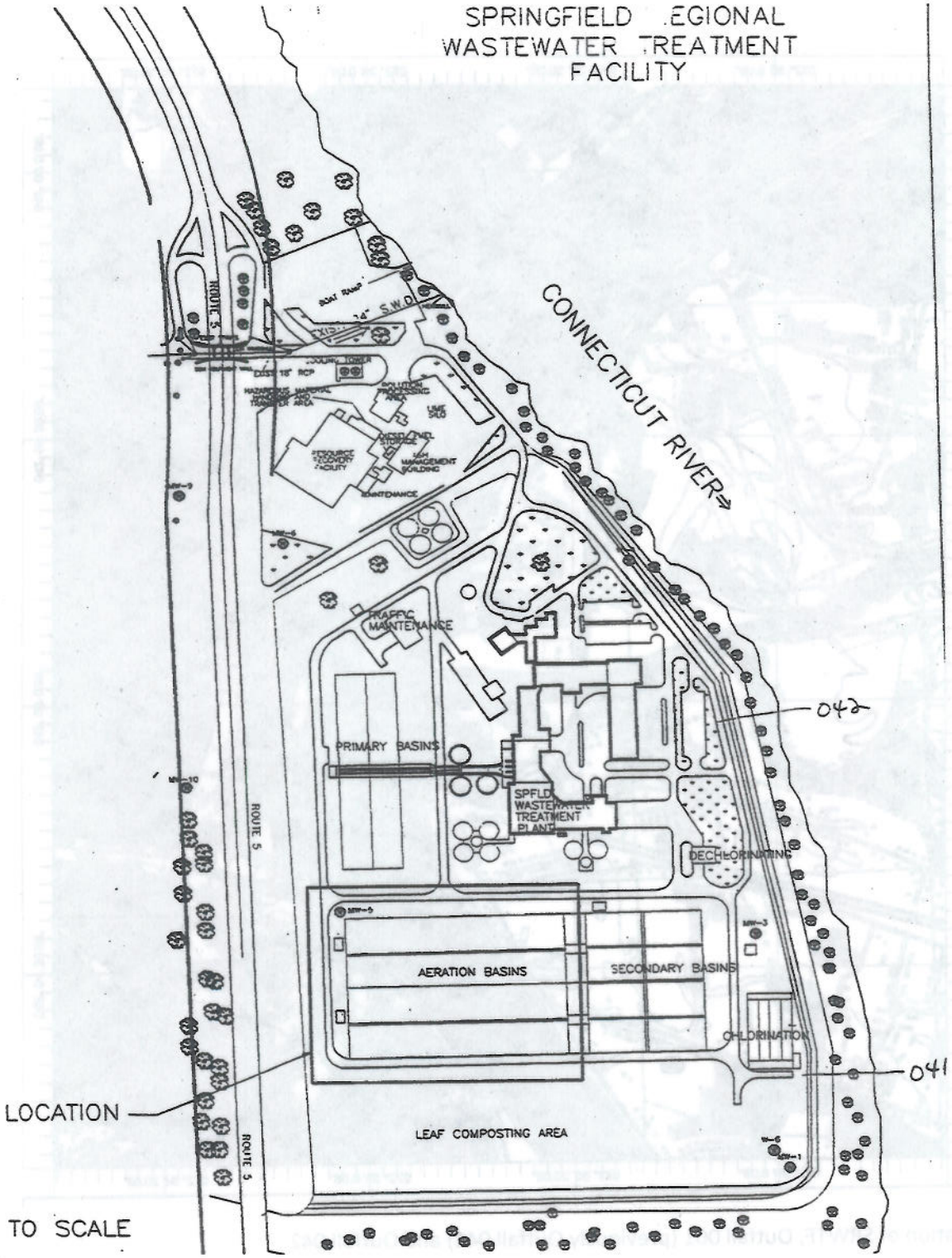
Attachment A
Site Location

Location of SRWTF, Outfall 001 (previously Outfall 041) and Outfall 042

Attachment A
Site Location



Location of SRWTF, Outfall 001 (previously Outfall 041) and Outfall 042

Attachment B

CSO overflow events, and volume (in 1,000's of gallons), as reported by SWSC

	2012		2013		2014		2015		2016	
Outfall	Number	Volume	Number	Volume	Number	Volume	Number	Volume	Number	Volume
7	2	0.3	1	83	2	941	6	550	3	450,773
8	37	65,573	7	20,903	0	0	11	14,446	2	380,020
10	32	43,179	37	74,458	47	77,494	34	48,446	36	34,047,622
11	41	86,026	4	68	4	475	1	0	4	208783
12	34	46,730	47	194,448	53	143,896	32	94,150	17	44,169,891
13	17	9,784	26	12,852	53	18,302	39	5,316	19	13,062,740
14	22	4,573	38	16,018	35	10,215	38	15,568	39	9,357,306
015A	42	9986	31	11,302	27	11,966	26	5,828	18	4,874,542
015B	0	0	9	379	11	844	6	83	1	3136
16	33	53,783	35	85,782	40	74,421	23	21,727	32	40,031,958
18	12	756	16	768	14	735	15	317	7	455784
49	13	1,639	15	1,873	25	2,486	24	4,104	11	482,649
17	13	1,635	22	1,779	18	2,616	17	1,404	7	67,851
19	17	18,650	7	8,258	9	2,150	4	8,857	3	1,142,252
24	9	448	7	1,258	9	392	7	254	1	21,126
25	11	1,241	18	2,231	18	1,342	10	534	13	1,377,830
45	15	268	24	696	19	1,545	12	670	6	1,491
46	20	1,813	23	2,425	18	3,316	10	1,293	6	618,669
48	10	4,957	12	530	16	1,319	15	6,355	11	439,059
34	14	1,648	21	4,848	21	1,278	12	841	10	61,447
35	22	2,146	11	1,754	11	2,462	10	726	5	337,987
37A	22	461	9	1,342	10	601	8	392	12	226,657
36A	24	3,680	14	3,160	17	3,485	14	2,310	5	1,327,395
042 at WWTF	10	5,532	11	4,307	16	16,313	12	6,878	8	6,435,000
CSO Total	472	361,510	445	451,522	493	378,594	386	241,049	276	159,581,968
WWTF Bypass	19	41,285	30	91,875	31	121,040	19	51,562	1	6,771,000

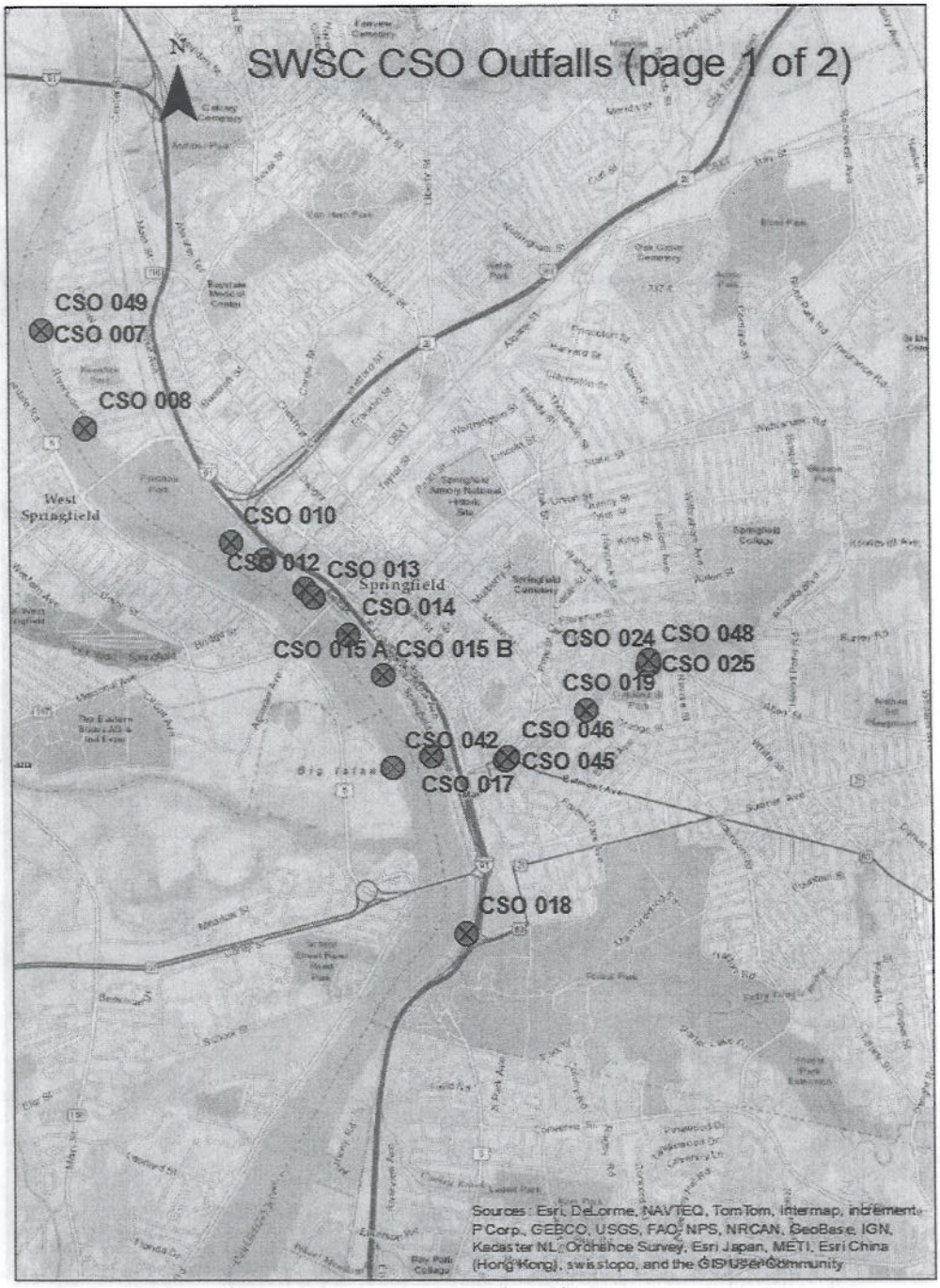
Attachment B

CSO Outfalls Locations and Volumes

Outfall No.	Location	Latitude Longitude
To Connecticut River		
007	Rowland St.	42° 12' 72° 62'
008	Washburn St. 4	42° 11' 72° 62'
010	Clinton St.	42° 10' 72° 60'
011	Liberty St.	42° 10' 72° 59'
012	Worthington St.	42° 10' 72° 59'
013	Bridge St.	42° 10' 72° 59'
014	Elm St.	42° 10' 72° 59'
015A	Union St.	42° 10' 72° 59'
015B	Union St.	42° 10' 72° 59'
016	York St.	42° 09' 72° 59'
018	Longhill St.	42° 06' 72° 58'
049	Springfield St.	42° 10' 72° 62'
042	Bondi Island Treatment Plant	
To Mill River		
017	Fort Pleasant (Blake Hill)	42° 09' 72° 58'
019	Mill, Orange, & Locust Sts.	42° 09' 72° 57'
024	Rifle & Central Sts.	42° 10' 72° 56'
025	Allen & Oakland Sts.	42° 10' 72° 56'
045	Fort Pleasant Ave.	42° 06' 72° 58'
046	Belmont St.	42° 06' 72° 58'
048	Allen & Rifle Sts.	42° 10' 72° 56'
To Chicopee River		
034	Main St.	42° 16' 72° 51'
035	Front & Oak Sts.	42° 16' 72° 50'
036A	Pinevale & Water Sts.	42° 16' 72° 50'
037	Cedar St. 4	42° 16' 72° 50'

Attachment B

Attachment B



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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02203

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

DATE OF NOTICE: November 15, 2017 – December 14, 2017

PERMIT NUMBER: MA0101613

PUBLIC NOTICE NUMBER: MA-004-18

NAME AND MAILING ADDRESS OF APPLICANT:

Springfield Water and Sewer Commission
P.O. Box 995
Springfield, MA 01101-0995

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Springfield Regional Waste Water Treatment Facility and from 24 Combined Sewer Overflow Outfalls (CSOs)
Route 5 Bondi Island
Agawam, MA 01001

RECEIVING WATER: Connecticut River, Chicopee River and Mill River

RECEIVING WATER CLASSIFICATION: Class B – Warm Water Fishery

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency, (EPA) and the Massachusetts Department of Environmental Protection (MADEP) have cooperated in the development of a permit for the above identified facility. The effluent limits and permit conditions imposed have been drafted to assure that State Water Quality Standards and provisions of the Clean Water Act will be met. EPA has formally requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified.

INFORMATION ABOUT THE DRAFT PERMIT:

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

Meridith Timony
US EPA
5 Post Office Square
Suite 100
Boston, MA 02109-3912
Telephone: (617) 918-1533

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

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by December 14, 2017, to the U.S. EPA, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-23912. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this draft permit the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION AND APPEALS:

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision any interested person may submit a request for a formal hearing to reconsider or contest the final decision.

LEALDON LANGLEY, DIRECTOR
MASSACHUSETTS WETLANDS
AND WASTEWATER
PROGRAMS
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL PROTECTION

LYNNE HAMJIAN, ACTING DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY – REGION 1