AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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

City of Chicopee
Department of Public Works
80 Medina Street
Chicopee, MA 01013

is authorized to discharge from the facility located at

Chicopee Water Pollution Control Facility
80 Medina Street
Chicopee, MA 01013

to receiving water named: **Connecticut River, Chicopee River, Cooley Brook, and Willimansett Brook (Connecticut River Basin)**

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

This Permit shall become effective on the first day of the calendar month following 60 days after signature.

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

This permit supersedes the permit issued on May 17, 2005

This permit consists of 25 pages in Part I including effluent limitations and monitoring requirements, Part II Standard Conditions, and Attachments A (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011), B (List of approved CSOs), C (Reassessment of Technically Based Industrial Discharge Limits) and D (NPDES Permit Requirement For Industrial Pretreatment Annual Report).

Signed this 15th day of August, 2012

/S/ SIGNATURE ON FILE
Stephen Perkins, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

David Ferris, Director
Massachusetts Wastewater Management Program
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A.1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **010**. Such discharge shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE[3] TYPE**
FLOW[2]	*********	*********	15.5 MGD	*********	Report MGD	CONTINUOUS	RECORDER
FLOW[2]	*********	*********	Report MGD	*********	*********	CONTINUOUS	RECORDER
BOD_5 [4]	3878 lbs/Day	5817 lbs/Day	30 mg/l	45 mg/l	Report mg/l	5/WEEK	24-HOUR COMPOSITE[5]
TSS [4]	3878 lbs/Day	5817 lbs/Day	30 mg/l	45 mg/l	Report mg/l	5/WEEK	24-HOUR COMPOSITE[5]
pH RANGE[1]	6.0 - 8.3 SU					5 DAYS/WK	GRAB
TOTAL CHLORINE RESIDUAL[1,6]	*********	**********	0.89 mg/l	*********	1.0 mg/l	3/DAY	GRAB
ESCHERICHIA COLI [1,7] April 1 to October 31	*********	**********	126 cfu/100 ml	*********	409 cfu/100 ml	1/WEEK	GRAB
ALUMINUM[9]	*****	**********	87 ug/l	*********	Report ug/l	2/MONTH	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [10, 11, 12]	*Pimephales promelas:* Acute $LC_{50} \geq 100\%$					4/YEAR	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [11, 12, 13]	*Salvelinus fontinalis:* Report LC_{50}					2/YEAR FOR TWO YEARS	24-HOUR COMPOSITE[5]

Sampling location: Composite samples taken immediately prior to chlorine contact chamber; grab samples taken at the discharge from chlorine contact chamber.

CONTINUED FROM PREVIOUS PAGE

A.1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **010**. Such discharge shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE[3] TYPE**
TOTAL NITROGEN[8]	Report lbs/day	**********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL KJELDAHL NITROGEN	Report lbs/day	**********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL NITRATE+NITRITE	Report lbs/day	**********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL AMMONIA as N	Report lbs/day	**********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL NITROGEN[8, 14] (Influent)	Report lbs/day	**********	Report mg/l	*********	Report mg/l	4/YEAR	24-HOUR COMPOSITE[5]
TOTAL KJELDAHL NITROGEN (Influent)	Report lbs/day	**********	Report mg/l	*********	Report mg/l	4/YEAR	24-HOUR COMPOSITE[5]
TOTAL NITRATE+NITRITE (Influent)	Report lbs/day	**********	Report mg/l	*********	Report mg/l	4/YEAR	24-HOUR COMPOSITE[5]
TOTAL AMMONIA as N (Influent)	Report lbs/day	**********	Report mg/l	*********	Report mg/l	4/YEAR	24-HOUR COMPOSITE[5]

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. An attachment to the monthly DMRs containing the date, time of initiation, duration, and estimated total daily volume for all bypasses, as well as the total and maximum WWTF flow for each day that there was a bypass, shall be submitted each month. The permittee shall not accept septage during any calendar day in which a bypass of secondary treatment is anticipated.

3. All required effluent samples shall be collected at the point specified on page 2. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.

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

   All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. All samples shall be 24 hour composites unless specified as a grab sample in 40 CFR §136.

4. Sampling required for influent and effluent.

5. 24-hour composite samples will consist of at least twenty four (24) grab samples taken during one consecutive 24 hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

6. 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.

   Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection, or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be

reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

7. The monthly average limit for Escherichia coli is expressed as a geometric mean. Escherichia coli monitoring shall be conducted concurrently with a total residual chlorine sample. An attachment to the monthly DMRs containing all individual sampling results for *Escherichia coli* bacteria, and total residual chlorine, including the date and time of the sample and whether or not the facility was bypassing at the time of the sample, shall be submitted each month.

8. See Part I.B. Special Conditions, for requirements to evaluate and implement optimization of nitrogen removal. The weekly total Kjeldahl nitrogen, nitrite, nitrate and ammonia samples shall be collected concurrently. The results of the weekly total Kjeldahl nitrogen, nitrite, and nitrate analyses may be used to determine the concentration and mass loading of total nitrogen. The permittee shall report the monitoring results for each species of nitrogen as well as total nitrogen on the discharge monitoring reports.

9. The Permittee shall comply with the aluminum limit in accordance with the facility upgrade schedule contained in Section J below. In the interim, the facility shall be operated in order to minimize the use of aluminum compounds to the extent practicable while meeting its total suspended solids limit.

10. The permittee shall conduct acute toxicity tests *four* times per year. The permittee shall test the fathead minnow, Pimephales promelas. Toxicity test samples shall be collected during the months of February, May, August and November. The test results shall be submitted by the last day of the month following the completion of the test. The results are due March 31, June 30, September 30 and December 31, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

Test Dates	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**
February May August November	March 31 June 30 September 30 December 31	Pimephales promelas (fathead minnow)	$\geq$ 100%

After submitting **one year** and a **minimum** of four consecutive sets of WET test results, all of which demonstrate compliance with the WET permit limits, the permittee may

request a reduction in the WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the WET testing requirement has been changed.

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 either follow procedures outlined in **Attachment A (Toxicity Test Procedure and Protocol**) **Section IV., DILUTION WATER** in order to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of *NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs)* which may be found on the EPA, Region I web site at http://www.epa.gov/Region1/enforcementandassistance/dmr.html. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A**. Any modification or revocation to this guidance will be transmitted to the permittees. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

13. The permittee shall conduct acute toxicity tests on the brook trout, Salvelinus fontinalis, two times per year for the first two years of the permit term. If brook trout are not available for testing at a prescribed time, testing may be conducted on the rainbow trout, Oncorhynchus mykiss for that testing period. Toxicity test samples shall be collected concurrently with the samples for acute toxicity tests on fathead minnow, during the months of May and November. The test results shall be submitted by the last day of the month following the completion of the test. The results are due June 30 and December 31, respectively. The tests must be performed in accordance with test procedures and protocols specified in 40 CFR Part 136, method 2019 and EPA, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (2002), with the following test condition specifications (see *id*. at 57, Table 15):

Test type:	static renewal
Test duration:	48 hours
Test temperature:	12°C +/- 1°C
Number of replicate chambers per concentration:	4

14. Influent sampling shall be conducted concurrently with one of the required effluent

samples. The permittee shall also report percent removal of total nitrogen. Percent removal shall be calculated by comparison of the influent concentration to the effluent result from the date the influent was sampled.

Part I.A.1. (Continued)

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

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

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

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

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

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

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

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

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

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

c. For purposes of this paragraph, adequate notice shall include information on:

(1) The quantity and quality of effluent introduced into the POTW; and

(2) Any anticipated impact of the change on the quantity or quality of effluent

to be discharged from the POTW.

3. Prohibitions Concerning Interference and Pass Through:

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

4. Toxics Control

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

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

5. Numerical Effluent Limitations for Toxicants

   EPA or MassDEP may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including but not limited to those pollutants listed in Appendix D of 40 CFR Part 122.

B. SPECIAL CONDITIONS FOR NITROGEN

Within **one year of the effective date of the permit,** the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen, and submit a report to EPA and the MassDEP documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year-round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. The permittee shall implement the recommended operational changes in order to maintain the mass discharge of total nitrogen less than the existing mass loading of total nitrogen. The baseline annual average total nitrogen load from this facility is estimated to be 1,618 lbs/day.

The permittee shall submit with its **next permit reapplication** a report evaluating the impact of CSO abatement projects on nitrogen loads discharged from the WPCF. The report shall include a comparison of 2004-05 conditions with conditions as of the date of the report with respect to the volume of sanitary sewage and of stormwater discharged through CSOs, through the WPCF and through the CSO treatment facilities. The report shall also include the expected change in

volume and nitrogen load from the WPCF from sanitary sewage and stormwater flows in connection with each phase of the LTCP not included in the analysis of conditions as of the report date, but expected to be completed within the following permit term.

The permittee shall also 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 year.

C. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall(s) listed in Part I A.1 (outfall 010), Part H (outfall 011), and the CSOs listed in **Attachment B** of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four hour reporting).

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

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions:

1. Maintenance Staff

   The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Preventative Maintenance Program

   The permittee shall maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges.

3. Infiltration/Inflow Control Plan:

   The permittee shall continue to implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The plan shall be updated and submitted to EPA and

MassDEP **within six months of the effective date of this permit** (see page 1 of this permit for the effective date) and shall describe the permittee's program for preventing infiltration/inflow related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive infiltration/inflow.

The plan shall include:

- An ongoing program to identify and remove sources of infiltration and inflow. The program shall include the necessary funding level and the source(s) of funding.

- An evaluation of the impact of completed and planned sewer separation projects on reduction of infiltration and inflow.

- An inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts. Priority should be given to removal of public and private inflow sources that are upstream from, and potentially contribute to, known areas of sewer system backups and/or overflows

- Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of infiltration and inflow to the system.

- An educational public outreach program for all aspects of I/I control, particularly private inflow.

Reporting Requirements:

A summary report of all actions taken to minimize I/I during the previous calendar year shall be submitted to EPA and MassDEP annually, **by March 31**. The summary report shall, at a minimum, include:

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

- Expenditures for any infiltration/inflow related maintenance activities and corrective actions taken during the previous year.

- A map with areas identified for I/I-related investigation/action in the coming year.

- A calculation of the annual average I/I and the maximum month I/I for the reporting year.

- A report of any infiltration/inflow related corrective actions taken as a result of

unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to the Unauthorized Discharges section of this permit.

4. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the permittee shall continue to provide an alternative power source with which to sufficiently operate its treatment works (as defined at 40 CFR §122.2).

E. COMBINED SEWER OVERFLOWS (CSOs)

1. Effluent Limitations

During wet weather, the permittee is authorized to discharge storm water/wastewater from combined sewer outfalls listed in **Attachment B**, subject to the following effluent 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 and detailed further in Part I.D.2, "Nine Minimum Controls Minimum Implementation Levels" 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. **Within 6 months of the effective date of this permit**, the permittee shall submit to EPA updated documentation on its implementation of the Nine Minimum Controls. Implementation of the Nine Minimum Controls is required by the effective date of the permit. EPA and MassDEP consider that approvable documentation must include the minimum requirements set forth in Part I.D.2 of this permit and additional activities the permittee can reasonably undertake.

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

2. 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 and tidal surcharging (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 (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 may be through direct measurement or estimation. When estimating, the permittee shall make reasonable efforts, i.e. gauging or measurements, to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

- Estimated duration (hours) of discharge;
- Estimated 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.

Annually, no later than April 30th, the permittee shall submit a report containing the required discharge monitoring information for all combined sewer discharges during the previous calendar year.

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:

CITY OF CHICOPEE
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 languages other than English or add a universal wet weather sewage discharge symbol to

existing signs based on notification from the EPA and the State or on the permittee's own good faith determinations that the primary language of a substantial percentage of the residents in the vicinity of a given outfall structure is not English.

3. 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 frequency, duration, and volume of discharges from each CSO.

4. Jones Ferry CSO Treatment Facility

a. Discharges from the Jones Ferry CSO Treatment Facility to CSO outfall 007, here designated as internal outfall 007A, are subject to additional technology based numeric effluent limits as enhanced minimum controls for CSO Outfall 007, as set forth in Part I.E.4.b. Additional monitoring and reporting requirements also apply.

E.4.b. Outfall 007A, Jones Ferry CSO Treatment Facility, Effluent Limitations and Monitoring Requirements

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**		**MONITORING REQUIREMENTS**	
PARAMETER	**AVERAGE MONTHLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
FECAL COLIFORM[*1, *2, *3, *5]	200 cfu/100 ml	400 cfu/100 ml	1 EVENT/MONTH, HOURLY	GRAB
TOTAL RESIDUAL CHLORINE[*4, *5]	0.89 mg/l	1.0 mg/l	1 EVENT/MONTH, HOURLY	GRAB
pH RANGE	Report Maximum and Minimum, S.U.		1/MONTH	GRAB
BOD_5	Report mg/l and lb/day	Report mg/l and lb/day	2/YEAR	EVENT COMPOSITE[*6]
TSS	Report mg/l and lb/day	Report mg/l and lb/day	2/YEAR	EVENT COMPOSITE[*6]
TOTAL KJELDAHL NITROGEN, NITRATE, NITRITE, AMMONIA AS NITROGEN and TOTAL NITROGEN [*7]	Report mg/l and lbs/day	********	2/YEAR	EVENT COMPOSITE[*6]
WHOLE EFFLUENT TOXICITY [*8,*9]	Report LC_{50}		2/YEAR	EVENT COMPOSITE[*6]

PARAMETER	**TOTAL MONTHLY**	**MAXIMUM HOURLY**	**DURATION**	**FREQUENCY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
FLOW (Treated Flow from Facility)[*9]	Report MG	Report MGD	Report total hours	Report number of events	EVERY EVENT	CONTINUOUS
FLOW (Untreated Flow to River)[*9]	Report MG	Report MGD	Report total hours	Report number of events	EVERY EVENT[*]	CONTINUOUS
FLOW (Drained back to WPCD)[*9,*10]	Report MG	********	********	Report number of events	EVERY EVENT[*]	CONTINUOUS

*Footnotes

*1. The fecal coliform effluent limits apply for flows up to a maximum hourly flow rate of 35.2 MGD. Samples collected when flow exceeds 35.2 MGD shall not be used to calculate compliance with the effluent limitations. During high flow conditions, at least one grab sample/month is to be collected and analyzed for monitoring purposes only. This distinction is made because the facility is required to disinfect flows up to a 35.2 MGD flow rate (the estimated peak CSO flow rate from CSO diversion structure 7.1 during a 3-month design storm), but is equipped to pump flow at rates greater than 35.2 MGD to allow disinfection of larger storms. The permittee is required to operate the treatment facility at flow rates greater than 35.2 MGD to the extent practicable.

*2. Hourly sampling for fecal coliform will be performed for a four-hour duration. If the event lasts longer than four (4) hours, no further sampling is required. If hourly sampling is started and the event does not last at least four hours, another event during that month will be used for the hourly testing.

*3. The permittee conducted concurrent monitoring for E. coli and fecal coliform through August 2011 consistent with the 2006 Consent Order. Within six months of permit effective date, the permittee shall submit a report containing a side by side listing of all E. coli and fecal coliform results along with a summary of E. coli analytical methods used and an assessment of practical issues encountered in their application. The permittee shall also, in connection with its application for reissuance of this permit upon its expiration, submit an additional six months of concurrent E. coli monitoring data. This additional data shall be collected within one year of the date of application.

*4. Hourly sampling for total residual chlorine will be performed for a four-hour duration. If the event lasts longer than four (4) hours, sampling will be required every four hours after the fourth hour. If hourly sampling is started and the event does not last at least four hours, another event during that month will be used for the hourly testing.

*5. The limits for fecal coliform are expressed as a geometric mean. Fecal coliform monitoring shall be conducted concurrently with total residual chlorine monitoring.

*6. Event composite must represent an event duration of at least four hours. An event composite is considered to represent an event duration of at least four hours where (i) the composite represents at least four

consecutive hours of flow through the facility; or (ii) the composite represents at least four hours of flow during a 24 hour period starting at approximately 8:00 AM each day (± 2 hours) coinciding with the permittee's composite sampling schedule, if flow through the facility is discontinuous.

*7. The total Kjeldahl nitrogen, nitrite, nitrate and ammonia samples shall be collected concurrently. The results of the total Kjeldahl nitrogen, nitrite, and nitrate analyses may be used to determine the concentration and mass loading of total nitrogen. The permittee shall report the monitoring results for each species of nitrogen as well as total nitrogen.

*8. The permittee shall conduct acute toxicity tests two times per year in May and November. If weather does not permit collection of a four hour composite in these months, the tests may be delayed to the first available event of four hour or more duration. The permittee shall test the fathead minnow, Pimephales promelas, only. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit, except that the permittee may use an alternate dilution water.

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*9. Permittee shall also submit monthly operating reports for the Jones Ferry CSO Treatment Facility. The monthly operating reports shall contain:

(i) Total precipitation for each day (whether or not there was flow through facility);
(ii) Dates on which flow through facility occurred;
(iii) Duration of flow through facility;
(iv) Treated flow from facility;
(v) Untreated flow to river;
(vi) Flow drained back to WPCD;
(vii) Monitoring results for each event.

*10. Flow drained from facility back to collection system to WPCD shall occur only when WPCD flows are below 25 MGD.

F. DEVELOPMENT OF LIMITATIONS FOR INDUSTRIAL USERS

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

2. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial

User(s), and all other users, as appropriate, which together with appropriate changes in the POTW 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 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 **Attachment C** with 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 Limits Development Guidance (EPA 833-R-04-002A, July 2004).

G. INDUSTRIAL PRETREATMENT PROGRAM

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

   a. Carry out 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 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.

2. In accordance with 40 CFR Part 403.12(i), the permittee shall provide the EPA and

MassDEP with an annual report describing the permittee's pretreatment program activities for the twelve month period ending December 31. The annual report shall be consistent with the format described in **Attachment D** of this permit and shall be submitted no later than **March 1st** of each year.

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

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

5. The permittee must modify its pretreatment program to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within 180 days of this permit's effective date, proposed changes 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, if applicable, 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 1's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described above.

H. OUTFALL 011

The permittee shall perform a inspection of outfall 011 (storm water from Westover Air Reserve Base) on an annual basis, and shall record depth of sediment and thickness of oil/grease layer in connection with each inspection. The permittee shall also perform an additional inspection within one week of receipt of notice from Westover Air Reserve Base or Westover Metropolitan Airport of a significant oil spill within the drainage area of outfall 011, unless documentation is received demonstrating that impacts to outfall 011 and the oil/water separator system are insignificant.

The permittee shall also perform routine maintenance of outfall 011 as necessary, including cleaning of the oil/water separator the sooner of (i) every five years or (ii) within sixty days of an inspection finding that sediment depth exceeds one half of sump capacity or oil/grease thickness exceeds one inch.

I. SLUDGE CONDITIONS

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

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

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

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

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

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

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

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

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

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

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 19** (*see also* "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted to the address contained in the reporting section of the permit. If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:

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

J. COMPLIANCE SCHEDULE FOR ALUMINUM

The permittee shall attain the monthly average aluminum limit according to the following schedule:

1. Within twelve (12) months of the effective date of the permit, the Permittee shall initiate a study to characterize sources in the system and analyze alternatives for meeting the limit.

2. Within twenty-four (24) months of the effective date of the permit, the Permittee shall complete its study to characterize sources in the system and analyze alternatives for meeting the limit, including establishing a schedule for the implementation of the selected source reduction measures and/or alternative treatment system. The Permittee shall submit a report summarizing the results of its study, the alternative selected, and the established schedule, within fourteen days of this interim compliance date.

3. Within thirty-six (36) months of the effective date of the permit, the Permittee shall implement the selected source reduction measures and shall, if necessary under the selected alternative, complete design of the alternative system for compliance with the aluminum limit.

4. Within forty-eight (48) months of the effective date of the permit, the Permittee shall complete construction of the alternative system for compliance with the aluminum limit, if necessary under the selected alternative.

5. The aluminum limit shall go into effect forty-eight (48) months after the effective date of the permit.

6. No later than fourteen (14) days following each interim date and the final date of compliance, the permitee shall notify EPA in writing of its compliance or noncompliance with these requirements.

K. MONITORING AND REPORTING

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

   a. Submittal of Reports Using NetDMR

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

DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA, including the MassDEP Monthly Operations and Maintenance Report, as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees shall continue to send hard copies of reports other than DMRs (including Monthly Operation and Maintenance Reports) to MassDEP until further notice from MassDEP.

b. Submittal of NetDMR Opt Out Requests

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

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

And

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

c. Submittal of Reports in Hard Copy Form

Hard copy DMR submittals shall be completed and postmarked no later than the 15th day of the month following the completed reporting period. MassDEP Monthly Operation and Maintenance Reports shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports required herein, shall be submitted to the appropriate State addresses and to the EPA address listed below:

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

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

Massachusetts Department of Environmental Protection
Western Regional Office
Bureau of Resource Protection
436 Dwight Street
Springfield, MA 01103

Toxicity test reports and aluminum reports only shall also be submitted to the State at the following address:

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

L. STATE PERMIT CONDITIONS

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

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

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only

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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

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

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

2. Permit Actions

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

3. Duty to Provide Information

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

4. Reopener Clause

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

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

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

5. Oil and Hazardous Substance Liability

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

6. Property Rights

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

7. Confidentiality of Information

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

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

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

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

8. Duty to Reapply

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

9. State Authorities

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

10. Other Laws

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

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

b. Bypass not exceeding limitations

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

c. Notice

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

d. Prohibition of bypass

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

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

5. Upset

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

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

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

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

e. Twenty-four hour reporting.

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

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

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

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

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

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

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

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

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

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

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

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

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

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

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

EPA means the United States "Environmental Protection Agency".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Commonly Used Abbreviations

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

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

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

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

All samples held overnight shall be refrigerated at 1- 6^{o}C.

IV. DILUTION WATER

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

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

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

and

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

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

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

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

V. TEST CONDITIONS

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

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

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

15.	Number of dilutions[3]	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement of body or appendages on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection.
19.	Sample volume required	Minimum 1 liter

Footnotes:

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

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

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

15.	Number of dilutions[3]	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection.
19.	Sample volume required	Minimum 2 liters

Footnotes:

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

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, oxygen, hardness, alkalinity and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour

intervals in all dilutions. The following chemical analyses shall be performed on the 100 percent effluent sample and the upstream water sample for each sampling event.

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

Notes:

1. Hardness may be determined by:
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     -Method 2340B (hardness by calculation)
     -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     -Method 4500-CL E Low Level Amperometric Titration
     -Method 4500-CL G DPD Colorimetric Method

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

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

Receiving Water	CSO #	Location	Outfall	Outfall location
Connecticut River	3	Power Line ROW S of James St	3	Power Line ROW S of James St
	4	Riverview Pumping Station	4	Riverview Pumping Station
	5	Leslie St Pumping Station	5	Leslie St Pumping Station
	6	Call St Pumping Station	6	Call St Pumping Station
	7.1	Jones Ferry Rd Pumping Station	7	Jones Ferry Road
	7.2	Jones Ferry Rd Pumping Station		
	8	Easement S of Jones Ferry Rd P.S.	8	South of Jones Ferry Road
	9	Paderewski St Pumping Station	9	Paderewski Street
	24.2	Leonard St and West St	24	Exchange Street
	24.3	Exchange St and Bullens St		
	24.4	Exchange St and Depot St		
	24.5	Front and Depot St Area		
Chicopee River	26.1	Bell St and Front St	26	Bell St and Front St
	27.1	Parking Lot, Topors Garage, Front St	27	West End of Riverview Terrace
	27.2	West End of Riverview Terrace		
	29	Chicopee Electric Light West	29	Chicopee Electric Light West
	31.1	Chicopee Electric Light South	31	Off Front Street between Wheatland and Ellerton Streets
	31.3	Easement NW of Front St		
	32.2	Walnut St and Broadway	32A	West Main and Oak Streets
	32.3	Broadway and Belcher St	32B	Main Street West of Deady Memorial Bridge
	32.4	Maple St and Belcher St		
	32.5	Church St and Walnut St	32A	West Main and Oak Streets
	34.1	Grattan St and Hearthstone Terrace	34	Near Rattan Street and Hearthstone Terrace
	34.2	Hearthstone Terrace # 44		
	34.3	Montgomery St @ Deady Memorial Bridge		
	37	East Main St # 227	37	227 East Main Street
	40	Chicopee St, manhole #11	40	Chicopee Street near Rte 116 Bridge
Willimansett Brook	42	Robert's Pond	42	Robert's Pond

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 p.,3-28 in EPA's *Guidance Manual on the Development and Implementation of Local Limits Under the Pretreatment Program, 12/87.*

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. 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 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		Column (2) OLD PERMIT	
Pollutants	Limitations (ug/l)	Pollutants	Limitations (ug/l)

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) Biosolids Criteria From TBLLs (mg/kg)	(2B) New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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: MA0101508

PUBLIC NOTICE START AND END DATES: August 10, 2011 – September 8, 2011

NAME AND MAILING ADDRESS OF APPLICANT:

City of Chicopee
Department of Public Works
80 Medina Street
Chicopee, Massachusetts 01013

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Chicopee Water Pollution Control Facility
80 Medina Street
Chicopee, MA 01013

RECEIVING WATER(S): Connecticut River and Willimansett Brook (Connecticut River Basin), Chicopee River and Cooley Brook (Chicopee River Basin)

RECEIVING WATER CLASSIFICATION(S): Class B (all)

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

The above named applicant has applied to the U.S. Environmental Protection Agency for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving waters. The applicant is engaged in the collection and treatment of domestic and industrial wastewater. The discharges are from a secondary wastewater treatment facility to the Connecticut River (Outfall 010) and from eighteen Combined Sewer Overflows (CSOs) to the Connecticut and Chicopee Rivers and Willimansett Brook, as listed in Permit

Attachment B.[1] The newly constructed Jones Ferry CSO Treatment Facility discharges through CSO outfall 007 and is included in the authorization for that CSO outfall. The draft permit also authorizes the discharge of stormwater to Cooley Brook, from an oil/water separator taking drainage from a portion of the Westover Air Reserve Base (Outfall 011).

II. Description of Discharge

A quantitative description of the wastewater treatment plant discharge in terms of significant effluent parameters, based on the monthly discharge monitoring reports ("DMRs"), is shown in **Table 1**. The facility also experiences wet weather related bypasses, not authorized under the facility's permit, that are provided with seasonal primary treatment and disinfection. Monitoring data from the bypass treatment facility is reported pursuant to a 2006 Consent Decree (*United States v. City of Chicopee*, Consent Decree, D.Mass. No. 06-30121-MAP (July 2006)) in the form of monthly operating reports; monitoring results for 2009 are shown in **Table 2**.

The Jones Ferry CSO Treatment Facility, which commenced operation in July 2009, is monitored pursuant to the same Consent Decree; data for its first year of operation are shown in **Table 3**. Other CSO discharges are monitored only via block testing at the diversion structures to determine if the CSO has been activated; number of activations in 2009 is included in **Table 4**.

III. Receiving Water Description

The secondary treatment plant and the eight CSO outfalls on the Connecticut River discharge to segment 34-05 (Connecticut River, Holyoke Dam to state line) as defined by MassDEP. Massachusetts has classified the Connecticut River as a Class B Water (warm water fishery). 314 CMR 4.06 (Table 6). The Massachusetts Surface Water Quality Standards designate Class B Waters as having the following uses:

> as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated they shall be suitable as a source of public water supply with appropriate treatment. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value. . . .

314 CMR 4.05(3)(b). A warm water fishery is defined as "waters in which the maximum mean monthly temperature generally exceeds 68°F (20°C) during the summer months and are not capable of sustaining a year-round population of cold-water stenothermal aquatic life." 314 CMR 4.02. The *Connecticut River Watershed 2003 Water Quality Assessment Report* (MassDEP 2008) concluded that the primary contact use was impaired due to elevated E. coli

[1] Some CSOs discharge flow from more than one diversion structure. For these structures, the inventory convention is to use the outfall number, a decimal point, and then the number of the diversion structure. For example, CSO diversion structure 24.2 is a specific diversion structure discharging flow through outfall 024. CSO outfalls are denoted using a three digit number with no decimals (e.g. 007; 024).

bacteria, and the fish consumption use impaired due to PCBs in fish tissue. Other uses were assessed as supported. The Massachusetts Year 2008 Integrated List of Waters ("303(d) list") indicates that this segment of the Connecticut River is not attaining water quality standards, with impairments caused by priority organics, pathogens and suspended solids. CSO outfall 42 discharges to the Willimansett Brook, a small tributary to the Connecticut River. Willimansett Brook is a class B waterbody that has not been assessed.

An additional nine CSO outfalls discharge to the Chicopee River – three to segment 36-25, Chicopee Falls to confluence with the Chicopee River (outfalls 26, 27, 29, 31, 32A, 32B, 34 and 40) and one to segment 36-24, Wilbraham Pumping Station to Chicopee Falls (outfall 37). The Chicopee River is designated as a Class B Water/warm water fishery, with the same designated uses set forth above. 314 CMR 4.06 (Table 8); 4.05(3)(b). The *Chicopee River Watershed 2003 Water Quality Assessment Report* (MassDEP 2008) assessed segment 36-25 as impaired for primary and secondary contact uses due to elevated E. coli, with fish consumption not assessed and other uses supported. Segment 36-24 was assessed as supportive of all uses except fish consumption, which was not assessed. The 303(d) list indicates that both these segments are not attaining water quality standards for pathogens.

The Connecticut and Chicopee Rivers are identified in the MASWQS 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). The relevant CSOs include not only Chicopee, but also Holyoke (upstream on the Connecticut River) and Springfield (upstream on the Chicopee River and downstream on the Connecticut River), *inter alia*.

Cooley Brook, which receives the discharge from stormwater outfall 011, is located in the Connecticut River watershed (segment 34-20) and is a Class B Water which has not been assessed. See 303(d)(list) at 60; *Connecticut River Watershed 2003 Water Quality Assessment Report* (MassDEP 2008) at 76. Designated uses are the same as for the Connecticut and Chicopee Rivers above.

IV. Limitations and Conditions

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

V. Permit Basis: Statutory and Regulatory Authority

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

Under Section 301(b)(1)(B) of the CWA, Publicly Owned Treatment Works (POTWs) are required to achieve technology-based effluent limitations based upon secondary treatment. The secondary treatment requirements are set forth in 40 CFR Part 133 and define secondary treatment as an effluent achieving specific limitations for biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards, 314 CMR 4.00, include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site specific criteria is established. 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 Massachusetts Surface Water Quality Standards, 314 CMR 4.00. See 314 CMR 3.11(3).

According to Clean Water Act Section 402(o) and federal regulations at 40 CFR § 122.44(1), when a permit is reissued, effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards or conditions in the previous permit, except under certain limited conditions.

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

A. Facility Information

1. WPCF

The Chicopee Water Pollution Control Facility (WPCF) is a 15.5 million gallon per day (MGD) secondary wastewater treatment facility located in Chicopee, MA, serving a population of approximately 55,000 via a collection system that is approximately 50% combined sewers. Twenty industrial users contribute wastewater to the facility. The facility's process flow diagram is attached as Figure 1. Wastewater entering the plant passes through a bar screen, followed by an aerated grit chamber, eight rectangular primary clarifiers, and a Parshall flume for flow measurement. (Three comminutors, shown on Figure 1 after the aerated grit chamber, are being taken out of service.) Flow is then pumped to the secondary treatment facilities, which consists of two trains of UNOX pure oxygen activated sludge reactors, four secondary clarifiers, and chlorination facilities. Flow from the chlorine contact tanks normally discharges by gravity to the Connecticut River via outfall 010, a 200 foot long, 36" pipe discharging to the Connecticut River. During high river stages effluent flow is pumped through outfall 010 via a 32 MGD capacity pumping station.

The facility may receive up to 40 MGD in wet weather flows related to the combined sewer system. While all the flow receives primary treatment, the maximum capacity of the secondary treatment system is 25 MGD. When influent flow exceeds 25 MGD, up to 15 MGD is directed to a bypass with seasonal chlorination/dechlorination. The bypass effluent is blended with the secondary effluent prior to discharge through outfall 010. This bypass is considered an interim measure per the 2006 Consent Decree. Use of this bypass is governed solely by the terms of the

2006 Consent Decree, which establishes conditions, monitoring requirements and effluent limitations.

2. Jones Ferry CSO Treatment Facility

The Chicopee treatment works includes a newly constructed CSO Treatment Facility at Jones Ferry which discharges through outfall 007 to the Connecticut River. See Figure 2. The facility was designed to provide screening and year-round chlorination/dechlorination for up to 35.2 MGD. Flows exceeding the capacity of the treatment facility are diverted to discharge directly at outfall 007.

3. Collection System and CSOs

The Chicopee sewer collection system includes approximately 200 miles of pipe, approximately 50% of which is a combined sewer system collecting both sanitary wastewater and stormwater flows. CSOs occur at 28 diversion structures leading to eighteen outfalls, as shown in Figure 2. See section VIII for further discussion.

B. Derivation of Effluent Limits

1. Flow

The flow limit is based on the 15.5 MGD design flow of the secondary treatment plant and is an average annual limit calculated as a 12-month rolling average, consistent with the existing permit. The Draft Permit also contains a new reporting requirement for monthly average flow.

2. Conventional pollutants (BOD, TSS and pH)

Effluent concentration limits for biochemical oxygen demand (BOD) and total suspended solids (TSS) are technology-based standards based on the minimum level of effluent quality attainable by secondary treatment as set forth in 40 CFR §133.102. These provide for effluent limits of 30 mg/l (average monthly) and 45 mg/l (average weekly). Mass loads for BOD and TSS are calculated from the equation:

Load limit = (Concentration limit, mg/l) x (Design Flow, mgd) x (Conversion factor = 8.34)
Average monthly load limit = 30 x 15.5 x 8.34 = 3.878 lbs/day;
Maximum daily load limit = 45 x 15.5 x 8.34 = 5,817 lbs/day

There were six exceedances of the BOD weekly average and seven exceedances of the TSS weekly average during the period of 2008-2009. See Table 1.

Percent removal requirements are also included in the secondary treatment standards of §133.102, requiring that the average monthly percent removal for BOD and TSS be not less than 85%. However, combined sewer systems may receive case-by-case consideration under §133.103, 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.

The current permit suspended the 85% removal requirement. The Draft Permit continues the suspension of that requirement based on the weak strength of the influent under both wet and dry conditions. (For example, in 2009 the average influent BOD concentration was 109 mg/l; average TSS concentration was 128 mg/l). EPA expects that sewer separation work to be performed in connection with the facility's CSO Long Term Control Plan, which will result in new sanitary sewer infrastructure in large portions of the City, will result in reduced inflow and infiltration ("I/I") to the system. To assess that expectation, the Draft Permit includes a requirement for the facility to evaluate the impact of planned CSO measures on I/I as part of its I/I reporting pursuant to Part I.D.3 of the draft permit.

Technology-based secondary treatment requirements for pH are a minimum of 6.0 and maximum of 9.0 SU. The Massachusetts SWQS set water quality criteria for pH with an allowable range from 6.5 to 8.3 SU. MassDEP generally requires that these criteria be met at the point of discharge, prior to dilution, as a state certification requirement. Prior to the issuance of the existing permit, MassDEP agreed to reduce the minimum pH effluent limit for the Chicopee discharge to 6.0 based on influent concentrations and the nature of the treatment system. MassDEP has concurred with the continuance of a minimum pH effluent limit of 6.0. EPA agrees that a minimum pH limit of 6.0 is sufficiently protective of water quality, given the evidence of acceptable pH levels currently in the Connecticut River (from 7.4-7.6; see 2003 Connecticut River WQA, page B21) and the available dilution. The pH effluent limit therefore remains the same as in the current permit, at 6.0 to 8.3 SU.

3. Settleable solids

The existing permit requires daily monitoring for settleable solids and requires reporting of the weekly average and maximum daily values for each month. EPA has not established a secondary treatment standard for settleable solids and there is no applicable water quality criteria; levels of settleable solids provide a measure of operational control for the facility. As this is an operational measure, EPA as a matter of policy no longer includes monitoring and reporting of settleable solids in NPDES permits. The draft permit eliminates this requirement.

4. Bacteria

The current permit includes bacteria limits on fecal coliform bacteria. Since issuance of the current permit, Massachusetts has promulgated, and EPA has approved, revised water quality standards for bacteria, which include Class B water quality criteria based on Eschericia coli, replacing fecal coliform. (see Massachusetts Surface Water Quality Standards, 314 CMR 4.05(3)(b)(4)).

The draft permit therefore includes water quality-based effluent limitations for E. coli bacteria, replacing the fecal coliform bacteria limits in the current permit. Pursuant to both MassDEP and EPA guidance, mixing zones for bacteria are not allowed, so the E. coli limits were not calculated using a dilution factor. E. coli limits in the draft permit are a monthly geometric mean of 126 cfu/100 ml mean and a maximum daily limit of 409 cfu/100 ml (this is the 90% distribution of the geometric mean of 126 cfu per 100 ml.)

Monitoring frequency remains the same as under the current permit at 1 per week.

5. Toxic Pollutants

a. Dilution Factor

Water quality based limitations are established with the use of a calculated available dilution factor. Title 314 CMR 4.03(3)(a) 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 design flow is used to calculate available effluent dilution.

The secondary plant design flow is 15.5 MGD as stated in Section A.6.a of the permit application. The 2005 Fact Sheet, issued in connection with the existing permit, lists the 7Q10 flow of the Connecticut River as 1,235 MGD, or 1,910 cfs. While the exact derivation of this figure is no longer available, it is reasonably consistent with the published estimate of 1,891 cfs cited in the MassDEP *Connecticut River Basin 1998 Assessment Report*. Therefore EPA will continue to use a 7Q10 Flow of 1,235 MGD to calculate the dilution factor for this facility. This is calculated as follows:

$$\frac{\text{plant design flow + 7Q10 river flow}}{\text{plant design flow}} = \frac{\text{15.5 MGD + 1,235 MGD}}{\text{15.5 MGD}} = 81$$

b. Total Residual Chlorine

Total Residual Chlorine (TRC) - The draft permit includes total residual chlorine limitations which are based on state water quality standards. Chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The water quality criteria established for chlorine are 19 ug/l daily maximum (Criterion Maximum Concentration) and 11 ug/l (Criterion Continuous Concentration) monthly average in the receiving water. Given a dilution factor of 81, 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)
(19 ug/l x 81) = 1,539 ug/l = 1.5 mg/l

(chronic criteria x dilution) = Chronic (Monthly Average Limit)
(11 ug/l x 81) = 891 ug/l = 0.89 mg/l

In addition, MassDEP has determined that effluent concentrations of chlorine should not exceed 1.0 mg/l, even where dilution analysis may indicate a higher allowable concentration. See *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (1990). Therefore, the monthly average TRC limit has been established as 0.89 mg/l, but the maximum daily TRC limit has been established as 1.0 mg/l. These limits remain unchanged from the current permit.

c. Aluminum and Other Metals

EPA reviewed analytical data submitted in connection with the Chicopee WET Reports to determine whether the facility discharges toxic metals. Data from samples of the effluent and receiving water for the period May 2007 through June 2010 are set forth in Table 5, along with the relevant water quality criteria for each parameter. To determine whether there is a reasonable potential for the discharge to cause or contribute to an exceedance of the water quality criteria, a mass balance equation was used to calculate the resulting receiving water concentration:

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

C_d = 99th percentile of effluent concentration data
Q_d = Design flow of facility
C_s = Median concentration in Connecticut River
Q_s = 7Q10 streamflow in Connecticut River

The results are shown below for all metals detected in the effluent through the WET testing.

	Effluent data - 99th percentile (C_d)	Median of receiving water data (C_s)	Resulting receiving water concentration (Total recoverable)	Receiving water concentration (Dissolved)	Chronic criteria (Dissolved)	Acute criteria (Dissolved)
Al (ug/l)	171	110	110.8	110.8	87	750
Cu (ug/l)	30.6	4.0	4.3	4.1	4.8	5.7
Ni (ug/l)	44.4	3.4	3.9	3.9	22	139
Pb (ug/l)	4.7	ND	0.06	0.06	0.23	14.0
Zn (ug/l)	69.7	7.8	8.6	8.4	43	43

Of the metals tested, only aluminum is present in the effluent at levels that present a reasonable potential for exceedance of water quality criteria. Reported concentrations of aluminum in the effluent have been as high as 0.13 mg/l. A lognormal distribution fit to the effluent data indicates an expected 95th percentile concentration of 0.13 mg/l, compared to a chronic criterion of 0.087 mg/l and a 99th percentile concentration of 0.17 mg/l, compared to a chronic criterion of 0.75 mg/l. The receiving water does not provide dilution of aluminum discharges with respect to the chronic criterion, as the WET Reports show a median receiving water concentration of 0.11

mg/l, also above the chronic criterion. See Table 5. The resulting receiving concentration is therefore above the chronic criterion. The reported concentrations do not indicate a reasonable potential to exceed the acute water quality criterion for aluminum.

As the data demonstrate a reasonable potential to exceed the chronic water quality criteria for aluminum, an effluent limit must be set. 40 C.F.R. §122(d)(iii). As the receiving water does not provide dilution of aluminum discharges with respect to the chronic criterion, the average monthly effluent limit for aluminum is set at the criterion level of 0.087 mg/l. The high effluent concentrations appear to be related to the use of aluminum compounds for TSS control in the facility's treatment process. Therefore, the aluminum effluent limitation is in effect only during months when aluminum is used in the treatment process.

EPA's regulations allow a permit to specify a schedule of compliance leading to compliance with the Clean Water Act and regulations when appropriate. 40 CFR § 122.47(a). The Massachusetts Surface Water Quality Standards also allow for schedules of compliance in permits where appropriate. 314 CMR 4.03(1)(b). The purpose of a compliance schedule generally is to afford a permittee adequate time to comply with one or more permit requirements or limitations that are based on new, or newly interpreted or revised water quality standards. In this case a schedule of compliance is appropriate in order that the permittee may determine the most effective source control measure and/or alternative treatment design that will allow it to continue to meet its TSS limit while also meeting the new aluminum limit. The regulations also provide that a compliance schedule of more than one year contain interim requirements no further than one year apart, 40 CFR § 122.47(a)(3), and report on its compliance or noncompliance within 14 days of each interim or final date of compliance.

For these reasons, the draft permit includes a compliance schedule for attaining the aluminum limit. The schedule includes milestones for a study to characterize sources and analyze alternatives for meeting the limit, completing design, and completing construction of necessary facilities. Specifically, the schedule requires that the study be initiated within one year of the permit effective date and completed within two years of the permit effective date; that design of an alternative treatment system, if indicated, be completed within three years of the permit effective date, and that construction of an alternative treatment system, if indicated, be completed within four years of the permit effective date. The permit limit shall go into effect four years from the effective date of the permit.

EPA also reviewed the Expanded Effluent Testing Data provided by the applicant in its application material, along with supporting documentation. None of reported pollutants were present in the discharge at levels that indicate a reasonable potential to cause exceedance of the relevant water quality criteria.

d. Whole Effluent Toxicity Testing

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

include toxicity testing requirements in all municipal permits, while Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts.

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

Pursuant to EPA Region I policy, and MADEP's Implementation Policy for the Control of Toxic Pollutants in Surface Waters, discharges having a dilution ratio between 20:1 and 100:1 require acute toxicity testing four times per year. The principal advantages of biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measured only by biological analyses; (2) bioavailability of pollutants after discharge is best measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate chemical analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

The dilution factor for the Chicopee WPCD is 81:1. Accordingly, the permittee shall perform acute toxicity testing four times per year on the fathead minnow, *Pimephales promelas,* in accordance with **Attachment A** to the draft permit. Samples shall be collected in February, May, August and November, and the test reports shall be submitted prior to March 31, June 30, September 30 and December 31, respectively.

The results of whole effluent toxicity tests for the Chicopee WPCF for the period from January 2008 through December 2009 are shown in Table 1. No exceedances occurred during that period.

6. Nitrogen

It has been determined that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a 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 baseline total nitrogen point source loadings estimated for the Connecticut, Housatonic, and

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

Basin	Baseline Loading[2] (lbs/day)	TMDL Target[3] (lbs/day)	Existing Loading[4] (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

The overall TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met. 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 intends to include a permit condition 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 will also be required to implement optimization measures sufficient to ensure that their nitrogen loads do not increase, and that the aggregate 25 % reduction is maintained. Such a requirement has been included in the draft permit. EPA Region I-New England also intends to work with the State of Vermont to ensure that similar requirements are included in its discharge permits.

Specifically, the permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility in order to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit also requires implementation of optimization methods sufficient to ensure that there is no increase in total nitrogen compared to the existing average daily load. The annual average total nitrogen load from this facility (2004 – 2005) is estimated to be 1,618 lbs/day (see Table 6). The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years.

[2] Estimated loading from TMDL (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998).
[3] Reduction of 25% from baseline loading.
[4] Estimated current loading from 2004 – 2005 DMR data – see Table 6.

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

The draft permit continues the average monthly and maximum daily reporting requirements for total Kjeldahl nitrogen, nitrite, nitrate, ammonia and total nitrogen that are in the current permit, but increases the frequency from monthly to weekly monitoring in order to provide a baseline for assessing optimization of nitrogen removal.

VII. Outfall 011

Outfall 011 discharges stormwater from an area of the Westover Air Reserve Base/Westover Metropolitan Airport that is treated through an oil/water separator prior to discharge. As operator of the outfall and oil/water separator, the City of Chicopee is required under the existing permit to visually inspect the outfall on a quarterly basis and perform routine maintenance on an annual basis. These inspections were not required to occur during wet weather and have generally not occurred during wet weather, due to the need for the City to arrange for access to the outfall in advance with the Air Reserve. The quarterly inspections have consistently shown no dry weather flow, little to no oil accumulation in the separator and small sediment accumulations well within the capacity of the system. Maintenance has been limited to cleaning the sediment sump approximately every five years.

The inclusion of an offsite stormwater outfall in a POTW NPDES permit is unusual. Outfall 011 is not a CSO, but is a stormwater discharge that is part of the City of Chicopee's municipal separate storm sewer system (MS4), receiving a stormwater discharge from an industrial facility (airport). Therefore EPA is reconsidering the permit requirements in light of the requirements of the applicable industrial and MS4 stormwater permits.

Stormwater discharges from airports are governed under the Multi-Sector General Permit for Industrial Activities, Sector S – Air Transportation Facilities (the "MSGP"). The MSGP applies to discharges to MS4 systems (such as to Outfall 011) as well as discharges directly to receiving waters. Under the Multi-Sector General Permit, airport operators must conduct quarterly wet weather visual assessments of stormwater samples, including visual inspection of the sample for water quality characteristics (color; odor; clarity; floating solids; settled solids; suspended solids; foam; oil sheen; and other obvious indicators of stormwater pollution). MSGP §4.2.1 (EPA 2009). The MSGP also requires that airport operators have a Stormwater Pollution Prevention Plan (SWPPP) that includes spill prevention and response procedures.

Discharges from small MS4s such as Chicopee are governed by the NPDES General Permit for Stormwater Discharges from Small MS4s (2003)

(http://www.epa.gov/region1/npdes/permits/permit_final_ms4.pdf), to the extent that the MS4 system is located in an urbanized area. Outfall 011 is outside the urbanized area of Chicopee and is therefore not directly subject to the Small MS4 GP. See *NPDES Phase II Stormwater Program Automatically Designated MS4 Areas - Chicopee, Massachusetts,* http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/ma/Chicopee.pdf. However, EPA believes that the MS4 General Permit requirements are persuasive regarding the appropriate requirements for inspection and maintenance of Outfall 011. The current small MS4 permit requires that MS4s develop schedules for maintenance of stormwater structures, while the draft General Permits for Stormwater Discharges from Small MS4s in Massachusetts Interstate, Merrimack and South Coastal Watersheds requires annual inspection of structural stormwater BMPs such as oil/water separators. See Part 2.4.7.1.d.vii.

Based on the above, it is EPA's conclusion that (1) the airport operator(s) have an independent requirement under the MSGP to perform quarterly visual wet weather assessments of the discharge to the MS4 at Outfall 011 (along with other MSGP permit requirements); (2) as the only discharge to the City's oil/water separator is from the airport drainage system, the quarterly visual assessment of wet weather discharges to the MS4 under the MSGP will be far more effective than the quarterly dry weather inspections currently performed by the City of Chicopee in identifying any stormwater pollution issues; (3) the inspection history of this outfall indicates no water quality concerns requiring additional monitoring or inspections; and (4) the City of Chicopee's responsibility as owner of the oil/water separator and Outfall 011 is adequately met by an annual inspection requirement. Therefore the draft permit requires annual inspections and cleaning of the oil/water separator based on inspection results or no less than every five years.

VII. Industrial Pretreatment Program

The permittee is required to administer a pretreatment program based on the authority granted under 40 CFR Part 122.44(j), 40 CFR Part 403 and section 307 of the Act. The Permittee's pretreatment program received EPA approval on September 28, 1990 and, as a result, appropriate pretreatment program requirements were incorporated into the previous permit which is consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

The Federal Pretreatment Regulations in 40 CFR Part 403 were amended in October 1988, 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.

Lastly, the permittee must continue to submit, annually, **by March 1**, a pretreatment report detailing the activities of the program over its pretreatment reporting period of January 1st to December 31st.

In addition to the requirements described above, the draft permit requires the permittee to submit to EPA in writing, within 120 days of the permit's effective date, a description of proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the draft permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect.

VIII. Combined Sewer Overflows

A. Chicopee's Combined Sewer System

More than half of Chicopee's sewer collection system consists 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 and Chicopee Rivers through the City's combined sewer overflows (CSOs). CSOs have been identified as a significant source of pollution to the Connecticut and Chicopee Rivers. See 2003 Connecticut River WQA; 2003 Chicopee River WQA.

The City currently has 28 active CSO diversion structures in its system, leading to eighteen CSO outfalls where the CSOs discharge to receiving waters. Figure 1; Table 4. This is a reduction from the previous permit, which identified 34 CSO diversion structures and 22 CSO outfalls. Since the last permitting action CSOs 001, 025, 033 and 043, and CSO diversion structure 32.6, have been eliminated in conjunction with Phase I of the City's Draft Long Term Control Plan (2001) and the 2006 Consent Order. These projects, along with the construction of the Jones Ferry Treatment Facility, have reduced the volume of untreated CSO discharges by 265 MGD to the current level of 220 MGD. *Final Long-Term CSO Control Plan and Environmental Impact Report for City of Chicopee* (Submitted April 2009).[5]

While the City has achieved significant reduction in CSO discharges, the remaining discharges are still substantial. The Final Long Term Control Plan has not yet been approved by EPA, but a summary is provided here for informational purposes. As currently proposed, the final plan would involve a 20-year, $153.4 million dollar plan including partial and total sewer separation alternatives and one direct connection (of combined sewers not experiencing CSOs), to be completed in 8 phases ending in 2026. This set of proposed projects would eliminate all CSOs with the exception of CSO 007, the discharge location of the new Jones Ferry CSO Treatment Facility. The Final LTCP recommends deferring consideration of the complete separation of the drainage area served by the Jones Ferry facility until after completion of the 20 year plan, in

[5] EPA notes that the Final LTCP contains CSO identification numbers that are in some instances different from the CSO numbering under the current permit. For example, CSO 043 (1165 Montgomery Street) is referred to in the Final LTCP as CSO #4.2. *Final LTCP and EIR* at 2-5. This Fact Sheet and the Draft Permit use the permit numbering scheme.

order to allow an evaluation of whether complete separation is necessary to eliminate CSO 007.

The City has begun work on Phase 2 projects pursuant to a Notice of Project Change submitted in February 2009. The Phase 2 projects include (1) Chicopee Falls sewer separation (Area 31/32/1), (2) Upper Granby Road area sewer separation (part of Area 8) and (3) McKinstry Avenue/Lorraine Street sewer separation (part of Area 7.1). The Phase 2 projects are expected to abate an estimated 18% of the total remaining annual CSO volume. *Final LTCP and EIR* at 10-2.

B. 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 CFR §133.103(a).

As noted above, 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.

The CSO Control Policy also established as a matter of national policy the minimum BCT/BAT controls that represent the BPJ of the agency on a consistent, national basis. These are the "nine minimum controls" defined in the CSO Control Policy and set forth in the Draft Permit Part 1.e.1.a (1) through (9): (1) proper operation and maintenance of the sewer system and the CSOs, (2) maximum use of the collection system for storage, (3) review pretreatment programs to assure that 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, (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. Massachusetts has established similar requirements for CSO permits. MassDEP, *Guidance for Abatement of Pollution from CSO Discharges* (1997).

C. Permit Requirements

In accordance with the National CSO Control Policy, the draft permit contains the following conditions for 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. Wet weather discharges must be monitored and reported as specified in the permit.

(iii) The permittee shall meet the technology-based nine minimum controls, set forth above, complying with the implementation levels as set forth in Part I.E.2 of the draft permit.

(iv) 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.

In addition, the permittee's operation of the Jones Ferry CSO Treatment Facility is subject to additional technology-based effluent limitations and monitoring requirements. The CSO Treatment Facility represents an enhancement of the Nine Minimum Controls, allowing greater use of the system for storage (control #2) and return of the flow to the POTW for treatment (control #3), removal of floatables and some solid materials (control #6), and reduction of bacteria through disinfection (and the related control of chlorine discharges) (control # 7). EPA has determined additional BCT/BAT effluent limitations using its best professional judgment (BPJ) that are consistent with the design parameters for this facility as set forth in the 2006 Consent Order. These effluent limitations are:

Fecal coliform:	200 cfu/100 ml average monthly 400 cfu/100 ml maximum daily
Total Residual Chlorine:	0.89 mg/l average monthly; 1.0 mg/l maximum daily

In making this determination EPA considered the factors identified in 40 C.F.R § 125.3(d), including the cost and benefits of the facility (analyzed in connection with the development of the city's CSO control plan); the newness of the facility, the fact that the facility was engineered to meet the design parameters, and the demonstrated ability of the facility's process to meet the limitations based on effluent data from the first year of operation (Table 2). The permit also requires that the permittee conduct concurrent monitoring for E. coli until August 2011 consistent with the 2006 Consent Order, and provide a report setting forth the side by side fecal coliform and E. coli results along with an assessment of analytical methods used for E. coli, by November 2011.

The draft permit also requires reporting of flow (including treated flow, untreated flow diverted from the facility, and flow to the treatment plant), BOD, TSS, pH, Whole Effluent Toxicity, TKN, Nitrate, Nitrite and Ammonia. In order to allow a determination of whether the facility is meeting the design goal of reducing untreated discharges to no more than 4 per year in a typical year, the draft permit requires that the annual report include a comparison of annual precipitation to that in a "typical" year as assumed in the modeling of the CSO system and an assessment of whether the volume and frequency of untreated CSO discharges from CSO 007 is consistent with the assumptions underlying the Long Term CSO Control Plan.

IX. Sludge Conditions

The Chicopee WPCF generates approximately 1,700 dry metric tons of sludge annually. The sludge is thickened then dewatered using either a belt filter press or centrifuge. The facility contracts with New England Organics for sludge disposal. The majority of sludge is fired in a sewage sludge incinerator (Naugatuck or Synagro-Waterbury) with the remainder disposed of in a municipal solid waste landfill.

Section 405(d) of the Clean Water Act (CWA) requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations, found at 40 CFR Part 503, regulate the use and disposal of domestic sludge that is land applied, disposed in a surface disposal unit, or fired in a sewage sludge incinerator. Part 503 regulations have a self-implementing provision; however, the CWA requires implementation through permits.

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards and the 40 CFR Part 503 regulations. In addition, EPA Region I has developed a 72-page document entitled "EPA Region I - NPDES Permit Sludge Compliance Guidance" (November 1999) for use by the permittee in determining the appropriate sludge conditions for the chosen method of sewage sludge use or disposal practices. This guidance document is available on EPA's website 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** of each year, containing the information specified in the Sludge Compliance Guidance Document for the permittee's chosen method of sludge disposal.

X. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801 et seq. (1998)), EPA is required to consult with the National Fisheries Services (NOAA Fisheries) if EPA's action or proposed action that it funds, permits, or undertakes, may adversely impact any essential fish habitat (EFH). The Amendments broadly define essential fish habitat as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. §1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. §600.910(a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction

in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. §1855(b)(1)(A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. Anadromous Atlantic salmon (*Salmo Salar*) is the only managed species believed to be present during one or more lifestages within the area which encompasses the discharge site. Although the last remnant stock of Atlantic salmon indigenous to the Connecticut River was believed to have been extirpated over 200 years ago, an active effort has been underway throughout the Connecticut River system since 1967 to restore this historic run (HG&E/MMWEC, 1997). Atlantic salmon may pass in the vicinity of the discharge either on the migration of juveniles downstream to Long Island Sound or on the return of adults to upstream areas. The area of the discharge on the river mainstem is not suitable for spawning, which is likely to occur in tributaries were the appropriate gravel or cobble riffle substrate can be found.

EPA has concluded that the limits and conditions contained in this draft permit minimize adverse effects to Atlantic Salmon EFH for the following reasons:

- This is a reissuance of an existing permit;
- The dilution factor (81) is high;
- The Connecticut River is over 800 feet wide in the vicinity of the discharge, providing a large zone of passage for migrating Atlantic salmon that is unaffected by the discharge;
- WPCF limits specifically protective of aquatic organisms have been established for chlorine, based on EPA water quality criteria;
- The facility withdraws no water from the Connecticut River, the Chicopee River, Willimansett Brook or Cooley Brook, so no life stages of Atlantic salmon are vulnerable to impingement or entrainment from this facility;
- Acute toxicity tests will be conducted four times per year to ensure that the discharge does not present toxicity problems;
- CSO discharges have been significantly reduced in accordance with permit requirements;
- Enhanced treatment of CSO discharges from regulator 7.1, Jones Ferry CSO Treatment Facility, includes dechlorination of the effluent;
- The draft permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The effluent limitations and conditions in the draft permit were developed to be protective of all aquatic life; and
- The draft permit prohibits violations of the state water quality standards.

EPA believes that the draft permit limits adequately protect Atlantic Salmon EFH, 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, NOAA Fisheries will be notified and an EFH consultation will be initiated.

XI. Endangered Species Act

A. Introduction

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

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

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

B. Chicopee Facility

The Chicopee WPCF is a 15.5 MGD secondary wastewater treatment facility serving a population of approximately 55,000. The pure oxygen activated sludge treatment plant treats sanitary and industrial wastewater. The collection system is about 50% separate and 50% combined sewers. There are eighteen CSO outfalls, eight on the Connecticut River, nine on the Chicopee River, and one on Willimansett Brook, a tributary to the Connecticut River. The WPCF is located on the east bank of the Chicopee River, approximately five miles downstream from the Holyoke Dam.

The Connecticut and Chicopee Rivers are classified as Class B (warm water fishery) waters in the Massachusetts Surface Water Quality Standards. Their uses include habitat for fish, other aquatic life and wildlife and for primary (e.g., swimming) and secondary (e.g., fishing and boating) contact recreation. See 314 CMR 4. 05(3)(b) and 4.06 (Table 12). Such waters must have consistently good aesthetic value. Both rivers have been designated as impaired for pathogens due to CSO discharges; the Connecticut River has also been designated as impaired due to PCBs and suspended solids. Willimansett Brook is a Class B water that has not been assessed.

C. Shortnose Sturgeon Information

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

Information gathered from a variety of sources confirms the presence of shortnose sturgeon in the Connecticut River. Known concentration and spawning areas are located either upstream of the Chicopee WPCF discharge, near the Holyoke Dam, or at locations significantly downstream of the discharge (the closest at Agawam, MA, more than five miles downstream). The Connecticut River is over 800 feet wide in the vicinity of the discharge. Combined with the observation that shortnose sturgeon in this river have been generally found in the deep river channel, this indicates that migrating shortnose sturgeon will encounter a large zone of passage that is unaffected by the discharge.

The population of endangered shortnose sturgeon in the Connecticut River is largely divided by the Holyoke Dam, although limited successful downstream passage does occur. Modifications to the dam are currently ongoing to ensure the safe and successful upstream and downstream passage of fish, including shortnose sturgeon, at the Dam (Montague Letter). The Holyoke Dam separates shortnose sturgeon in the Connecticut River into an upriver group (above the Dam) and a lower river group that occurs below the Dam to Long Island Sound. The abundance of the upriver group has been estimated by mark-recapture techniques using Carlin tagging (Taubert 1980) and PIT tagging (Kynard unpublished data). Estimates of total adult abundance calculated in the early 1980s range from 297 to 516 in the upriver population to 800 in the lower river population. Population estimates conducted in the l990s indicated populations in the same range. The total upriver population estimates ranged from 297 to 714 adult shortnose sturgeon, and the size of the spawning population was estimated at 47 and 98 for the years 1992 and 1993 respectively.

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

Several areas of the river have been identified as concentration areas. In the downriver segment, a concentration area is located in Agawam, MA which is thought to provide summer feeding and over-wintering habitat. As discussed above, this concentration area may be the closest to the outfalls regulated by the Chicopee WPCF and CSO draft permit. The Agawam concentration area is judged to be more than five miles downstream from the outfalls. Other concentration areas for foraging and over wintering are located in Hartford, Connecticut, at the Head of Tide (Buckley and Kynard 1985) and in the vicinity of Portland, Connecticut (CTDEP 1992). Shortnose sturgeon also make seasonal movements into the estuary, presumably to forage (Buckley and Kynard 1985; Savoy in press). Above the Dam, there are also several concentration areas. During summer, shortnose sturgeon congregate near Deerfield (NMFS BO). Shortnose sturgeon that use the habitat in this area most likely to move into the Deerfield River. Many shortnose sturgeon overwinter at Whitmore.

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

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

No shortnose sturgeon spawning activity is thought to occur in the Chicopee River. While no part of the Chicopee River has been characterized as a concentration area for shortnose sturgeon, these fish have been documented in the Chicopee River. Based on the observed behavior of shortnose sturgeon in the Connecticut River, any shortnose sturgeon entering the Chicopee River will likely be traveling in the deeper, channelized portion of the river as they forage for food. This behavior makes it less likely that SNS would come in direct contact with the discharge from the Chicopee River CSO outfalls. In addition, these fish would not be expected to be found in a shallow, smaller body of water such as Willimansett Brook.

D. Pollutant Discharges Permitted

The draft permit has been developed to ensure that discharges will not cause or contribute to violations of the Massachusetts Water Quality Standards (WQS) in the Connecticut River. The Massachusetts WQS include turbidity, dissolved oxygen and other standards to protect aquatic life and incorporate EPA's aquatic life criteria for toxic pollutants unless a site specific criterion is established, which were designed to be protective of the most sensitive aquatic species nationwide. EPA has further reviewed the discharges and effluent limits to ensure that they are specifically protective of the shortnose sturgeon. Specific pollutants, criteria and effluent limits are discussed below.

1. Total Suspended Solids

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

The draft permit proposes the same TSS concentration limitations at the WPCF as in the existing permit. The average monthly and average weekly limits are based on the secondary treatment requirements set forth at 40 CFR 133.102 (b)(1), (2) and 40 CFR 122.45 (f) and are a monthly average TSS concentration of 30 mg/l, and a weekly average concentration of 45 mg/l.

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

shortnose sturgeon are assumed to be as least as tolerant to suspended sediment as other estuarine fish such as striped bass.

As noted above, shortnose sturgeon eggs and larvae are less tolerant to sediment levels than juveniles and adults. Several studies have examined the effects of suspended solids on fish larvae. Observations in the Delaware River indicated that larval populations may be negatively affected when suspended material settles out of the water column (Hastings 1983). Larval survival studies conducted by Auld and Schubel (1978) showed that striped bass larvae tolerated 50 mg/l and 100 mg/l suspended sediment concentrations and that survival was significantly reduced at 1000 mg/L. According to Wilber and Clarke (2001), hatching is delayed for striped bass and white perch eggs exposed for one day to sediment concentrations of 800 and 1000 mg/L, respectively (Montague Letter).

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

2. Biological Oxygen Demand

The biological oxygen demand (BOD) water test is used to determine how much oxygen is being used by aerobic microorganisms in the water to decompose organic matter. If these aerobic bacteria are using too much of the dissolved oxygen in the water, then there will not be enough available for the fish, insects, and other organisms that rely on oxygen. BOD has the potential to affect dissolved oxygen (DO) concentrations in the vicinity of and downstream from a wastewater treatment facility's outfall.

The draft permit for the WPCF proposes the same BOD_5 concentration limits as in the current permit, which are based on the secondary treatment requirements set forth at 40 CFR 133.102 (a)(1), (2), (4) and 40 CFR 122.45 (f). The secondary treatment limitations are a monthly average BOD_5 concentration of 30 mg/l and a weekly average concentration of 45 mg/l. 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. EPA also notes that discharges from the WPCF have consistently high DO concentrations due to the pure oxygen activated sludge treatment process used by the facility, further mitigating any impacts on DO levels in the Connecticut River from this facility. Shortnose sturgeon are known to be adversely affected by DO levels below 5 mg/l (Jenkins et al. 1994, Niklitschek 2001), the same threshold established in the Massachusetts WQS. As such, the BOD criteria are protective of shortnose sturgeon found in the Connecticut River.

3. pH

The draft permit requires that the discharge maintain a pH of 6.0 – 8.3. A pH of 6.0 – 9.0 is harmless to most marine organisms (Ausperger 2004) and is within the normal range of pH for freshwater. MassDEP water quality assessment reports indicate that pH levels in the Connecticut River are well within this range (from 7.4-7.6; see 2003 Connecticut River WQA, page B21). As such, no adverse effects to shortnose sturgeon are likely to occur as a result of the discharge of water of this pH into the Connecticut River.

4. Escherichia coli Bacteria

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

5. Chlorine

Based on the design flow of the WPCF and the dilution calculations, EPA has determined that a monthly average limit of 0.89 mg/l and a daily maximum limit of 1.5 mg/l of Total Residual Chlorine (TRC) would assure that the facility did not exceed the chronic and acute TRC standards (0.011 ug/l and 0.019 ug/l respectively). The calculated daily maximum limit was further reduced to 1.0 mg/l pursuant to MassDEP policy to minimize discharges of chlorine while achieving effective bacteria treatment.

There are a number of studies that have examined the effects of TRC (Post 1987; Buckley 1976; EPA 1986) on fish; however, no directed studies that have examined the effects of TRC on shortnose sturgeon. The EPA has set the Criteria Maximum Concentration (CMC or acute criteria; defined in 40 CFR 131.36 as equals the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (up to 96 hours) without deleterious effects) at 0.019 mg/L, based on an analysis of exposure of 33 freshwater species in 28 genera (EPA 1986) where acute effect values ranged from 28 ug/L for *Daphia magna* to 710 ug/L for the threespine stickleback. The CMC is set well below the minimum effect values observed in any species tested. As the water quality criteria levels have been set to be protective of even the most sensitive of the 33 freshwater species tested, it is reasonable to assume that the criteria are also protective of shortnose sturgeon.

The anticipated TRC levels in the Connecticut River satisfy the EPA's ambient water quality criteria and are lower than TRC levels known to effect aquatic life. As such, the discharge of the permitted concentrations of TRC is likely to have an insignificant effect on shortnose sturgeon.

6. Nitrogen

DO levels in the Long Island Sound estuary, approximately 75 miles downstream, have been determined to be impacted by nitrogen discharges from wastewater treatment plants on the

Connecticut River and other tributaries. A TMDL has been developed that includes, *inter alia*, a Waste Load Allocation for Massachusetts, New Hampshire and Vermont wastewater facilities discharging to those receiving waters that is design to achieve the DO criteria. That WLA is currently being met, and the draft permit contains conditions to ensure that the WLA continues to be met by requiring optimization of nitrogen removal, in order to ensure that nitrogen loads do not increase over the 2004-2005 baseline of 1,618 lbs/day.

7. Other toxic pollutants

As discussed fully in Part B.5.c of this fact sheet, EPA reviewed extensive analytical data submitted with the facility's NPDES permit application, the WPCF WET Reports and additional material submitted by the facility in response to EPA's requests for additional information to determine whether the facility discharges toxic pollutants in amounts that have a reasonable potential to cause or contribute to water quality violations. These data included expanded effluent testing data for over one hundred pollutants, including metals, VOCs and other toxic pollutants, and representing a total of over one thousand analyses. The WPCF WET Reports provide additional analyses of potentially toxic metals and include analyses of receiving water samples, allowing the facility's contribution to be assessed in the context of ambient conditions.

Of the pollutants analyzed, all but five either were not detected or were present at levels well below the relevant water quality criteria. For the five pollutants, all metals, detected in the discharge at levels requiring additional analysis, the maximum expected receiving water concentration was calculated. This was based on a mass balance equation using the 99^{th} percentile of a lognormal distribution of the effluent samples and the median receiving water concentration.

Of these, only aluminum is present in the discharge at levels that have a reasonable potential to cause or contribute to an exceedance of the water quality criteria. Reported concentrations of aluminum in the effluent have been as high as 0.13 mg/l. A lognormal distribution fit to the effluent data indicates a 95^{th} percentile concentration of 0.13 ug/l, compared to a chronic criterion of 0.087 mg/l. The median receiving water concentration, upstream of the outfall, is 0.11 mg/l, also above the chronic criterion. See Table 5. As the receiving water does not provide any dilution of aluminum discharges with respect to the chronic criterion, the average monthly effluent limit for aluminum was set at the criterion level of 0.087 mg/l.

Very few toxicity tests have been conducted with shortnose sturgeon. In the absence of species-specific chronic and acute toxicity data, EPA has identified the EPA aquatic life criteria and Massachusetts site specific criteria (for copper) as the best available scientific information in this case. The draft permit is designed to ensure that the WPCF discharge will not cause or contribute to conditions exceeding these criteria in the Connecticut River and, in the case of aluminum, requires that the facility discharge concentrations be lower than ambient conditions in the Connecticut River. As such, the discharge of the permitted concentrations is likely to have an insignificant effect on shortnose sturgeon.

8. Whole Effluent Toxicity

In addition to analysis of specific toxic pollutants, EPA and MassDEP as a matter of policy include effluent limitations and monitoring requirements for toxicity bioassays (Whole Effluent Toxicity testing) in wastewater treatment facility permits. The principal advantages of such biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measured only by biological analyses; (2) bioavailability of pollutants after discharge is best measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate chemical analytical methods or criteria can be addressed. The draft permit therefore requires acute toxicity testing four times per year on the fathead minnow, *Pimephales promelas,* to ensure that the discharge does not present toxicity problems.

9. CSO Discharges

CSO discharges from the facility have been substantially reduced under the existing permit and associated enforcement orders, and reductions will continue under the draft permit. To date the volume of untreated CSO discharges has been cut by more than half; an estimated 18% of the remaining CSO volume will be eliminated in connection with ongoing sewer separation projects. CSO discharges are also subject to specific conditions under the draft permit, including a prohibition on dry weather discharges from CSO outfalls, a requirement that CSO discharges shall not cause any exceedance of water quality standards, compliance with technology-based Nine Minimum Controls, described in Part VIII of this Fact Sheet, and reporting on compliance with the Nine Minimum Controls, monitoring of CSO discharges and the status of CSO abatement projects.

The draft permit also includes effluent limitations and monitoring conditions for the Jones Ferry CSO Treatment facility, which provides screening, limited solids removal, disinfection and dechlorination of CSO discharges to outfall 7.1, as well as providing storage for smaller CSO flows that can then be sent to the WPCF for secondary treatment. The effluent limitations are technology-based BCT/BAT effluent limitations using EPA's best professional judgment (BPJ) that are consistent with the design parameters for this facility as set forth in the 2006 Consent Order. They are:

Fecal coliform:	200 cfu/100 ml average monthly 400 cfu/100 ml maximum daily
Total Residual Chlorine:	0.89 mg/l average monthly; 1.0 mg/l maximum daily

The draft permit also requires reporting of flow, BOD, TSS, pH, Whole Effluent Toxicity and nitrogen parameters.

The CSO requirements included in the draft permit are expected to improve the overall aquatic habitat for all species in the Connecticut River, including shortnose sturgeon, during wet weather events.

E. Finding

Based on the above analysis of the location of the discharge, the permit limits and the water quality effects of the permit action, EPA has made the preliminary determination that the proposed reissuance of the NPDES permit for this facility is not likely to adversely affect shortnose sturgeon. Therefore EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NMFS regarding this determination through the information in this fact sheet as well as a letter under separate cover.

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

XII. State Certification Requirements

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

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

All persons, including applicants, who believe any condition of the permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to Susan Murphy, U.S. Environmental Protection Agency, 5 Post Office Square, Suite 100 (OEP06-1), Boston, MA 02109. Any person prior to such date may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

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

XIV. EPA Contact

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

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

Kathleen Keohane
Massachusetts Department of Environmental Protection
627 Main Street, 2nd Floor
Worcester, MA 01608
Telephone: (508)-767-2856 Fax: (508) 791-4131
Email: Kathleen.Keohane@state.ma.us

Stephen Perkins, Director
Office of Ecosystem Protection
August 1, 2011 U.S. Environmental Protection Agency

Attachments: Figure 1. Process Flow Diagram

Chicopee Water Pollution Control District
NPDES # MA0101508

Figure 1
Process Flow Diagram

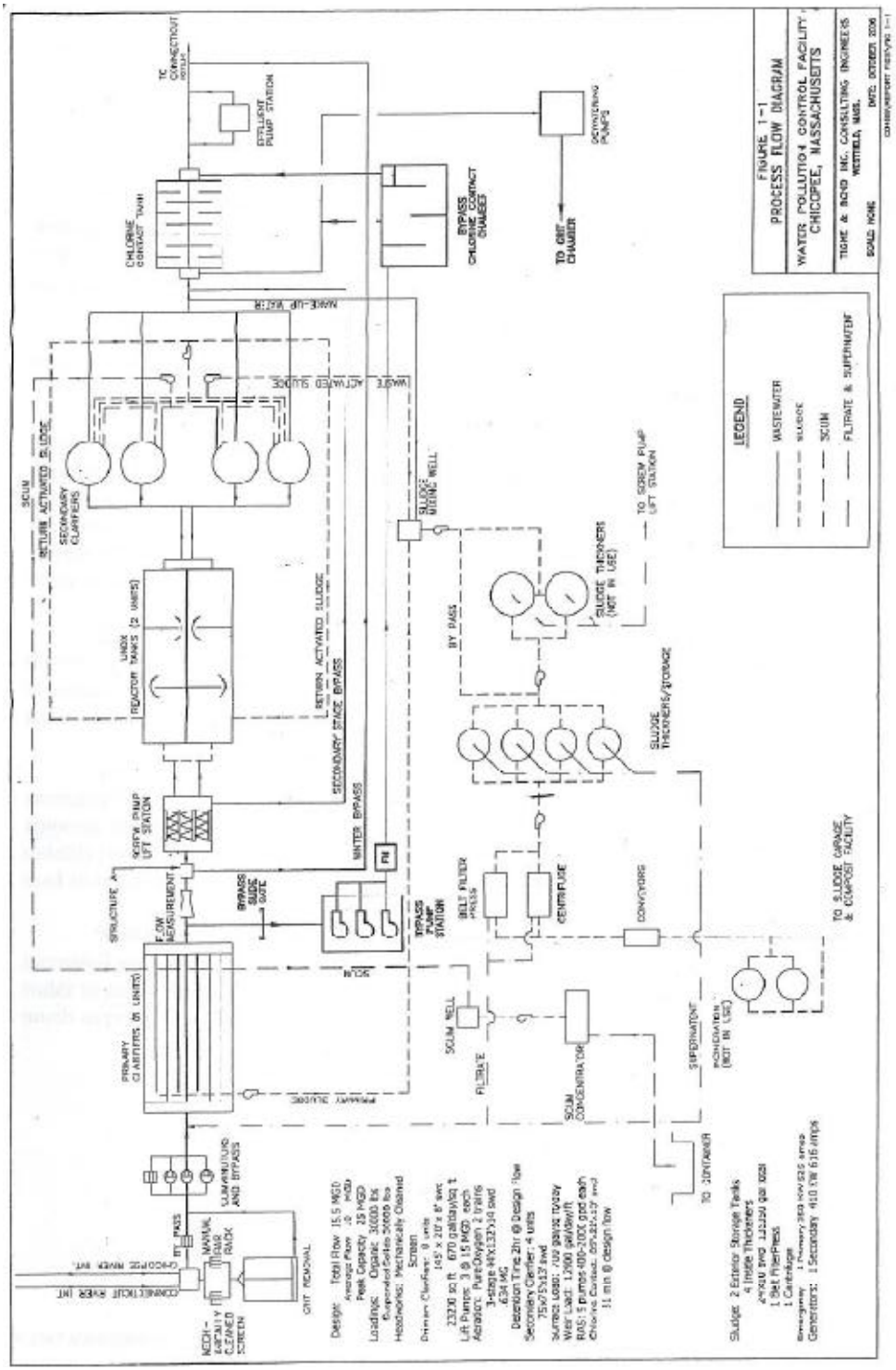
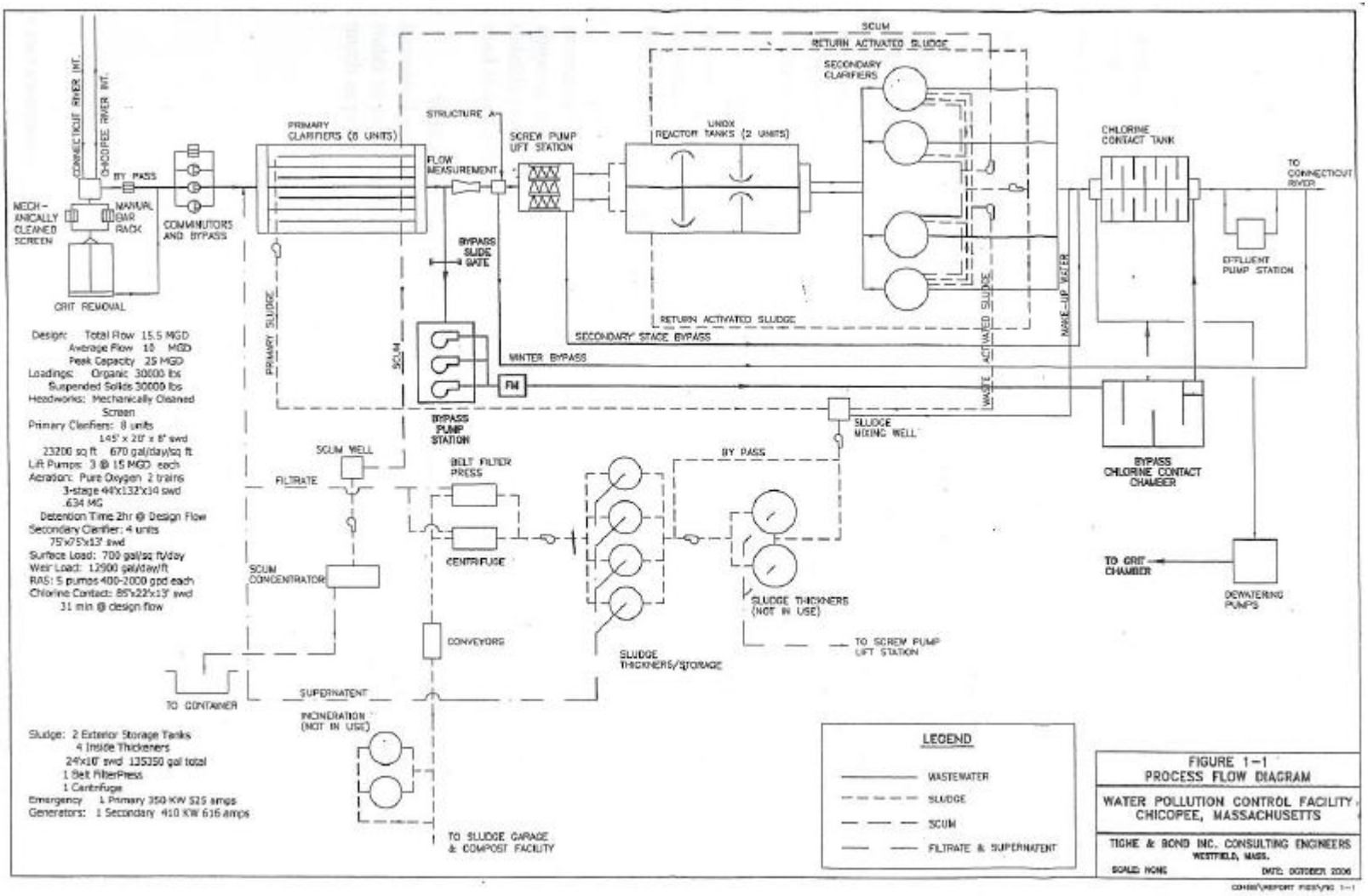


Figure 2. Chicopee WPCF Process Flow Diagram **Fact Sheet, MA0101508**



Chicopee Water Pollution Control District
NPDES Permit No. MA 0101508

Table 1 (page 1 of 2)
Two year facility DMR Data

	Flow (MGD)		BOD (mg/l)		TSS (mg/l)		Settleable solids (ml/l)		pH	
	12mo avg	daily max	mo avg	wkly avg	mo avg	wkly avg	wk avg	daily max	min	max
Effluent Limit:	15.5	Report	30	45	30	45	30	45	6.5	8.3
Sampling Frequency:	CONTINUOUS		5/week		5/week		5/week		5/week	
January 2008	8.6	14.4	28	43	22	42	0.14	0.3	6.01	7
February	9.1	29.8	24	41	26	107	0.09	0.3	6.59	7.11
March	9.5	25.4	19	27	17	42	0.09	0.3	6.51	7.1
April	9.35	20.7	16	26	13	27	0.12	0.3	6.51	7.1
May	9.3	16.3	20	58	14	48	0.05	0.05	6.6	7.1
June	9.34	12.2	12	22	10	19	0.09	0.3	6.5	6.92
July	9.5	18	13	22	15	31	0.05	0.2	6.54	7
August	9.95	18.2	16	30	17	30	0.67	4	6.59	6.97
September	10.4	18.4	13	19	15	32	0.07	0.2	6.49	7.31
October	10.7	15.8	10	25	14	25	0.05	0.05	6.5	6.98
November	11	10	18	28	18	29	0.07	0.2	6.5	6.9
December	11.5	27.4	23	47	24	59	0.13	0.3	6.65	7.1
January 2009	11.7	16.4	24	70	30	99	0.3	1.3	6.45	6.91
February	11.3	13.9	21	46	20	47	0.89	3	6.5	6.98
March	10.9	15.3	19	71	23	103	0.56	2.5	6.5	6.8
April	10.8	15.3	16	31	14	28	0.05	0.05	6.55	6.81
May	10.7	13.6	19	36	19	37	0.05	0.1	6.5	6.8
June	10.8	22.4	19	66	20	38	0.05	0.05	6.23	7.3
July	10.9	18.5	11	17	11	24	0.05	0.05	6.43	7.24
August	10.7	14.9	15	23	14	28	0.07	0.2	6.42	7.01
September	10.34	14.2	15	35	14	27	0.11	0.5	6.54	7.06
October	10.17	16.9	13	33	16	32	0.05	0.05	6.2	6.9
November	10.1	17	17	34	15	36	0.05	0.05	6.5	6.95
December	9.76	15.3	17	37	17	48	0.07	0.05	6.52	6.94
							0.05	0.05		
Average:	10.27		17.4		17.4		0.2	0.6		
Maximum:		30	28	71		107	0.89	4	6.01	7.31

Chicopee Water Pollution Control District
NPDES Permit No. MA 0101508

Table 1 (page 2 of 2)
Two year facility DMR Data

	fecal coliform (cfu/100 ml)		TRC (mg/l)		Whole Effluent Toxicity	NH3 (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	TKN (mg/l)	Total N
	mo avg	daily max	mo avg	daily max	LC50 %	mo avg	mo avg	mo avg	mo avg	mo avg
	200	400	0.89	1	≥100	Report	Report	Report	Report	(Calculated)
Sampling Frequency:	1/week		3/day		4/year	1/month	1/month	1/month	1/month	(Calculated)
January 2008						14	0.4	0.1	21	21.5
February					≥100	9	1.5	0.1	17	18.6
March						6.65	2.1	0.1	11.5	13.7
April	0.74	1	0.6	0.79		2.8	1	0.2	15	16.2
May	1.4	10	0.56	0.85	≥100	10	0.2	0.1	20	20.3
June	2.6	9	0.56	0.69		13	0.1	0.1	20	20.2
July	2.75	21	0.53	0.86		10	0.28	0.03	24	24.31
August	7.03	29	0.52	0.81	≥100	7.6	0.53	0.52	11	12.05
September	3.56	10	0.59	0.79		6.4	0.71	0.11	10	10.82
October	2.8	5	0.61	0.76		15	0.11	0.04	21	21.15
November					≥100	15	0.19	0.26	23	23.45
December						8.2	1.2	0.12	12	13.32
January 2009						12	0.91	0.09	17	18
February					≥100	15	0.53	0.06	23	23.59
March						9	1.2	0.06	15	16.26
April	0.74	1	0.59	0.84		14	0.28	0.07	26	26.35
May	1.4	10	0.57	0.78	≥100	14	0.42	0.14	22	22.56
June	2.6	9	0.57	0.81		16	0.49	0.03	31	31.52
July	2.75	21	0.59	0.78		16	0.1	0.04	24	24.14
August	7.03	29	0.79	0.77	≥100	8	0.16	0.35	9.3	9.81
September	3.56	10	0.56	0.77		14	0.35	0.28	25	25.63
October	2.8	5	0.59	0.79		17	0.45	0.24	24	24.69
November					≥100	14	1.2	0.16	21	22.36
December						14	0.47	0.05	20	20.52
Average:	2.98		0.59			11.69	0.62	0.14	19.28	20.04
Maximum:		29.00		0.86						

Date	Flow	fecal coliform		e. Coli		Total Residual Chlorine	pH	BOD	TSS	Whole Effluent Toxicity
	MGD	cfu/100 ml		cfu/100 ml		mg/l	SU	mg/l	mg/l	LC50 %
		Event avg	Event max	Event avg	Event max					
2/22/2009	0.11									
3/8/09	0.22									
4/3/09	0.69					0.83	7.21			
4/6/2009	0.95	<1	<1	46.5	50	0.07	7.18	66	66	
4/20/2009	0.33									
4/21/2009	0.13		1		13	0.58	6.77			
5/6/09	2.09	45.5	108	64.75	90	0.08	7.1	66	101	71.4%
5/7/09	0.01									
5/16/09	0.05									
6/11/09	2.61	22	75	0.75	3	0.25	7.06	46	68	
6/13/09	1.28					0.15	7.03		41	
6/14/09	0.35									
6/15/09	0.13									
6/18/2009	3.3		3			0.1	7.19			
6/27/2009	0.18									
7/1/2009[1]	1.34	1.5	3	1.5	3	0.23	6.45	13	69	
7/3/2009	0.03									
7/7/2009	0.05									
7/11/2009	1.51		53			0.07	6.96			
7/17/2009	1.5		<1		20	0.1	6.76			
7/21/2009	4.29		<1		5	0.48	6.96			
7/23/2009	3.46									
7/24/2009[2]	0.59		<1		35	0.26	6.78			
7/25/2009[2]			<1		35	0.25	6.79			
7/26/2009[2]			4		68	0.47	6.86			
7/27/2009	0.01									
7/29/2009	0.16									
7/31/2009	2.26		25		113	0.25	7.19			
8/21/2009	1.29	7	13	40	60	0.38	6.85	85	88	
8/22/2009	0.7	1.5	2	14.5	18	0.23	6.95			
8/23/2009	0.08									
8/28/2009	1.34	43.5	80	83.5	110	0.07	6.7			
8/29/2009	0.1		16		70	0.5	6.87			
9/26/2009	0.05									
9/27/2009	0.12									
Missing monthly op rep for October 09										
11/14/2009	0.24									
11/19/2009	0.28									
11/20/2009	0.03									
None in December 2009										

[1] Bypass flow reported on 7/1/09 while monitoring data reported for 7/2/09.

[2] Bypass flow reported on 7/23 and 7/24/09 while monitoring data reported for 7/24, 7/25 and 7/26/09.

Table 3. Jones Ferry CSO Treatment Facility Monitoring Data

		Flows (MGD)										
Date	Precip (in)	Flow I (into facility)	Flow C (to WWTP)	Flow B (Untreated)	Flow A (Treated at CSO Facility)	Duration of Flow A (hours)	Fecal Coliform (cfu/100 ml)	TRC (mg/l)	pH min	BOD (mg/l)	TSS (mg/l)	Whole Effluent Toxicity (LC50)
8/21/2009	1.2	1.29		0	1.29	2.3	3.6	0.38	6.85	85	88	
8/22/2009	0.8	0.7		0	0.58	2.2	1.4	0.23	6.95			
8/23/2009	0.4	0.08	0.2	0								
8/28/2009	1.25	1.34		0	1.24	5.9		0.07	6.7			
8/29/2009	0.36	0.1	0.2	0				0.5	6.87			
10/3/2009	0.8	1.13	0.2	0	0.93	4.8	9.9	0	6.5		62	
10/24/2009	1.3	1.72	0.2	0	1.52	2.9	30	0.05	6.9	43	96.36	> 100
10/28/2009	1.05	2.11	0.2	0	1.91	5.2	0	0.23	7			
11/14/2009	1.5	2.97	0.8	0	2.17	6.38	31.8	0.08	5.96			
11/20/2009	0.55	1.14	0.4	0	0.74	3.23	4.4	0.15				
12/2/2009	1.1	2.75	0.4	0	2.35	5.6	5.8	0.03	5.41			
12/13/2009	0.8	1.15	0.4	0	0.75	0.75	10	0.3	7.15			
12/26/2009	0.2	4.8	0	0	4.4	4.4	25	0	6.1			
12/27/2009	0.17	1.49	0.4	0	1.09	1.09	1	0.23	5.9			
1/18/2010	1.3	0.86	0.4	0	0.46	1.24	1.6	0.23	7.11			
1/25/2010	1.5	8.5	0.4	0	8.1	6.89	13.2	0.08	6.31			
2/24/2010	0.6	2.45	0.4	0	2.05	6.5	11.4	0.04	6.08	75	235	> 100
2/25/2010	1.25	7.46	0.4	0	7.06	16.55	13.2	0.1	5.96			
3/13/2010	0.72	0.63	0.4	0	0.23	2.71	4.8	0.15	6.32			
3/22/2010	1.4	3.25	0	0	3.09	5.59	2.2	0.1	5.47			
3/23/2010	0.05	0.24	0.4	0	0	1.62	1	0.15	5.03			
3/28/2010	1	0.72	0	0	0.72	4.26	1	0.13	6.05			
3/29/2010	1.3	3.07	0	0	3.07	12.88	5	0.11	5.82			
3/30/2010	1.5	4.45	0.4	0	4.05	17.45	1	0.13	5.62			
5/8/2010	0.6	6.72	0.4	0	2.32	5.53	3.1	0.08	6.15			
5/13/2010	0.27	0.453	0.4	0	0.053	0.75						
5/27/2010	0.45	0.053	0.053	0	0	1.3	1	0.08	6.35			
5/29/2010	0.02	1.59	0.4	0	1.19	1.81	1	0.45	6			
6/4/2010		2.42	0.4	0.13	2.15	2.32						
6/10/2010		0.4	0.4	0	0	0.98						
6/12/2010		0.4	0.4	0	0	1.06						
6/13/2010		3.54	0.4	0.1	3.04	2.93						
6/24/2010		0.32	0.32	0	0	1.27						
*missing July data												
8/5/2010	0.8	3.02	0.4	0.2	2.62	2.55	10.6	0.15	5.96			
8/9/2010	0.55	1.57	0.4	0	1.17	1.83	1	0	5.77			
8/16/2010	0.4	1.07	0.4	0	0.67	2.2	8.7	0.3	5.99			
8/22/2010	1.8	2.43	0.4	0	2.03	4.5	21.7	0.18	6			

Chicopee Water Pollution Control Facility
NPDES PERMIT No. MA0101508

Table 4
CSO Activations

	CSO #	Location	Overflow Type	Pipe size (in)	Activations in 2009	Annual Overflow Volume (Typical Year)	Proposed Phase	Outfall
Connecticut	3	Power Line ROW S of James St	Leaping Weir	30	54	18.12	6	3
	4	Riverview Pumping Station	Diversion Weir	21	36	27.32	4	4
	5	Leslie St Pumping Station	Diversion Weir	36	46	3.4	7	5
	6	Call St Pumping Station	Diversion Weir	60	66	37.15	3	6
	7.1	Jones Ferry Rd Pumping Station	CSO Treatment Facility	rect	53	13.27	2 (partial)	7
	7.2	Jones Ferry Rd Pumping Station	Mechanical regulator	36	38	0.92	6	7
	8	Easement S of Jones Ferry Rd P.S.	Mechanical regulator	48	19	included in 7.1	2 (partial)/8	8
	9	Paderewski St Pumping Station	Diversion Weir	60	45	3.48	7	9
	24.2	Leonard St and West St	Leaping Weir	24	81	7.9	5	24
	24.3	Exchange St and Bullens St	Leaping Weir	18	45	0.01	8	24
	24.4	Exchange St and Depot St	Leaping Weir	50x36 arch	78	8.7	5	24
	24.5	Front and Depot St Area	Leaping Weir	44x32 arch	80	18.89	5	24
Chicopee	26.1	Bell St and Front St	High Outlet	12	30	0.06	8	26
	27.1	Parking Lot, Topors Garage, Front St	Leaping Weir	46x30 arch	47	5.5	6	27
	27.2	West End of Riverview Terrace	Diversion Weir	10	20	0.09	8	27
	29	Chicopee Electric Light West	Leaping Weir	18	76	0.25	3	29
	31.1	Chicopee Electric Light South	Leaping Weir	18	51	28.62	2	31
	31.3	Easement NW of Front St	Leaping Weir	48	91			31
	32.1	Grove St and Oak St	Diversion Weir	18	48	7.67		32A
	32.2	Walnut St and Broadway	Leaping Weir	15	61	5.14	5	32A
	32.3	Broadway and Belcher St	Leaping Weir	18	57	0.21	8	32B
	32.4	Maple St and Belcher St	Leaping Weir	12	40	0.14	7	32B
	32.5	Church St and Walnut St	Diversion Weir	18	42	0.04	8	32A
	34.1	Grattan St and Hearthstone Terrace	Mechanical regulator	20	50	4.67	6	34
	34.2	Hearthstone Terrace # 44	High Outlet	10	23	0.13	8	34
	34.3	Montgomery St @ Deady Memorial Bridge	Diversion Weir/Stop Logs	30	31	26.78	3	34
	37	East Main St # 227	Leaping Weir	24	46	0.24	7	37
	40	Chicopee St, manhole #11	High Outlet	30	1*	unknown		40
W	42	Robert's Pond	Leaping Weir	10		0.7		42

Chicopee Water Pollution Control Facility **Table 5**
NPDES Permit No. MA 0101508 **Metals Effluent Data and Criteria Calculations**

	Effluent Analytical Data (ug/l)							Receiving Water Analytical Data (ug/l)						
	Hardness	**Al**	**Cd[1]**	**Cu**	**Ni**	**Pb[1]**	**Zn**	**Hardness**	**Al**	**Cd[1]**	**Cu**	**Ni**	**Pb[1]**	**Zn**
5/9/2007	61	30	< 1	16	9	< 1	28	26	180		1.3	<1	< 1	11
8/8/2007	52	98	< 2	16	30	< 2	42	44	120		3.6	< 2	< 2	3.5
8/29/2007	72	71	< 2	7.7	28	< 2	17	64	<50		<2	< 2	< 2	7.6
9/19/2007	56	<50	< 2	10	6.3	< 2	30	52	500		12	< 2	< 2	9.2
11/14/2007	36	< 50	< 2	< 2	< 2	< 2	29	36	53		< 2	< 2	< 2	4.6
2/13/2008	68	84	< 2	11	3.6	< 2	57	28	120		< 2	< 2	< 2	7
5/14/2008	60	100	< 2	10	4.8	< 2	39	36						
8/13/2008	68	86	< 2	8.4	3.6	< 2	17	24	230		10	< 2	< 50	8.4
11/13/2008	52	< 50	< 2	16	4.6	< 2	36	20	< 50		8	< 2	< 2	8
2/11/2009	48	130	< 2	15	3.8	< 2	47	40	< 50		3.3	< 2	< 2	3.4
5/13/2009	72	< 50	< 2	8.5	3.4	3.8	25	28	110		4.3	3.4	< 2	12
8/12/2009	56	< 50	< 2	6.8	3	< 2	18	40	83		5.5	< 2	< 2	11
2/10/2010	60	100	< 2	8.8	25	< 2	32	36	94		< 2	< 2	< 2	2.2
6/3/2010		< 50	< 2	7	5.6	< 2	20		94		3.1	< 2	< 2	4.2
6/23/2010		86	<5	9.1	<5	<5	32		88		2.2	< 1	< 1	56
Median	60	86	ND	10	4.8	ND	30	36	110		4.0	3.4	ND	7.8
99th percentile		171	ND	30.6	44.4	4.7	69.7							
Chronic Criterion[3]		87	0.41	5.7	22	0.23	43							
Acute Criterion[3]		750	0.70	4.8	139	14.0	43							

[1] Non-detects noted as " < [minimum detection level]"

[2] Samples at or below minimum detection level (MDL) are assumed to be at MDL in calculating average

[3] Criteria for Cd, Cu, Ni, Pb and Zn are hardness dependent and calculated using the formulas set forth in the *National Recommended Water Quality Criteria 2002* (EPA 2002) at a hardness of 36, based on the median hardness of effluent and receiving water combined proportional to design flow and 7Q10 flow.

Nitrogen Loads

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
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

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]
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**
MASSACHUSETTS					
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]
MASSACHUSETTS					
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**		**2151.386**

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
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)

Chicopee Water Pollution Control District
NPDES Permit No. MA 0101508

Table 1 (page 2 of 2)
Two year facility DMR Data

	fecal colilform (cfu/100 ml)		**TRC (mg/l)**		**Whole Effluent Toxicity**	**NH3 (mg/l)**	**Nitrate (mg/l)**	**Nitrite (mg/l)**	**TKN (mg/l)**	**Total N**
	mo avg	daily max	mo avg	daily max	LC50 %	mo avg	mo avg	mo avg	mo avg	mo avg
	200	400	0.89	1	≥ 100	Report	Report	Report	Report	(Calculated)
Sampling Frequency:	1/week		3/day		4/year	1/month	1/month	1/month	1/month	(Calculated)
January 2008						14	0.4	0.1	21	21.5
February					≥ 100	9	1.5	0.1	17	18.6
March						6.65	2.1	0.1	11.5	13.7
April	0.74	1	0.6	0.79		2.8	1	0.2	15	16.2
May	1.4	10	0.56	0.85	≥ 100	10	0.2	0.1	20	20.3
June	2.6	9	0.56	0.69		13	0.1	0.1	20	20.2
July	2.75	21	0.53	0.86		10	0.28	0.03	24	24.31
August	7.03	29	0.52	0.81	≥ 100	7.6	0.53	0.52	11	12.05
September	3.56	10	0.59	0.79		6.4	0.71	0.11	10	10.82
October	2.8	5	0.61	0.76		15	0.11	0.04	21	21.15
November					≥ 100	15	0.19	0.26	23	23.45
December						8.2	1.2	0.12	12	13.32
January 2009						12	0.91	0.09	17	18
February					≥ 100	15	0.53	0.06	23	23.59
March						9	1.2	0.06	15	16.26
April	0.74	1	0.59	0.84		14	0.28	0.07	26	26.35
May	1.4	10	0.57	0.78	≥ 100	14	0.42	0.14	22	22.56
June	2.6	9	0.57	0.81		16	0.49	0.03	31	31.52
July	2.75	21	0.59	0.78		16	0.1	0.04	24	24.14
August	7.03	29	0.79	0.77	≥ 100	8	0.16	0.35	9.3	9.81
September	3.56	10	0.56	0.77		14	0.35	0.28	25	25.63
October	2.8	5	0.59	0.79		17	0.45	0.24	24	24.69
November					≥ 100	14	1.2	0.16	21	22.36
December						14	0.47	0.05	20	20.52
Average:	2.98		0.59			11.69	0.62	0.14	19.28	20.04
Maximum:		29.00		0.86						

Chicopee Water Pollution Control Facility - Response To Comments

On August 10, 2011, the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) public noticed a Draft Permit (MA0101508) for the Chicopee Water Pollution Control Facility

EPA received comments from the City of Chicopee and from the Connecticut River Watershed Council. The following are responses to all significant comments received and descriptions of any changes made to the public-noticed permit as a result of those comments. Additional changes to clarify permit language have also been made and are summarized at the end of this document.

In many cases, EPA has included original comments nearly verbatim for the convenience of the reader. In others, EPA summarized a comment without repeating here the entirety of the commenter's original text. Many of the details presented in the original comments were not repeated in such digested comments. EPA did not limit its analysis of the comments submitted to the digest presented below, but rather reviewed each original comment in its entirety. Where EPA has summarized a comment, we have done so simply to make this response to comments more accessible to the interested public. No significance should be attached to the form in which EPA cited or summarized the original comment in this response document.

A. The following comments were received from the City of Chicopee in a letter dated September 7, 2011:

Comment A1. Permit Page 2, Table A.1 and Permit Page 4, Footnote 9 *New aluminum limit 87 ug/L*. We request that EPA remove the limit for total aluminum from the permit. The effluent limit proposed for aluminum is 87 µg/L, which is equivalent to the EPA ambient water quality criteria for chronic exposure to aluminum. The ambient water quality value was based on a survey conducted in 1988 of available aluminum toxicity literature[1]. Since that time several aluminum speciation and toxicity studies have shown that aluminum alone is not sufficient to cause toxicity to aquatic organisms, but that it is the type of aluminum species present in the water that is the key factor in determining its toxicity. Aluminum speciation, bioavailability, and toxicity are dependent on diverse water quality parameters such as the buffering capacity, dissolved organic carbon content, and pH of the water[2]. The Connecticut River, to which the WPCF discharges, is a main stem river with a pH generally greater than 7.0 and high buffering capacity (>35 mg/L of hardness)[3]. Several studies have concluded that aluminum toxicity is only present in poorly buffered streams when the pH becomes acidic resulting in increased speciation of aluminum into bioavailable and toxic forms[2]. It places a large burden on the WPCF to meet such a strict limit on aluminum when there is no clear detrimental effect to the receiving water. Use of aluminum salts by the WPCF is not only an effective tool for enhancing solids removal, it

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

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

[3] Connecticut River Watershed 2003-2007 Water Quality Assessment Report. Appendix B 34wqar07.doc DWM CN 105.5.

is widely used for phosphorous reduction. The inability of the WPCF to utilize aluminum salts will negatively impact the facility's ability to effectively control known pollution problems.

If the aluminum limit is not removed, we request that EPA insert language stating that monitoring for aluminum is only required during months when aluminum is added to the treatment process. We request that Footnote 9 be revised to add the following language: "Aluminum monitoring is required during months when aluminum is added to the treatment process. For months when no aluminum is added, and no monitoring is conducted, the permitee shall report a no discharge code (NODI) on its discharge monitoring report". The monitoring of aluminum in the effluent during months when aluminum is not being utilized in the treatment process provides no valuable data and places unnecessary costs on the WPCF.

Finally, if EPA will not remove the aluminum limit entirely, we request that the concentration-based limit be replaced with a mass-based limit of 21.8 lbs/day, which results from the 87 µg/L ambient water quality criteria at the treatment plant's peak flow through the secondary treatment system of 30 mgd. A mass-based limit provides the WPCF the flexibility to use aluminum-based coagulants when really needed in the treatment process to maintain high effluent quality by preventing solids carryover from the secondary clarifiers at high flows and during periods of poor settleability while still having the ability to meet the aluminum limit. A concentration-based aluminum limit will eliminate or greatly restrict a valuable treatment tool used by the Chicopee WPCF to maintain a high quality effluent discharge to the Connecticut River.

> **Response to comment A1:** In developing NPDES permit limits EPA is required to ensure that discharges do not cause or contribute to an exceedance of water quality standards. Water quality standards are promulgated by the state, subject to EPA approval. For pollutants not specifically listed in the Massachusetts Water Quality Standards, the EPA *National Recommended Water Quality Criteria: 2002* are the allowable receiving water concentration. 314 CMR 4.05(5)(e). Therefore the EPA ambient water quality criterion for chronic exposure to aluminum (87 ug/l) is used as the basis for effluent limits in this permit. When issuing permits, EPA does not have the authority to reexamine duly issued and approved state water quality standards based on additional research, a balancing of toxic impacts against other water pollution problems, or otherwise. The appropriate course for considering such issues is through either (1) a change in the state water quality standards to adopt either a site specific criterion or a different statewide criterion, or (2) a variance or change in use designation for the receiving water.
>
> MassDEP has informed EPA that it is developing site specific criteria for aluminum reflecting specific characteristics affecting aluminum toxicity, as suggested by the City. The development of site specific criteria must meet the procedural requirements for changes to water quality standards as well as receive EPA approval. As this is a lengthy process, and formal proceedings to change the standard have not commenced, EPA has decided to issue this Final Permit based on the existing criterion. This decision is consistent with the CWA and EPA's regulations, which provide for the reissuance of permits on a regular basis so that permit terms are revisited and reviewed rather than left unexamined and unchanged for long periods of time. *See* 33 USC §§ 1342(a)(3) and (b)(1)(B), and 40 C.F.R. § 122.46(a). EPA notes that the aluminum limit in the Final

Permit is subject to a compliance schedule, so that the effluent limit goes into effect four years from the permit effective date. If a site specific criterion is adopted and approved during this permit term the permittee may request modification of the permit pursuant to 40 CFR § 122.62(a)(3)(i)(B).

EPA agrees that it appears that a primary source of aluminum in the discharge is the addition of aluminum in the treatment process. However, there are other potential sources of aluminum in the discharge, and the City itself has raised the possibility that a review of local limits may be necessary in connection with the aluminum limit. See comment A5. The City has also been provided with a schedule allowing up to 24 months to characterize sources of aluminum in the system and to analyze alternatives for meeting the limit. In this context EPA believes that monitoring aluminum even when it is not used in the treatment process may provide valuable data and the Final Permit maintains that requirement.

The mass-based limit proposed by the City is not adequate to ensure that discharges do not cause or contribute to exceedances of water quality standards in the Connecticut River. As noted in the Fact Sheet, out of fourteen samples from the Connecticut River upstream of the discharge, ten have been above the water quality criteria of 87 ug/l, with a median of 110 ug/l. Where the receiving water is at or above water quality criteria, any discharge with concentrations above the criteria contributes to an exceedance of the standard. The mass-based limit proposed by the City would permit concentrations above the criteria whenever flows are below the peak of 30 MGD and therefore does not meet the regulatory requirements for permit issuance. EPA recognizes that the City has found aluminum compounds to be a valuable treatment tool and therefore has provided time in the permit schedule to allow the City to develop alternatives.

Comment A2. Permit Page 7, Part B *Nitrogen optimization: "maintain the mass discharge of total nitrogen less than the existing mass loading of total nitrogen. The baseline annual…1618 lbs/day."* We understand that the Nitrogen Optimization requirement is being implemented basin-wide, and optimization will be the only requirement for this permit. However, we don't believe that the baseline of 1618 lbs/day is appropriate for a CSO community like Chicopee. The City's Consent Decree with EPA and the Department of Justice requires that the City spend over $150 million dollars for CSO-related improvements by 2026. As a result of these on-going CSO eliminations, more domestic wastewater is coming to the WPCF than during the period when the baseline was established, and this additional domestic flow is increasing the nitrogen load to the WPCF. The flow at the WPCF receives more treatment and removal of the nitrogen than it would otherwise receive when it was discharged directly to the river from the CSOs. However, despite the additional treatment, the CSO abatement projects result in a net increase in nitrogen load received to and discharged from the WPCF.

Request the reference to the baseline eliminated from the permit, or an acknowledgement added that even as our recorded annual load exceeds the baseline, with CSOs taken into account, it does not indicate a net increase in nitrogen from the City.

Response to comment A2: EPA recognizes that CSO abatement measures have the potential to reallocate existing nitrogen loads to the WPCF. For example, measures that provide storage for wet weather flows for later pumping back to the WPCF and to maximize flow to the WPCF result in increased flows of both sanitary sewage and stormwater to the WPCF, thus increasing pollutant loads. Sewer separation projects are expected to increase sanitary flows to the WPCF that would otherwise discharge through CSOs while at the same time reducing stormwater flows to the WPCF; given the higher nitrogen content of sanitary sewage, the net effect is likely to be increased nitrogen loads to the WPCF (although this may not always be the case). The increased nitrogen loads from the WPCF as a result of such measures would not reflect an actual increase in baseline discharges from Chicopee's system, but rather a reallocation of existing nitrogen load from CSOs to the treatment facility.

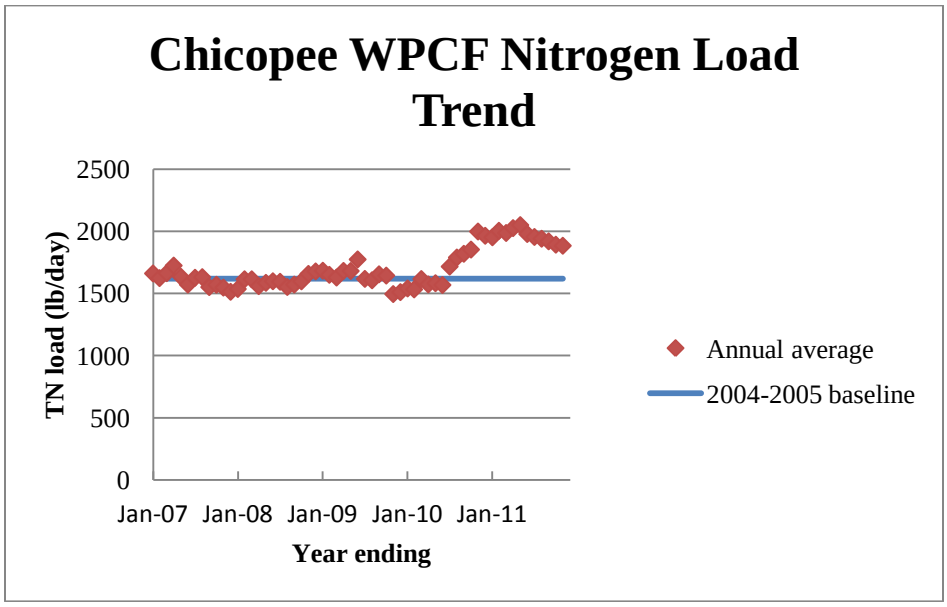
In considering how to account for this impact, EPA has reviewed the TMDL requirements related to CSOs and the available information regarding the impact of CSO reductions on nitrogen loads to the WPCF. The Long Island Sound TMDL approach to nitrogen discharges from CSOs is to consider such discharges as included with the loads calculated for the relevant sewage treatment plant (for the sanitary sewer component of the discharge) and in the land runoff calculations (for the stormwater component of the discharge). As described in the TMDL report:

> For example, in Connecticut, pollutant loading estimates for CSOs were not available due to a scarcity of monitoring data for both pollutant concentrations and discharge volumes. Instead, the sewage treatment plant loads, based on discharge monitoring, include the nitrogen that would overflow during wet weather conditions. Similarly, the export coefficients used to estimate land runoff of nitrogen account for stormwater contributions on CSO areas. In this approach, Connecticut CSO loads were effectively distributed between the point source and nonpoint source categories. None of the CSO nitrogen load was missed; it was just assigned to the point and nonpoint source categories relevant to each CSO drainage area. In the future, as New Haven, Hartford, Norwalk, Bridgeport, and Norwich develop long-term control plans for their CSO systems, monitoring data will be collected to more clearly document discharge volumes and pollutant concentrations.

As noted in the TMDL, further evaluation of CSO loads should be based on monitoring data that clearly documents discharge volumes and pollutant concentrations from CSOs.

While the City of Chicopee did not provide sufficient information in its comments to "clearly document discharge volumes and pollutant concentrations from CSOs" as contemplated in the TMDL, the City's DMR data from the WPCF, as well as its Final Long Term Control Plan (not yet approved by EPA), provides some basic information to conduct a preliminary analysis of the impacts of CSO abatement projects on WPCF nitrogen loads.

First, Chicopee's DMR data supports the contention that loads discharged through the WPCF have increased in response to CSO abatement projects. Figure 1 shows the annual



average nitrogen loads discharged from the WPCF from January 2007 (reflecting 2/06 through 1/07) through November 2011. The annual average nitrogen loads remained generally close to the 2004-05 baseline until 2010, when loads begin to show a steady increase.

The increase in loads is consistent with the completion of some major CSO abatement projects, including the Jones Ferry CSO Facility and complete sewer separation of the Fairview area, on top of previous improvements to maximize flow and increase capacity at the WPCF. See LTCP, Table 10-1. There is no other obvious explanation for increased load from the WPCF, as the City has experienced little growth (population growth between the 2000 and 2010 census was 645 people, or 1.2%), and there have been no significant extensions of the sanitary sewer system (population served as reported in the applications for the prior permit (2005) and this one (2010) have remained steady at about 55,000).

Data provided in the LTCP also indicates the potential for CSO reductions to add significantly to the WPCF nitrogen load. The system model used as the basis for the LTCP (using 1976 precipitation) indicates that the City's system as of 2001 was expected to generate annual CSO volumes of 484.1 MG. LTCP Table 10-1. Concentrations of Total Kjedahl Nitrogen in CSO discharges were reported for three storm events at three CSO outfalls with a range between 9.1 and 29 mg/l (mean 16.9 mg/l) TKN. LTCP, Tables 4-5 to 4-7. When averaged over the entire year, CSO discharges as of 2001 (using model year precipitation) amounted to more than 1.3 MGD of flow and a TKN load between 99 and 275 lb/day (mean 187 lb/day). This would potentially be a significant increase over the defined "baseline" total nitrogen load, which includes nitrate

and nitrite in addition to TKN, of 1,618 lb/day. The vast majority of this CSO load is expected to be from the sanitary sewage component of the CSOs.

While both of these data sources support the contention that CSO projects are resulting in a reallocation of existing loads from CSO discharges to the WPCF, at least on a qualitative basis, the available information is insufficient to support any recalculation of the nitrogen baseline. While the LTCP includes a calculation of reductions in CSO discharges, this lumps together changes from sewer separation, maximization of flow to the WPCF through system improvements, and treated flows to the Jones Ferry and bypass treatment facilities. The different types of projects have different impacts on the WPCF, and discharges through the Jones Ferry and bypass treatment facilities do not change the nitrogen load to the WPCF at all.

Therefore, EPA is maintaining in the Final Permit the 1,618 lb/day estimated baseline based on WPCF data from 2004-2005 for this permit term, while adding a requirement for the collection of information to be used in the next permit reissuance to reassess the nitrogen baseline load. The Final Permit requires that the permittee shall submit with its next permit application a report providing a comparison of 2004-05 conditions with conditions as of the date of the report with respect to the volume of sanitary sewage and of stormwater discharged through CSOs, through the WPCF and through the CSO treatment facilities. The report shall also include the expected change in volume and nitrogen load from the WPCF from sanitary sewage and stormwater flows in connection with each phase of the LTCP not included in the analysis of conditions as of the report date, but expected to be completed within the following permit term.

The Final Permit also requires the City to monitor influent nitrogen concentrations at the WPCF and calculate percent removals on a quarterly basis. This will provide additional information on changes in loads coming into the WPCF in connection with higher sanitary flow components of the influent. It will also provide a basis for assessing optimization efforts to supplement assessment of total loads, since changes in WPCF loads are expected to reflect CSO abatement projects as well as optimization efforts.

Comment A3. Permit Page 9, Part D.4 *Alternate Power Source.* The WPCF has an alternate power source for primary treatment and chlorination at the treatment works. All large pump stations have alternate power; all smaller stations have a transfer switch to a portable generator. The City has a trailer-mounted portable generator that is sized for the largest of the stations without stand-by alternative power. During a power loss, the City can perform a "milk run" to each of these locations to allow the pumping down of station wet wells.

Request acknowledgement this system meets the alternate power source requirement. It is the City's opinion that lack of acknowledgement or response from EPA is acknowledgement that the City's current alternative power source procedures are compliant with NPDES permit requirements.

Response to comment A3: EPA acknowledges that the alternative power source procedures described by the City comply with the permit requirements.

Comment A4. Permit Page 11-12, Part E.2.f *Signs.* On an annual basis, the City will repair or replace signs that have been vandalized; signs are not placed on private property when objected to by the property owner.

Request acknowledgement this meets the intent of the requirement. It is the City's opinion that lack of acknowledgement or response from EPA is acknowledgement that the City's current sign protocols are compliant with NPDES permit requirements.

> **Response to comment A4.** EPA acknowledges that annual repair or replacement of signs that have been vandalized or otherwise damaged meets the intent of the requirement that the City "maintain" the required signs.
>
> EPA does not agree that the City's policy toward private property meets the intent of the sign requirement. The permit language has been modified to indicate that the City must obtain easements as necessary to meet this requirement, to the extent practicable.

Comment A5. Permit Page 15, Part F.2 *Written evaluation of need to revise local limits within 120 days.* We understand that this is a standard permit condition. However, we would like to point out that the proposed aluminum limit could trigger the need to revise our local limits, adding to our costs and to the overall impact of a limit for aluminum.

> **Response to comment A5:** EPA acknowledges the comment. See also the response to comment A1.

Comment A6. Fact Sheet Page 14, Third paragraph *"The Final Long Term Control Plan has not yet been approved…".* The Massachusetts Executive Office of Energy and Environmental Affairs on December 2, 2009 … "hereby determined that the Final Environmental Impact Report (FEIR) submitted on the above project (Long-Term Control Plan for Combined Sewer Overflows) adequately and properly complies with the Massachusetts Environmental Policy Act (MGL,c30,ss.61-62I) and with its implementing regulations (301 CMR 11.00)."

> **Response to comment A6:** The Fact Sheet states that "[t]he Final Long Term Control Plan has not yet been approved **by EPA**." (emphasis added). The Fact Sheet statement is accurate; EPA has not yet approved the Final LTCP.

B. The following comments were received from the Connecticut River Watershed Council in a letter dated September 8, 2011:

Comment B1. The Connecticut River, an American Heritage River, is a regional resource that merits the highest level of protection. The Connecticut River downstream of the Holyoke dam is listed as an impaired water body due to priority organics and pathogens. The Chicopee River from its source (the meeting point of the Swift, Quabog, and Ware Rivers) to its confluence with the Connecticut River is impaired for pathogens. CRWC is particularly interested in improving

water quality in the Connecticut River and its tributaries so that they can support a high quality fishery as well as existing primary and secondary contact uses, even during wet weather.

> **Response to comment B1.** As noted in the Fact Sheet, the Draft Permit is designed to protect the uses designated for Class B waters, including "as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation." This is consistent with CRWC's stated goal that the Connecticut and Chicopee Rivers "support a high quality fishery as well as existing primary and secondary contact uses, even during wet weather." Wet weather water quality in particular is specifically addressed in the permit through effluent limitations on the Jones Ferry Treatment Facility and other provisions related to CSO discharges.
>
> EPA agrees that the Connecticut River is a regional resource and has included provisions in the permit to protect water quality in downstream affected states (N monitoring and optimization) pursuant to 40 CFR § 122.44(d)(4). With respect to the contention that the Connecticut River "merits the highest level of protection," the Fact Sheet describes the level of protection applicable to the Connecticut River: protection of uses designated for Class B waters (Fact Sheet section IV); antidegredation (section V); Essential Fish Habitat and Endangered Species protection (Sections X and XI); and protection of downstream affected states (Section VI.b.6). The American Heritage Rivers initiative, while an important program to provide federal support for locally driven and designed solutions (http://water.epa.gov/type/watersheds/named/heritage/), does not create any additional or higher standards for regulation.[4]

Comment B2. The protection of existing uses is required under 40 CFR 131.12(a)(1). Below is our understanding of existing uses on the Connecticut and Chicopee Rivers in the vicinity of the main outfall and its combined sewer overflow (CSO) pipes.

> • A state-owned boat ramp (Medina Street) is located in Chicopee almost adjacent to the WPCF. This boat ramp is extremely busy with motor boat launching on most weekend days in the spring, summer, and fall. This is especially true during the height of the spring fish migration period.
>
> • A boat launch owned and operated by the City of Holyoke is located directly across the river from the Jones Ferry CSO Treatment Facility. This site, the Jones Ferry River Access Center, has a newly built meeting room and picnic area, and is the launching point for a group called Holyoke Rows (http://www.holyokerows.org/), which offers rowing, kayaking, and canoeing programs for children and adults. The general public uses this site as a launching point, mainly for canoes and kayaks. In addition, anglers use the wooden docks at this access point as a fishing spot.

[4] See EPA, *What is the American Heritage Rivers Initiative?* http://water.epa.gov/type/watersheds/named/heritage/initiative.cfm ("Without any new regulations on private property owners, state, local and tribal governments, the American Heritage Rivers initiative is about making more efficient and effective use of existing federal resources, cutting red-tape, and lending a helping hand.")

• Downstream of Chicopee on the Connecticut River, there are several more recreational access points: a new cartop access area in West Springfield, Bondis Island in Agawam, Pynchon Point in Agawam, and the Thompsonville boat launch in Connecticut. In addition, two private boating Connecticut River Watershed Council clubs, Pioneer Valley Yacht Club in Longmeadow and the Springfield Yacht Club in Agawam, are located downstream of Chicopee. The Pioneer Valley Riverfront Club offers rowing programs and a rowing regatta in Springfield. See http://www.pvrowing.com/ for more information.

• Families in Springfield picnic along the Connecticut River near Springfield's CSOs, which lie just downstream of Chicopee's CSOs. See picture below taken by me during a canoe trip on June 9, 2007.

• The Chicopee River doesn't have many public access areas downstream of Springfield's CSOs, but the section that is near the confluence with the Connecticut River is heavily used during the spring for fishing. Boaters and riverbank anglers who walk to the confluence from the Medina Street boat ramp use this area to catch striped bass and other migratory fish.

Response to comment B2 –EPA acknowledges the existing uses described in this comment. The uses listed are consistent with the designated uses included in the Massachusetts Surface Water Quality Standards for Class B waters, which are "habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value." The permit has been designed to protect these uses.

Comment B3. This section of the Connecticut river also contains fish and wildlife habitat. Migratory cold-water species of fish such as Atlantic salmon, American shad, sea lamprey, and American eel move upstream using fish passage facilities at the Holyoke dam. As noted in the Fact Sheet, federally endangered shortnose sturgeon are known to be in this section of the river.

Response to comment B3 – EPA agrees that the Connecticut River contains fish and wildlife habitat. Designated uses for Class B waters include "habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions" and the permit has been designed to protect those designated uses. Permit limits and conditions that have been included specifically to protect fish and other aquatic life include effluent limits for chlorine and aluminum as well as permit conditions consistent with the nitrogen TMDL for Long Island Sound.

EPA recognizes that the federally protected shortnose sturgeon (*Acipenser brevirostrum*) is present in the vicinity of the discharge. EPA initiated an informal Section 7 consultation under the Endangered Species Act with the National Marine Fisheries Service (NMFS) to address any potential impacts to the shortnose sturgeon. In a response

letter from NMFS, dated December 19, 2011, the service concurred that this permit action is not likely to adversely affect the shortnose sturgeon and no further consultation was required. Please see the Conclusions Section of the December 19, 2011 letter included with this response document for further information.

Comment B4. NPDES permit fact sheets typically include a locus map of the outfall location. We find these maps extremely helpful. This Fact Sheet lacked a map of the main outfall and the CSOs.

Response to comment B4. The Fact Sheet for this Draft Permit did contain a locus map of the outfall locations as Figure 2 (referenced on pages 5 and 29). Upon receipt of the comment it was noted that in the website posting the Chicopee Flow Process Diagram was posted as both Figure 1 and Figure 2. This was an error. The correct Figure 2 has now been posted to EPA's website and is also included as an attachment to this Response to Comments.

Comment B5. The DMR data provided in the Fact Sheet indicates that there were several months during which the average weekly BOD or TSS exceeded the permit limit during 2008 and 2009. However, it appears perhaps there was an error. The EPA ECHO database indicates that the numbers provided as weekly averages were instead the maximums. We request that EPA confirm whether this is a summary error in the Fact Sheet or an ECHO database error. Based on the ECHO database, it does appear that the facility did exceed its weekly TSS lbs/day limit in March of 2011.

Response to comment B4. The comment is correct, the Fact Sheet contains a summary error. The correction is noted for the record and a corrected Table 1 is included with this Response to Comments. There were no violations of the weekly BOD or TSS limits from 2008 to 2009. There was a violation of the weekly TSS mass limit, but not the concentration limit, in March 2011.

Comment B6. The proposed maximum daily limit for *E. coli* bacteria is 409 cfu/100 ml. We have commented to EPA in the past that this limit is not consistent with the Massachusetts Surface Water Quality Standards, 314 CMR 4.00, which states that no single sample shall exceed 235 colonies/100 mL. EPA's response has been that MassDEP "views the use of the 90% upper confidence level (lightly used full body contact recreation) of 409 cfu/100mL as appropriate for setting effluent bacteria levels in NPDES permits." EPA here refers to their *1986 Ambient Water Quality for Bacteria* document.

We think this rationale might be appropriate for some of the rivers in the state that truly do not get much recreational contact. But such is not the case with the Connecticut River. See our comment #1. We think that it would be more appropriate to consider this section of river "designated beach" and give all permit limits on the river a maximum bacteria limit of 235 cfu/100 mL, which corresponds to the designated beach criteria in the 1986 document and the Massachusetts water quality standards. Under Massachusetts regulations, 105 CMR 445.010, a "Public Bathing Beach" means "any bathing beach open to the general public, whether or not any entry fee is charged, that permits access to bathing waters." A Bathing Beach is defined to

be: "[T]he land where access to the bathing water is provided." Id. If this section of river does not fit EPA's standard for a beach, it should at least fall within the "moderate use for bathing" rather than "light use," based on the heavy use of boaters and swimmers. This would establish a maximum bacteria limit of 298 cfu/100 mL, rather than the existing 409.

Response to comment B6. The water quality criteria for bacteria are based on the relationship between observed illness and the geometric mean of the relevant bacteria indicator. EPA, *1986 Ambient Water Quality for Bacteria*, at 9. Inherent in the geometric mean is a variability in monitoring results that allows for approximately half of the samples to be above the mean while remaining protective of water quality standards. Additional criteria elements, such as single sample maxima, are set not because they have a direct relationship to human health, but because they provide a useful indicator of whether the long term geometric mean is being met, given this inherent variability in bacteria monitoring results. As stated in the 1986 EPA criteria document:

> [B]acterial enumeration techniques are imprecise, and environmental conditions, such as rainfall, wind and temperature will vary temporally and spatially. The variable nature of the environment, which affects the die-off and transport of bacteria indicators, and the inherent imprecision of bacterial enumeration methods, suggests an approach that takes these elements into account. Noncompliance with the criterion is signaled when the maximum acceptable geometric mean is exceeded or when any individual sample exceeds a confidence limit, chosen according to a level of swimming use.

To reflect this inherent uncertainty, the bacterial standards used to close a beach and develop effluent limits are based on the same theoretical log-normal distribution curve. The geometric mean is the basis of the criterion, and a statistical threshold value, or margin of safety is applied when evaluating beach notifications and closure decisions or POTW effluent based on a single sample. Both 235 colonies/100 ml and 409 colonies/100 ml correspond to confidence levels (75% and 90% respectively) on the theoretical lognormal distribution of effluent data. When taking individual grab samples, any one individual sample can be greater than or less than the numerical value of the geometric mean criterion, however, this does not necessarily indicate that the geometric mean criterion has actually been exceeded. Therefore, the maximum daily limit should be set at a confidence level on the theoretical lognormal distribution that is protective of water quality and takes into account the public use of the waterbody, with sampling at bathing beaches using the more protective 75th percentile. If the geometric mean (average monthly limit) is being met, there is at least a 75% chance that a single sample will be under the 75% confidence level. This margin of safety is appropriate for sampling at high use beaches because they often have to make decisions (e.g. beach closure) on single samples. Retrospective sampling and the calculation of a geometric mean do not necessarily reflect current conditions.

For other regulatory uses such as permitting, TMDLs, and water quality assessments, the geometric mean is the relevant value to ensure appropriate actions are taken to protect and improve water quality and the use of higher confidence levels as daily maximum

limits is warranted. Decisions as to beach closures and maximum daily permit limits, however, are based on single samples and the varying degrees of risk implied by these other confidence levels should be applied appropriately in such decisions.

In the NPDES permitting context, MassDEP requires that effluent limits be based not on predicted conditions in the receiving water, where mixing, dilution and die-off would be taken into account, but at the end-of-pipe. In this situation the maximum daily limit is appropriately chosen to reflect a reasonable upper bound of the statistical distribution of 90%, or 409 colonies/100 ml. This will identify pollution episodes caused by short term spikes in bacteria resulting from disturbances to plant operation or chlorination failure and provide an ongoing indicator of whether the geometric mean is being met. To choose a lower confidence level of 75% could result in either frequent permit violations, or overtreatment with chlorine in order to shift the entire statistical distribution downward to avoid any permit violations. Such a result is neither desirable nor required by the water quality standards.

With respect to the current uses of the receiving water, "designated beaches" are referred to in the 1986 EPA criteria document as swimming areas that that are frequently protected by lifeguards, provide parking or other public access and are heavily used by the public. None of the areas described in the comment have these characteristics. Given the lack of "designated beaches" in close proximity to the discharge and the mixing that would occur between the discharge and the recreational sites described in Comment B.2, EPA has determined that the 90% confidence level for bacteria monitoring is appropriate here. Hence, the maximum daily *E. coli* limit will remain 409 colonies/100 ml as specified in the draft permit.

Comment B7. The discharge limitations for pH are not in compliance with MA Water Quality Standards, 314 CMR, 4.05(3)b(3) which states that pH should be in the range of 6.5 through 8.3. We request that Chicopee's permit be changed to reflect that range.

Response to comment B.7. The MA Water Quality Standards apply to water quality in the water body. The Connecticut River consistently has pH above 7.0 SU. While Massachusetts has a general practice of requiring that the pH criteria be met at the end-of-pipe in NPDES permits as a certification requirement, exceptions may be made consistent with the Massachusetts Water Quality Standards and the Clean Water Act. In this case MassDEP has determined that the consistently high pH in the Connecticut River and the specifics of the treatment process used by this facility justify a pH range of 6.0 to 8.3. EPA agrees that given the available dilution and the ambient pH, a permit limit of 6.0 to 8.3 SU is sufficient to ensure that the discharge does not cause or contribute to an exceedance of water quality standards. This permit limit is also consistent with EPA's technology based standards for secondary treatment, set forth at 40 CFR §133.102(c). Therefore the pH limit in the Final Permit remains the same as in the Draft Permit.

Comment B8. We note that EPA has instituted a new permit limit for aluminum in this draft permit. According to the Fact Sheet, aluminum compounds are used in the treatment process for TSS control and the receiving water does not provide adequate dilution of aluminum discharges

because it, too, exceeds the chronic toxicity criterion. Chicopee DPW staff have indicated to us that this permit limit will be very difficult to meet. We hope that over the four years of the compliance schedule laid out in Section J of the permit, Chicopee can find a way to keep aluminum discharges within the draft permit limit. We note that fisheries scientists have noticed during electrofishing in the Connecticut River that fish are sometimes attracted to wastewater discharges. Aluminum is toxic to aquatic life and we support efforts to ensure that wastewater discharges not reduce survival of aquatic life in the Connecticut River.

> **Response to comment B8.** EPA acknowledges the comment. See also the response to comment A.1.

Comment B9. CRWC supports the increased frequency in monitoring of nitrogen compounds from once per month to weekly. We note that according to Table 6 of the Fact Sheet, Chicopee's total nitrogen loading is 1,617.96 lbs/day, which is second in the Massachusetts part of the watershed only to Springfield, a facility more than four times Chicopee's design flow. We enjoyed the nitrogen loading analysis in the recently-issued Hatfield fact sheet, and request that this analysis be done for the Chicopee facility (in other words, is the loading value in the summary table from the Fact Sheet close to the actual loading value calculated from the recent DMRs?). We recommend that the permit include nutrient analysis for both influent and effluent, as was done in the most recent Northampton permit. We look forward to reading Chicopee's plan for reducing nitrogen, and we hope they can be successful in major nitrogen reductions.

> **Response to comment B9.** EPA acknowledges CRWC's support of increased nitrogen monitoring frequency. EPA agrees that Chicopee's baseline loading in Table 6 of the Fact Sheet is second only to Springfield, and notes that Springfield's discharge concentration averaged 4.3 mg/l in 2004-05. A discharge concentration of 4.3 mg/l is unusually low; the average for secondary treatment facilities is 19.6 mg/l, with year round nitrification facilities averaging 12.7 mg/l. Fact Sheet Table 6. Chicopee's pure oxygen treatment process is expected to present unusual challenges to nitrogen treatment, which is usually accomplished through establishment of anoxic zones, and EPA also looks forward to the City's plan to optimize nitrogen reductions.
>
> A summary of nitrogen loading from the WPCF from January 2007 through November 2011 is provided in response to comment A2. As noted in that response, Chicopee's most recent nitrogen loads are higher than the baseline established based on 2004-05 DMR data. The Final Permit requires the City to submit a report detailing the impact of CSO abatement projects on the allocation of nitrogen loads between CSOs and the WPCF to allow an assessment of the extent to which increased WPCF loads can be accounted for by CSO abatement. As baseline loadings may be impacted by ongoing CSO abatement projects EPA is also adding nutrient analyses for influent as well as calculation of percent removal. EPA notes that this is not EPA's general practice in the Connecticut River watershed and is being done in this case due to the specific concerns raised by the extensive ongoing CSO abatement projects.

Comment B10. Again, CRWC is very supportive of the revised monitoring for nitrogen and the obligation to submit, implement, and evaluate a plan for optimizing the removal of nitrogen. This

is important, but unfortunately very overdue, information. We are concerned that these requirements are being implemented only as permits are coming up for renewal, which is delaying the acquisition of data relevant to the pending TMDL revision for Long Island Sound. CRWC requests that EPA or MassDEP reopen all the permits within the Connecticut River watershed that do not currently have these requirements and amend them for these requirements. Given that this is now a standard requirement and there is authority to reopen permits, there does not appear any reason to further delay this very important information need. Should the permits be re-opened, we request adjustments to the bacteria limit (see comment #5) at the same time.

> **Response to comment B10.** EPA acknowledges CRWC's support for these Draft Permit Provisions. EPA notes that the remainder of this comment concerns different facilities, not the Draft Permit for the Chicopee WPCF, and therefore as a formal matter is beyond the scope of this Response to Comments. See 40 CFR § 124.17(a)(2) ("response shall . . . [b]riefly describe and respond to all significant comments on the draft permit") (emphasis added). Nonetheless, as a courtesy EPA will provide informal feedback with respect to this request.
>
> EPA will update nitrogen removal optimization language and monitoring requirements in permits on the Connecticut River as they come up for reissuance. EPA believes that reopening these permits mid-term and conducting the major modifications suggested in this comment would not be an efficient use of limited resources. With respect to the bacteria limit, see the response to comment B6.

Comment B11. The Fact sheet that accompanied the recent draft of the Hatfield NPDES permit included a reasonable potential analysis for phosphorus. We would like to see this calculation done for Chicopee, although we do not agree that the Gold Book value is the most appropriate criteria to use.

> **Response to comment B11.** A reasonable potential analysis for phosphorus is set forth below. Consistent with the analysis in Hatfield, this analysis calculates the potential instream concentration of phosphorus with the facility discharging at design flow and the receiving water under 7Q10 conditions. Phosphorus concentrations upstream of the discharge are based on sampling in connection with the MassDEP *2003 Connecticut River Water Quality Assessment* at station 05A, immediately upstream of the Chicopee WPCF. Discharge concentrations are at the maximum daily discharge reported by the City of Chicopee in its permit application.

Reasonable Potential Analysis

$$Cr = \frac{QeCe + QsCs}{Qr}$$

Qe = effluent flow, i.e. facility design flow	=	15.5	MGD
Ce = effluent pollutant concentration	=	4.1	mg/l*
Qs = 7Q10 flow of receiving water	=	1235	MGD
Cs = upstream concentration	=	0.026	mg/l
Qr = receiving water flow = Qs + Qe	=	1250.5	MGD

Cr = receiving water concentration

$$Cr = \frac{(15.5\ MGD \times 4.1\ mg/l) + (1235\ MGD \times .026\ mg/l)}{1250.5\ MGD}$$

$$Cr = .076\ mg/l < 0.1\ mg/l$$

*Maximum daily discharge from permit application'

The resulting concentration is below the EPA-recommended Gold Book concentration of 0.1 mg/l, which has been used by EPA as the basis for permit limits in numerous permit proceedings as an interpretation of the Massachusetts narrative water quality standard for nutrients. See, e.g., *In re Upper Blackstone Water Pollution Abatement District*, 14 E.A.D. __ (2010). The discharge presents no reasonable potential to cause or contribute to an exceedance of water quality standards with respect to phosphorus.

EPA acknowledges the commentor's lack of agreement with the Gold Book value and notes that the comment provides neither a basis for this position nor a suggestion for an appropriate alternative criterion.

Comment B12. The DMR data included in the Fact Sheet did not include 2010 data. In looking at the 2010 data on EPA's ECHO database, we see that there were two WET test violations in 2010. Chicopee DPW staff told us they did not know the reason for the failed toxicity testing. We think EPA and the facility should keep watching this issue and, if it continues, investigate industrial pretreatment practices.

Response to Comment B12. EPA agrees that there were two WET test violations in 2010, in February and August. The seven WET tests since that time have been in compliance with the permit requirements. EPA agrees that this issue should be monitored and that a continuing pattern of WET test violations would merit further investigation.

Comment B13. We also think that it would be appropriate for EPA to designate a test species more representative of actual fish in the resource area, rather than the fathead minnow currently used for most permit compliance. Does EPA have evidence that the fathead minnow is representative of toxicity to species likely to be found in the Connecticut River, including the federally endangered shortnose sturgeon (we acknowledge EPA has stated that not much is known about the effect of toxic substances on the sturgeon)? It is our understanding that the fathead minnow is not a particularly sensitive species.

Response to comment B13. In addition to this comment EPA received a request from the National Marine Fisheries Service (NMFS), as part of its informal consultation under Section 7 of the Endangered Species Act, to include a test species more representative of the federally endangered shortnose sturgeon in the WET testing for the Chicopee facility. Upon review of these requests and the available scientific evidence concerning the effect of toxic substances on the shortnose sturgeon, EPA has determined that it will include a

requirement for additional WET testing of the species *Salvelinus fontinalis* (brook trout) in the Final Permit. NMFS has agreed that this additional testing satisfies its concerns.

While EPA does not agree that the fathead minnow is in general "not a particularly sensitive species", EPA is aware that the limited available research lends support to a concern that fathead minnow may not fully reflect the effect of toxic substances on shortnose sturgeon.[5] We have investigated potentially representative species, keeping in mind that NPDES permits must incorporate monitoring for which there are applicable EPA-approved methods. In doing so, Region 1 notes that nationwide EPA guidance strongly discourages the use of non-standard species for toxicity testing. As stated in EPA's water quality-based toxics control document[6]

> Since whole effluents are complex mixtures of toxicants, generalizations about sensitive and nonsensitive species are difficult to make. For example, one generalization is that trout are considered sensitive organisms requiring high-quality water. However, this generalization may not apply in all cases; trout are very sensitive to oxygen depletion but may be relatively insensitive to certain toxicants. . .
>
> Sometimes, regulatory agencies require testing on representative resident species under the assumption that such tests are needed to assess impact to local biota. EPA considers it unnecessary to test resident species since standard test species have been shown to represent the sensitive range of all ecosystems analyzed. Resident species toxicity testing is strongly discouraged unless it is required by State statute or some other legally binding factor, or it has been determined that a unique resident species would be far more protective of the receiving water than the EPA surrogate species.

In response to NMFS's request, Region 1 has concluded that, for this facility, collection of toxicity data on a more representative species would provide an appropriate method to allow an assessment and comparison of potential toxic effects. The most representative species for which an EPA-approved method exists appears to be the brook trout, *Salvelinus fontinalis*. Based on the scientific literature[7] and information obtained from Dr. Tara Duffy[8], EPA is satisfied that, on the whole, brook trout are potentially more sensitive to contaminants than the fathead minnow. Also, the fact that brook trout are

[5] F. James Dwyer, et al., "Assessing Contaminant Sensitivity of Endangered and Threatened Aquatic Species: Part I. Acute Toxicity of Five Chemicals", Arch. Environ. Contam. Toxicol. 48, 143–154 (2005) and F. James Dwyer, et. al, "Assessing Contaminant Sensitivity of Endangered and Threatened Aquatic Species: Part III. Effluent Toxicity Tests", Arch. Environ. Contam. Toxicol. 48, 174–183 (2005).

[6] US EPA Technical Support Document For Water Quality-based Toxics Control, 1991, pp 16-17. EPA/505/2-90-001.

[7] F. James Dwyer, et al., "Assessing Contaminant Sensitivity of Endangered and Threatened Aquatic Species: Part I. Acute Toxicity of Five Chemicals", Arch. Environ. Contam. Toxicol. 48, 143–154 (2005) and F. James Dwyer, et. al, "Assessing Contaminant Sensitivity of Endangered and Threatened Aquatic Species: Part III. Effluent Toxicity Tests", Arch. Environ. Contam. Toxicol. 48, 174–183 (2005).

[8] Tara Duffy, Ph.D., (USGS Conte Anadromous Fish Research Center, Turners Falls, MA.), 1 November, 2011, personal communication.

native to this region makes them a more reasonable selection than a non-native species. Spring and fall are the periods where shortnose sturgeon are most likely to be in the vicinity of the discharge, as they migrate between spawning, summer feeding and overwintering habitat. EPA is therefore proposing twice yearly (May and November) WET testing on the brook trout and reporting of the LC50, concurrent with testing on the fathead minnow. This concurrent testing would take place for two years in order to provide a baseline of data for assessment of this approach.

Discussions with professionals[9] familiar with WET testing protocols have raised the issue that the life stage of brook trout used in WET testing may not be available throughout the year. Since the inability to fulfill a permit requirement due to a lack of test subjects could result in a non-compliance issue, EPA has decided to allow rainbow trout (*Oncorhynchus mykiss*) to be used in place of brook trout, if brook trout are not available for testing. Rainbow trout and brook trout are generally thought to be equivalent in sensitivity under WET test conditions[10].

Comment B14. Given that, over the next five (5) years of the permit's life, there will be multiple "sewer-sheds" in Chicopee that contribute to CSO volumes, it would be good if the permit (or DEP through its Sewer System Extension and Connection Permit Program) stipulated offsets for increased sewer contributions from new or expanded sewer hookups in these areas. After all, any increases in sewer contribution to the system may increase the discharge of untreated wastewater through CSOs. We recommend that in CSO sewersheds, the following language be adopted: "Increased flows from new commercial and residential development or facilities currently connected to the sewer system shall be offset, to the extent feasible, in order to minimize any net increase of flow to the WPCF during CSO discharge events." Offsets to increased flows could be accomplished through I/I reduction projects, green infrastructure, or water conservation programs. We encourage EPA and Chicopee to consider creative ways to implement such that it would not put the community at an economic disadvantage.

Response to comment B14. The commenter is correct in noting that increases in base sewage flows would, in the absence of removal of flows from other sources, result in increased CSO discharges. However, EPA does not typically include conditions in NPDES permit that would control individual sewer connections, unless there is evidence that planned connections would significantly impact overflows or result in violations at the treatment plant. Typically, CSO abatement projects more than offset any small increase in flows from new connections, particularly in cities such as Chicopee, where no significant increase in sewer connections is anticipated. Therefore, we have not included the suggested requirement. We would note however that MassDEP has sewer system connection and extension programs that require certain extensions and connections to receive state approval.

[9] Bruce Grantham (Lotic Inc.,Unity, ME) to Gerald Szal (MassDEP), 19 September 2011, in possession of John H. Nagle (US EPA); Kenneth Simon (Envirosystems, Inc., Hampton, NH), 15 September, 2011, personal communication.

[10] Bruce Grantham (Lotic Inc.,Unity, ME) to Gerald Szal (MassDEP), 19 September 2011, in possession of John H. Nagle (US EPA).

Comment B15. We recommend that Part I.E.(2)f be modified to be consistent with the Holyoke and Springfield permits, as follows:

> "f. The permittee shall 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:
>
> WARNING:*
> CITY OF CHICOPEE
> DEPARTMENT OF PUBLIC WORKS
> WET WEATHER
> SEWAGE DISCHARGE
> OUTFALL (discharge serial number)
>
> * For existing signs that otherwise meet the requirements of this section, the word "Warning" need not be added.
>
> The permittee, to the extent feasible, will add a universal symbol to their warning signs reflecting a CSO discharge, or will place additional signs in languages other than English based on notification from the EPA and the State or on the permittee's own good faith determinations that the primary language of a substantial percentage of the residents in the vicinity of a given outfall structure is not English."

We also recommend that a phone number be included the CSO outfall signs, so that someone who wants to report something or ask a question about the meaning of these signs would know who to call.

> **Response to comment B15.** The permit language has been modified to include the requirement that signs shall be readable from the land and water, and that additional signs shall be placed in languages other than English where necessary. EPA is not requiring inclusion of a phone number or other information, as there is a limit to the amount of information that can be included on such signs while maintaining a reasonable text size.

Comment B16. We are glad to see that the draft permit has included a separate table of permit limits for the Jones Ferry CSO treatment facility (E.4.b). We think that more data for TSS and nutrients would be advantageous, given the TSS impairment in this river segment and the need to reduce nitrogen inputs into Long Island Sound. Not much is known watershed-wide about nutrient contributions through CSO outfalls. We understand that the City feels that the current definition of an event to be sampled at the Jones Ferry site is problematic. We request that EPA consider different event sampling requirements, such that sampling four times a year would not be too onerous.

> **Response to comment B16**. EPA agrees that acquisition of data for TSS and nutrients from CSOs will be advantageous and therefore has required monitoring for TSS and

nitrogen for two events per year from the Jones Ferry CSO Treatment Facility. EPA believes the sampling requirements as set forth in the permit, including the "event" definition in footnote *6 (Final Permit page 15), are sufficient.

Comment B17. We like the idea of a separate table of permit limits and sampling requirements for a CSO satellite treatment plant, as was included with this draft permit for Chicopee. In light of this draft permit, we request that EPA re-open the Holyoke NPDES permit to include such a table for Holyoke's Berkshire Street CSO treatment facility. A table with limits was not included when the Holyoke permit was reissued because an administrative order was "imminent." No order has been issued in the past two years, and we think it is not appropriate to have such a large discharge with no effluent limits whatsoever.

Response to comment B17. EPA acknowledges CRWC's support for these Draft Permit Provisions. EPA notes that the remainder of this comment concerns a different facility, not the Draft Permit for the Chicopee WPCF, and therefore as a formal matter is beyond the scope of this Response to Comments. See 40 CFR § 124.17(a)(2) ("response shall . . . [b]riefly describe and respond to all significant comments <u>on the draft permit</u>") (emphasis added). Nonetheless, as a courtesy EPA will provide informal feedback with respect to this request.

EPA recognizes that the expected issuance of an administrative order to Holyoke containing limits and sampling requirements for the Berkshire Street CSO treatment facility has been delayed. EPA does not agree that the Holyoke facility is subject to "no effluent limits whatsoever." The facility is a CSO discharge and is subject to the limits set forth in Holyoke's permit for CSO discharges, incluing the Nine Minimum Controls and the limitation that "the discharges shall not cause or contribute to violations of federal or state Water Quality Standards." In addition, the Holyoke CSO facility was designed to meet specific numeric limits that were incorporated into MassDEP's approval for construction of the facility, and Holyoke is monitoring and reporting effluent data from the facility pursuant to that construction approval. EPA agrees that the approach taken in Chicopee's Draft Permit to inclusion of numeric effluent limits as an enhancement of the Nine Minimum Controls appears to be applicable to Holyoke's CSO treatment facility, and anticipates including numeric effluent limits on the Holyoke CSO treatment facility in its next permit reissuance to Holyoke. To the extent EPA would consider addressing this issue through a re-opening of the Holyoke permit, EPA does not consider the Chicopee WPCF Response to Comments an appropriate forum to make such a determination.

C. Additional comments were received from the City of Chicopee in a letter dated January 30, 2012 in response to discussions between EPA and the City regarding conditions EPA was considering for the final permit. EPA notes that these additional comments were received after the close of the public comment period, so EPA is not obligated to consider or respond to them. (see 40 CFR 124.13) Nonetheless, as a courtesy EPA provides the following information with respect to these comments.

Comment C1. *Aluminum Limit- 87 ug/L Monthly Average*. It is true that there is a Federal Water Quality Standard of 87 ug/L, based on the acute toxicity standard. However, Footnote (L) of that same table states:

> *"There are three major reasons why the use of Water-Effect Ratios might be appropriate.*
>
> *1. The value of 87 µg/l is based on a toxicity test with the striped bass in water with pH = 6.5–6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time.*
>
> *2. In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide.*
>
> *3. EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 ug aluminum/L, when either total recoverable or dissolved is measured."*

We can show the Connecticut River has higher pHs and high buffering capacity. Our analysis of the receiving stream shows pH values of 7.0-7.6 in 9 of 11 samples since 2010; hardness of 28-48 (exceeding 10 mg/L) in 100% of samples.

Aluminum is one of the most prevalent, naturally occurring metal on the earth's surface. It is present in virtually all minerals and clay. Data from our 2009-present monitoring shows that the background aluminum levels in the Connecticut River already exceed the 87 ug/L WQS - 34 out of 53 samples, 64% during this period. The aluminum levels in the receiving stream were also found to be lower on the days the aluminum salt was used by the POTW. This makes sense from the standpoint that it is often utilized during wet weather, high flow conditions; the river would have been diluted, if you will, by the rain water.

Secondary POTW effluent data from that same period shows the proposed standard was exceeded 11 out of 24 times (46%) during that same time frame. More than half the time (6/11), values greater than 87 ug/L were detected when the POTW was not even using the product.

EPA National Secondary Drinking Water Contaminant Standard for aluminum has a range of 0.05-0.2 mg/L. Neither the City nor its supplier MWRA currently utilizes alum for flocculation of drinking water, but if that were a consideration, there would be potential for tap water that violates the NPDES limit. Interestingly, this drinking water guideline for aluminum is based on aesthetics, and EPA states that levels as high as 0.5 mg/L are not harmful in any way, but may give the drinking water a cloudy look. This is almost six times the proposed discharge limit in the Chicopee NPDES limit.

In Chicopee, the measured average domestic/commercial concentration of aluminum from the last two years was 0.195 mg/L- more than two times the limit proposed for river discharge. An EPA-approvable "technically-based" local industrial limit for this parameter would need to be developed and mandate almost all industrial users pretreat their waste to levels even more pristine than drinking water.

If this aluminum limit is included in the NPDES permit, the City would be required to comply with it at all times, regardless of our use of the flocculant. Failure to meet the standard may open the door for potential legal action from environmental groups, putting Chicopee and its customers at substantial financial risk.

The last item for reconsideration for the limit's basis is Massachusetts Surface Water Quality Standards in 314 CMR 4.05, which states:

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

The state regulation does not allow the limit to be more stringent than the receiving stream concentration.

> **Response to Comment C1.** To the extent that a "Water Effects Ratio" analysis could be used to determine that a different criterion would be sufficiently protective of aquatic life in the Connecticut River, that is a determination to be made by the state in the promulgation of its water quality standards. Where the state has, as here, adopted the 87 ug/l criterion, and EPA has approved that standard, the permitting authority does not have the option to disregard the adopted and approved criterion. As noted in the Response to Comment A1, the state has indicated that it intends to develop site specific criteria for aluminum, and a change in the water quality standards during the permit term would be grounds to request a permit modification pursuant to 40 CFR § 122.62(a)(3)(i)(B). .
>
> EPA recognizes that aluminum concentrations in the receiving water frequently exceed the criterion. The information provided by the permittee is consistent with the data cited in the Fact Sheet. High concentrations in the receiving water are the reason for EPA's conclusion that the receiving water does not provide dilution for the effluent with respect to aluminum, and that therefore an effluent limit at the chronic criterion is necessary. EPA acknowledges the additional information provided by the permittee indicating that aluminum concentrations in the effluent have exceeded the criterion even when the WPCF is not using the aluminum product, and that the domestic/commercial

concentration is also above the criterion. This information supports EPA's position, discussed in Response to Comment A1, that aluminum monitoring is necessary even in months when the WPCF does not use aluminum in its treatment process.

EPA agrees that drinking water standards are higher than the 87 ug/l ambient water quality criterion based on protection of aquatic life. In general, ambient water quality standards for surface waters incorporate two types of criteria: those based on protection of human health (which include both drinking water and fish consumption exposure), and those based on protection of aquatic life. See, e.g., EPA, "Water Quality Criteria" at http://water.epa.gov/scitech/swguidance/standards/criteria/index.cfm; EPA, *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (2000). Aquatic life criteria for surface waters may be lower or higher than drinking water standards, depending on the relative sensitivity of aquatic life to specific pollutants. See EPA, *National Recommended Water Quality Criteria: 2002*. Lower aquatic life criteria are not unusual: a common example is chlorine, for which the drinking water standard is 4 mg/l, over 300 times the aquatic life chronic criterion. See EPA, *National Primary Drinking Water Regulations*, http://water.epa.gov/drink/contaminants/upload/mcl-2.pdf. As NPDES permits must be written in consideration of both types of criteria, the application of the 87 ug/l is appropriate.

Finally, EPA disagrees with the contention that the MA water quality standards regulation "does not allow the limit to be more stringent than the receiving stream concentration." This is an incorrect reading of the regulation. The regulation does permit MassDEP to make a "determination" that a higher concentration than the adopted criterion is "naturally occurring" in a particular receiving water, and identify an alternate naturally occurring concentration. Any such determination would be part of a Water Quality Standards process, not an individual permit issuance. No such determination has been made by MassDEP for the Connecticut River, and no evidence has been provided that would indicate that the aluminum concentrations currently found in the Connecticut River at Chicopee are naturally occurring. There are numerous potential sources of aluminum to the Connecticut River upstream of the Chicopee discharge, including POTWs, industrial process water discharges, and urban and industrial stormwater discharges.

EPA is also aware that aluminum concentrations exceeding the 87 ug/l criterion have been identified well upstream of Chicopee in less developed areas of the watershed; for example, New Hampshire has included multiple segments of the Connecticut River on its listing of impaired waters (303(d) list) for aluminum impairment. NHDES, 2010 List of Threatened or Impaired Waters That Require a TMDL. This does not, however, indicate that the conditions are naturally occurring. The fact that New Hampshire has listed aluminum "impairments" in the Connecticut River is itself an indication that conditions have not been found to be naturally occurring, as naturally occurring conditions are not classified as impairments. NHDES, *2010 New Hampshire Consolidated Assessment and Listing Methodology*, at 11. Aluminum impairments in receiving waters that are not influenced by point sources have been linked to acid rain, which is due to human activity and therefore does not constitute a naturally occurring condition. See ENSR, *Evaluation*

of potential causes of aluminum-impairment in 21 New Hampshire Ponds (2007) (Appendix E to *Determination of Total Maximum Daily Load (TMDL) for 158 Acid Impaired and 21 Aluminum Impaired New Hampshire Ponds*). The available information therefore does not support application of a higher "naturally occurring" criterion, and the 87 ug/l criterion must be used.

Comment C2. *Acute Toxicity Testing Using Undetermined Trout Species.* The other issue we want to discuss concerns the potential for adding to the permit, acute toxicity testing utilizing another species, trout. No local labs, including our current contract lab perform this test. We did manage to find a laboratory in New Hampshire, about three hours from Chicopee. The testing is logistically difficult enough with a 36 hour hold time, and preliminary information suggests that this testing may be as expensive as thousands of dollars per sample. Given the previous information we've included here regarding aluminum and toxicity, this difficult and costly requirement does not appear to have a scientific basis.

Response to comment C2: As the City notes, the National Marine Fisheries Service has requested WET testing of an additional species, more representative of the shortnose sturgeon, in its informal consultation on the Draft Permit under the Endangered Species Act, and the Final Permit incorporates such a requirement. See also Response to Comment B13. EPA is aware that a limited number of labs perform WET testing of trout species and that it is more expensive than WET testing of fathead minnows. EPA notes that the inclusion of this requirement in this Permit is specifically designed to allow assessment of whether additional WET testing is informative of the impacts on shortnose sturgeon, and is limited to four WET tests during the permit term (two per year for the first two years). EPA believes this is the minimum sampling that will yield representative data. The scientific basis for this requirement is discussed in Response to Comment B13. The City's comments on aluminum toxicity are not pertinent to WET testing, which is designed to permit assessment of complex mixes of pollutants which may have synergistic effects (see Fact Sheet at 10), and are more specifically not pertinent to the inclusion of trout WET testing, which is included in part to determine whether the tests conducted on other species are protective of endangered species.

Other Changes to Permit

EPA also noted in its final review of the Draft Permit a need to clarify the applicability of the effluent limitations set forth in Part E.4. for the Jones Ferry Treatment Facility. The Draft Permit's reference to "CSO Diversion Structure 7.1, the Jones Ferry Treatment Facility" in unclear and could be read to require that the stated effluent limitations must be met for all discharges from diversion structure 7.1, even those that are above the capacity of the treatment facility. In fact EPA recognizes that a limited number of storm events will result in CSO flows from diversion structure 7.1 that are beyond the capacity of the treatment facility. This is expected to be less than four events per year upon completion of planned CSO abatement projects.

To clarify the applicability of the numeric effluent limitations in Part E.4, EPA has changed the reference to "CSO Diversion Structure 7.1, the Jones Ferry Treatment Facility" to "Outfall 007A, Jones Ferry Treatment Facility." DMR data for the Jones Ferry Treatment Facility will be reported for outfall 007A. In connection with this change, EPA has modified footnote *1 of the table to require that the permittee shall treat flows beyond the flow to which bacteria limits are applied (35.2 MGD) to the extent practicable, consistent with EPA and MassDEP's understanding of the design intent and the permittee's current practice.

Chicopee Water Pollution Control District ***** CORRECTED ***** **Table 1 (page 1 of 2)**
NPDES Permit No. MA 0101508 **Two year facility DMR Data**

	Flow (MGD)		BOD (mg/l)		TSS (mg/l)		Settleable solids (ml/l)		pH	
	12mo avg	daily max	mo avg	wkly avg	mo avg	wkly avg	wk avg	daily max	min	max
Effluent Limit:	15.5	Report	30	45	30	45	30	45	6.5	8.3
Sampling Frequency:	CONTINUOUS		5/week		5/week		5/week		5/week	
January 2008	8.6	14.4	28	32	22	28	0.14	0.3	6.01	7
February	9.1	29.8	24	32	26	32	0.09	0.3	6.59	7.11
March	9.5	25.4	19	24	17	26	0.09	0.3	6.51	7.1
April	9.35	20.7	16	17.5	13	17	0.12	0.3	6.51	7.1
May	9.3	16.3	20	28.9	14	21	0.05	0.05	6.6	7.1
June	9.34	12.2	12	16.3	10	12	0.09	0.3	6.5	6.92
July	9.5	18	13	14.3	15	18	0.05	0.2	6.54	7
August	9.95	18.2	16	19.4	17	20	0.67	4	6.59	6.97
September	10.4	18.4	13	14.9	15	18	0.07	0.2	6.49	7.31
October	10.7	15.8	10	12.7	14	15	0.05	0.05	6.5	6.98
November	11	10	18	20	18	23	0.07	0.2	6.5	6.9
December	11.5	27.4	23	30	24	34	0.13	0.3	6.65	7.1
January 2009	11.7	16.4	24	35	30	40	0.3	1.3	6.45	6.91
February	11.3	13.9	21	22	20	22	0.89	3	6.5	6.98
March	10.9	15.3	19	27	23	39	0.56	2.5	6.5	6.8
April	10.8	15.3	16	17	14	16	0.05	0.05	6.55	6.81
May	10.7	13.6	19	25	19	25	0.05	0.1	6.5	6.8
June	10.8	22.4	19	28	20	30	0.05	0.05	6.23	7.3
July	10.9	18.5	11	12	11	12	0.05	0.05	6.43	7.24
August	10.7	14.9	15	16.2	14	17	0.07	0.2	6.42	7.01
September	10.34	14.2	15	15.3	14	16	0.11	0.5	6.54	7.06
October	10.17	16.9	13	17.3	16	19	0.05	0.05	6.2	6.9
November	10.1	17	17	19	15	17	0.05	0.05	6.5	6.95
December	9.76	15.3	17	18.3	17	19	0.07	0.05	6.52	6.94
							0.05	0.05		
Average:	10.27		17.4		17.4		0.2	0.6		
Maximum:		30	28	35		40	0.89	4	6.01	7.31

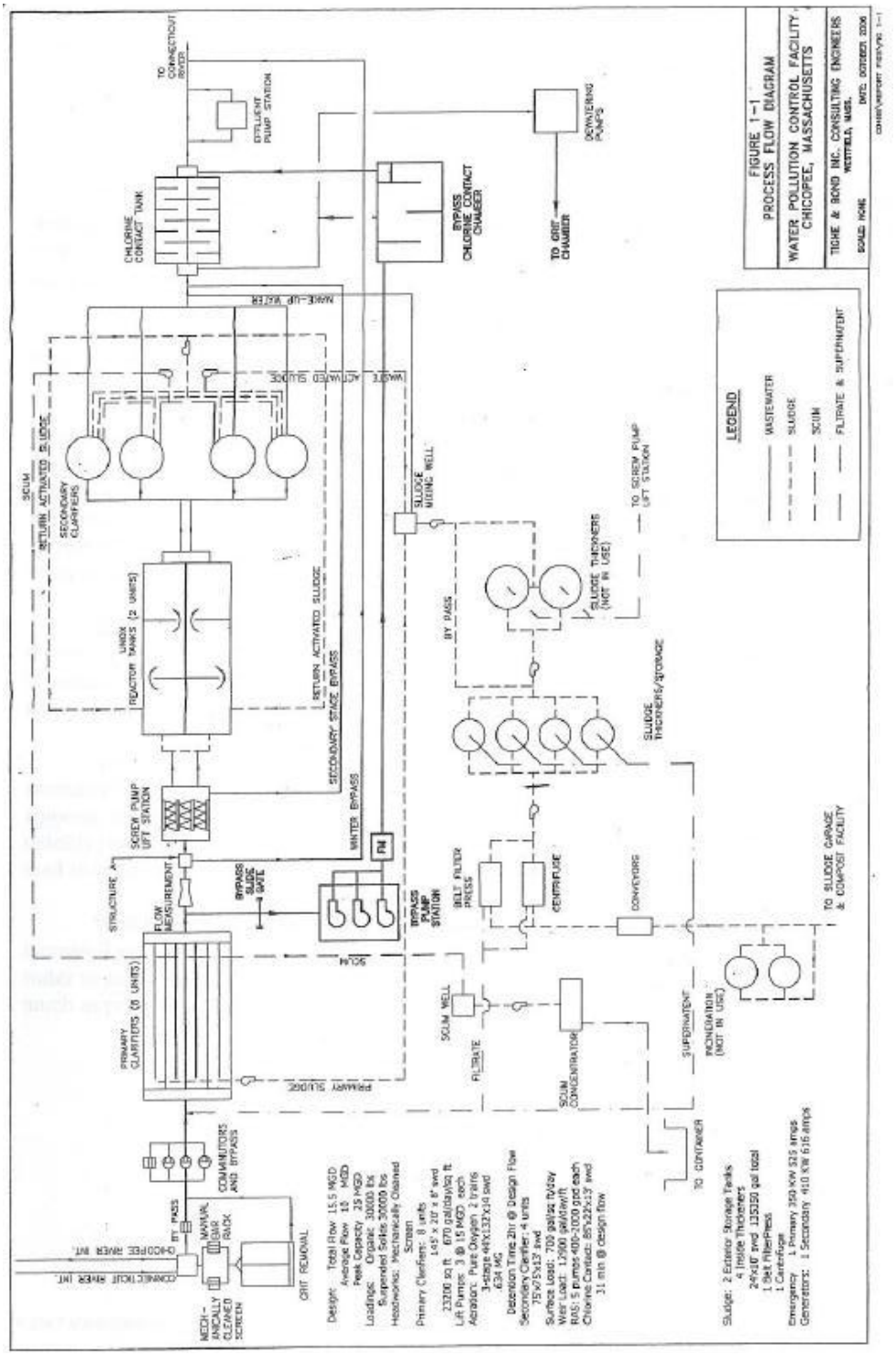
Chicopee Water Pollution Control District
NPDES Permit No. MA 0101508

Table 1 (page 2 of 2)
Two year facility DMR Data

	fecal colilform (cfu/100 ml)		**TRC (mg/l)**		**Whole Effluent Toxicity**	**NH3 (mg/l)**	**Nitrate (mg/l)**	**Nitrite (mg/l)**	**TKN (mg/l)**	**Total N**
	mo avg	daily max	mo avg	daily max	LC50 %	mo avg	mo avg	mo avg	mo avg	mo avg
	200	400	0.89	1	≥ 100	Report	Report	Report	Report	(Calculated)
Sampling Frequency:	1/week		3/day		4/year	1/month	1/month	1/month	1/month	(Calculated)
January 2008						14	0.4	0.1	21	21.5
February					≥ 100	9	1.5	0.1	17	18.6
March						6.65	2.1	0.1	11.5	13.7
April	0.74	1	0.6	0.79		2.8	1	0.2	15	16.2
May	1.4	10	0.56	0.85	≥ 100	10	0.2	0.1	20	20.3
June	2.6	9	0.56	0.69		13	0.1	0.1	20	20.2
July	2.75	21	0.53	0.86		10	0.28	0.03	24	24.31
August	7.03	29	0.52	0.81	≥ 100	7.6	0.53	0.52	11	12.05
September	3.56	10	0.59	0.79		6.4	0.71	0.11	10	10.82
October	2.8	5	0.61	0.76		15	0.11	0.04	21	21.15
November					≥ 100	15	0.19	0.26	23	23.45
December						8.2	1.2	0.12	12	13.32
January 2009						12	0.91	0.09	17	18
February					≥ 100	15	0.53	0.06	23	23.59
March						9	1.2	0.06	15	16.26
April	0.74	1	0.59	0.84		14	0.28	0.07	26	26.35
May	1.4	10	0.57	0.78	≥ 100	14	0.42	0.14	22	22.56
June	2.6	9	0.57	0.81		16	0.49	0.03	31	31.52
July	2.75	21	0.59	0.78		16	0.1	0.04	24	24.14
August	7.03	29	0.79	0.77	≥ 100	8	0.16	0.35	9.3	9.81
September	3.56	10	0.56	0.77		14	0.35	0.28	25	25.63
October	2.8	5	0.59	0.79		17	0.45	0.24	24	24.69
November					≥ 100	14	1.2	0.16	21	22.36
December						14	0.47	0.05	20	20.52
Average:	2.98		0.59			11.69	0.62	0.14	19.28	20.04
Maximum:		29.00		0.86						

Chicopee Water Pollution Control District
NPDES # MA0101508

Figure 1
Process Flow Diagram



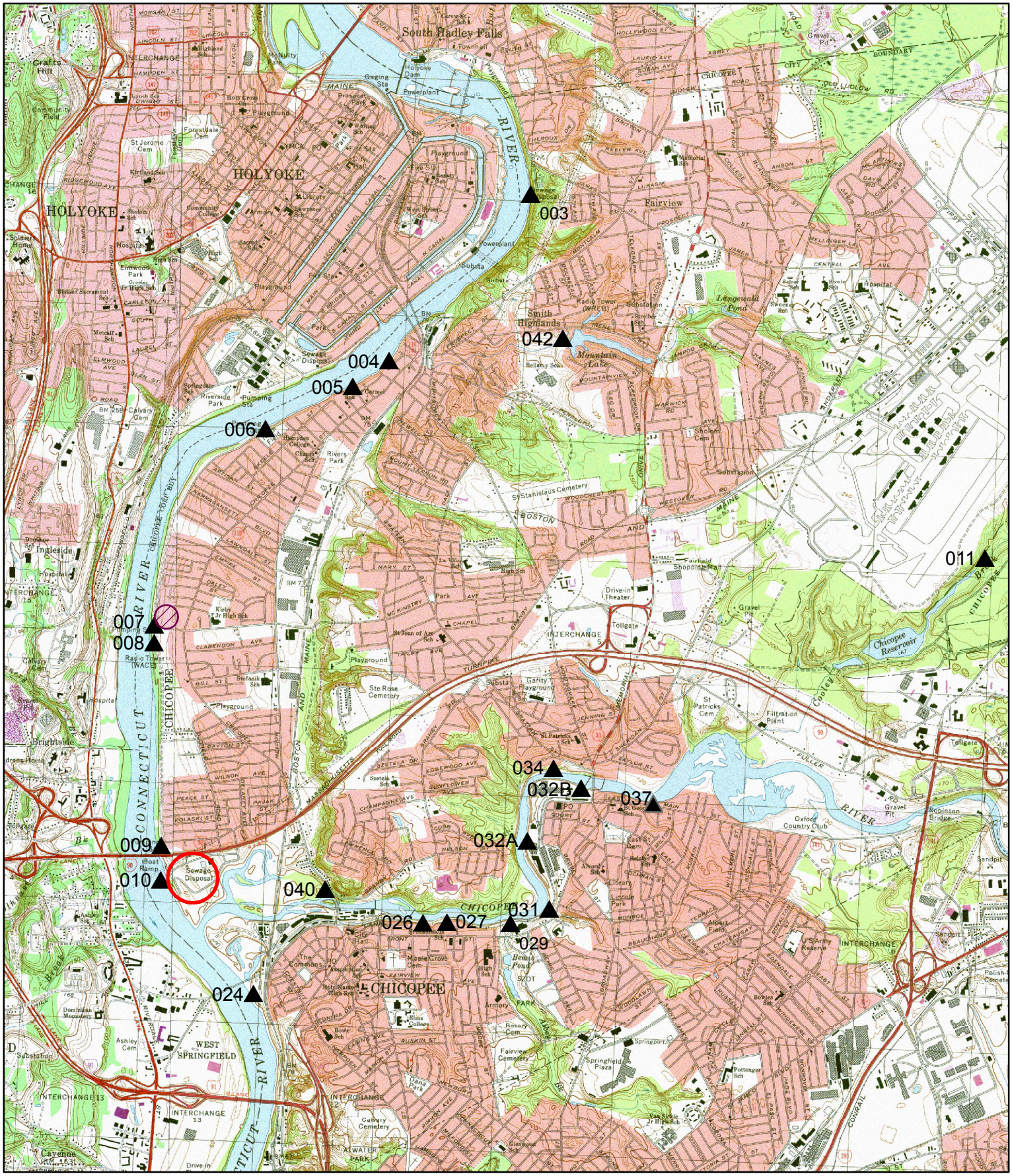


Figure 2
Facility and Outfall Location Map
Chicopee Water Pollution Control Facility