AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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

Town of Southbridge

is authorized to discharge from the facility located at

Southbridge Wastewater Treatment Plant
83 Dresser Hill Road
Southbridge, MA 01550

to receiving water named

Quinebaug River
(French and Quinebaug Rivers Watershed, MA41-03)

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

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

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

This permit supersedes the permit issued on September 27, 2006.

This permit consists of **Part I** (20 pages including effluent limitations and monitoring requirements), **Attachment A**, USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol, (March 2013, 7 pages), **Attachment A-1**, USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol, (February 2011, 8 pages), **Attachment B**, EPA New England Reassessment of Technically Based Industrial Discharge Limits and, **Attachment C**, NPDES Permit Requirement for Industrial Pretreatment Annual Report and **Part II** (25 pages including NPDES Part II Standard Conditions).

Signed this 4th day of December, 2014

/S/SIGNATURE ON FILE
_____
Ken Moraff, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

/S/SIGNATURE ON FILE
_____
David Ferris, Director
Massachusetts Wastewater Management Program
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

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

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [3]	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAX DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
FLOW[2]	*********	*********	3.77 MGD	*********	Report MGD	CONTINUOUS	RECORDER
FLOW[2]	*********	*********	Report MGD	*********	Report MGD	CONTINUOUS	RECORDER
BOD_5[4] (April 1- October 31)	315 lbs/Day	315 lbs/Day	10 mg/l	10 mg/l	Report mg/l	2/WEEK	24-HR COMP[5]
BOD_5[4] (November 1–March 31)	629 lbs/Day	629 lbs/Day	20 mg/l	20 mg/l	Report mg/l	2/WEEK	24-HR COMP[5]
TSS [4] (April 1- October 31)	409 lbs/Day	409 lbs/Day	13 mg/l	13 mg/l	Report mg/l	2/WEEK	24-HR COMP[5]
TSS[4] (November 1 - March 31)	629 lbs/Day	629 lbs/Day	20 mg/l	20 mg/l	Report mg/l	2/WEEK	24-HR COMP[5]
pH RANGE[1]	6.5 - 8.3 SU (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
TOTAL RESIDUAL CHLORINE[1,7] (April 1 – October 31)	*********	**********	35 ug/l	*********	60 ug/l	2/DAY	GRAB
FECAL COLIFORM [1,6,7] (April 1 – October 31)	*********	**********	200 cfu/100 ml	*********	400 cfu/100 ml	2/WEEK	GRAB
ESCHERICHIA COLI, (*E.coli*)[1,6,7] (April 1 – October 31)	*********	**********	126 cfu/100 ml	*********	409 cfu/100 ml	2/WEEK	GRAB
TOTAL COPPER[8]	*********	*********	0.016 mg/l	*********	0.022 mg/l	1/MONTH	24-HR COMP[5]

Sampling Location: manhole 25 feet from outfall 001.

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

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS** [3]	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
DISSOLVED OXYGEN (April 1- October 31)	NOT LESS THAN 6.0 mg/l					1/DAY	GRAB
PHOSPHORUS, TOTAL[9] (April 1 – October 31)	Report lbs/Day	Report lbs/Day	0.200 mg/l	********* *********	********* *********	3/WEEK	24-HR COMP[5]
PHOSPHORUS, TOTAL[9] (November 1 – March 31)	Report lbs/Day	Report lbs/Day	1.00 mg/l	********* *********	1.50 mg/l	2/WEEK	24-HR COMP[5]
PHOSPHORUS, TOTAL[10] (June 1 – October 31)	Report lbs/Day	Report lbs/Day	Report mg/l	********* *********	Report mg/l	1/MONTH	Grab
ORTHO PHOSPHORUS, DISSOLVED (November 1 – March 31)	Report lbs/Day	Report lbs/Day	Report mg/l	********* *********	Report mg/l	2/WEEK	24-HR COMP[5]
ALUMINUM	Report lbs/Day	Report lbs/Day	0.144 mg/l	********* *********	Report, mg/l	1/MONTH	24-HR COMP[5]
AMMONIA-NITROGEN (April 1 - April 30)	Report lbs/Day	Report lbs/Day	10 mg/l	Report mg/l	Report mg/l	2/WEEK	24-HR COMP[5]
AMMONIA-NITROGEN (May 1 - May 31)	Report lbs/Day	Report lbs/Day	5.0 mg/l	5.0 mg/l	8.0 mg/l	2/WEEK	24-HR COMP[5]

Sampling Location: manhole 25 feet from outfall 001.

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

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS [3]**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
AMMONIA-NITROGEN (June 1 – October 31)	Report lbs/Day	Report lbs/Day	1.3 mg/l	1.3 mg/l	2.0 mg/l	3/WEEK	24-HR COMP[5]
AMMONIA-NITROGEN (November 1 - March 31)	Report lbs/Day	********* *********	Report mg/l	********* *********	Report mg/l	1/WEEK	24-HR COMP[5]
TOTAL NITROGEN[11]	Report lbs/Day	********* *********	Report mg/l	********* *********	Report mg/l	1/WEEK	24-HR COMP[5]
NITRITE	Report lbs/Day	********* *********	Report mg/l	********* *********	Report mg/l	1/WEEK	24-HR COMP[5]
NITRATE	Report lbs/Day	********* *********	Report mg/l	********* *********	Report mg/l	1/WEEK	24-HR COMP[5]
TOTAL KJELDAHL NITROGEN	Report lbs/Day	********* *********	Report mg/l	********* *********	Report mg/l	1/WEEK	24-HR COMP[5]
BIS 2 ETHYLHEXYLPHTHALATE[12]	Report lbs/Day	********* *********	Report mg/l	********* *********	Report mg/l	1/QUARTER	24-HR COMP[5]
Whole Effluent Toxicity Tests[13,14,15,16]	Acute $LC_{50} \geq 100\%$ Chronic C-NOEC $\geq 31\%$					4/YEAR	24-HR COMP[5]
Hardness[17]	Report, mg/l					4/YEAR	24-HR COMP[5]
Ammonia Nitrogen as N[17]	Report, mg/l					4/YEAR	24-HR COMP[5]

Sampling Location: manhole 25 feet from outfall 001.

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

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS [3]**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Total Recoverable Aluminum[17]	Report, mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Cadmium[17]	Report, mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Chromium[17]	Report, mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Copper[17]	Report, mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Nickel[17]	Report, mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Lead[17]	Report, mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Zinc[17]	Report, mg/l					4/YEAR	24-HR COMP[5]

Sampling Location: manhole 25 feet from outfall 001.

Footnotes:

1. Required for State Certification.

2. Report annual average, monthly average, and the maximum daily effluent flow discharged to the Quinebaug River. 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.

   Report the flow diverted to Millenium Power Plant as an attachment to the monthly discharge monitoring report.

3. Effluent sampling shall be of the treated effluent and shall be collected at the discharge location. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.

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

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

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. Fecal coliform bacteria discharges shall not exceed a monthly geometric mean of 200 colony forming units (cfu) per 100 ml, nor shall they exceed 400 cfu per 100 ml as a daily maximum. The monthly average limit for *E.coli* is expressed as a geometric mean and *E.coli* discharges shall not exceed a monthly geometric mean of 126 cfu per 100 ml, nor shall they exceed 409 cfu per 100 ml as a daily maximum.

   The fecal coliform bacteria limits and monitoring requirements are in effect only for the duration of the first seasonal monitoring period of April 1 through October 31 following the effective date of the permit. For example, if the permit becomes effective on November 1, 2014, the fecal coliform limits and monitoring requirements will be in effect April through October 2015.

   The *E. coli* monitoring requirements are in effect upon the effective date of the permit. The *limits* become effective on the April 1 following the end of the period in which the fecal coliform limits are effective. For example, if the permit becomes effective on November 1, 2014, the permittee shall monitor *E.coli* beginning in April l, 2015, but the *limits* will not become effective until April 1, 2016. The monitoring frequency for *E. coli* before the limits go into effect is 1/month. After the *limits* are in effect, the monitoring frequency is 2/week.

7. Total residual chlorine monitoring is required whenever chlorine is added to the treatment process (i.e. TRC sampling is not required if chlorine is not added for disinfection or other purpose). The limitations are in effect year-round. The sampling frequency is 2 times per day during regular operating business hours, Monday through Friday and once per day on weekends and holidays. The TRC samples shall be collected concurrently with the fecal coliform and E.coli limits.

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

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

8. The minimum level (ML) for copper is defined as 3 ug/l. This value is the minimum level for copper using the Furnace Atomic Absorption analytical method (EPA Method 220.2). This method or other EPA-approved method with an equivalent or lower ML shall be used for effluent limitations less than 3 ug/l. Compliance/non-compliance will be determined based on the ML. Sampling results of 3 ug/l or less shall be reported as zero on the Discharge Monitoring Report.

9. Identify each chemical and report the quantity of each chemical (s) added each day for phosphorus removal. Attach data to the monthly discharge monitoring report.

10. The permittee shall report in-stream phosphorus concentration upstream of the discharge once per month from June 1 through October 31.

11. See Part I.F. Nitrogen Optimization for requirements to evaluate and implement the optimization of nitrogen removal and maintain a monthly average total nitrogen discharge of less than or equal to 375 lbs/day.

    Total Kjeldahl Nitrogen, ammonia nitrogen, nitrite nitrogen, and nitrate nitrogen samples shall be collected concurrently. The results of these analyses shall be used to calculate both the concentration and mass loadings of total nitrogen (total nitrogen = total Kjeldahl nitrogen + nitrate + nitrite nitrogen).

    The total nitrogen loading values reported each month shall be calculated as follows: Calculate daily loads of total nitrogen (lbs/day) for each day that nitrogen sampling takes place. Loading (lbs/day) = total nitrogen concentration (mg/l) * daily flow (millions of gallons (MG)) * 8.34. The average monthly loading shall be the average of the daily loading results.

12. If the analysis is non-detect for Bis 2 Ethylhexylphthalate, the permittee shall include the detection level on the DMR.

    The monitoring and reporting requirement ends, after submitting **two years of consecutive quarterly data**, all of which are at or below the minimum detection level of 5 ug/l. Monitoring and reporting at the frequency specified in the permit shall continue if the data exceeds the minimum detection level.

13. The permittee shall conduct chronic and acute toxicity tests *four* times per year. The acute test may be used to calculate the acute LC_{50} at the 48 hour exposure interval. The permittee shall test the fathead minnow (*Pimephales promelas)*, only. Toxicity test samples shall be collected during the second week of 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 **Attachments A and A-1** of this permit.

Test Dates Second Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**	**Chronic Limit C-NOEC**
February May August November	March 31 June 30 September 30 December 31	*Pimephales promelas* (fathead minnow)	≥ 100%	≥ 31%

14. The LC_{50} is the concentration of effluent that 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.

15. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction, based on a statistically significant difference from dilution control, at a specific time of observation as determined from hypothesis testing. As described in the EPA WET Method Manual EPA 821-R-02-013, Section 10.2.6.2, all test results are to be reviewed and reported in accordance with EPA guidance on the evaluation of the concentration-response relationship. The 31% or greater" limit is defined as a sample which is composed of 31% (or greater) effluent, the remainder being dilution water.

16. 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**.

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

Part I.A.1. (Continued)

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

b. The pH of the effluent shall not be less than 6.5 or greater than 8.3 at any time

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

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

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

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

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

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

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

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

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

permit.

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

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

(2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

3. Prohibitions Concerning Interference and Pass Through:

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

4. Toxics Control

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

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

5. Numerical Effluent Limitations for Toxicants

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

B. UNAUTHORIZED DISCHARGES

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. of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at http://www.mass.gov/eea/agencies/massdep/service/approvals/sanitary-sewer-overflow-bypass-backup-notification.html.

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions. The permittee is required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

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

2. Preventive Maintenance Program

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

3. Infiltration/Inflow

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

4. Collection System Mapping

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

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

i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
j. The scale and a north arrow; and
k. The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow.

5. Collection System Operation and Maintenance Plan

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

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

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

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

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

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

6. Annual Reporting Requirement

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

a. A description of the staffing levels maintained during the year;
b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;
c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;
d. A map with areas identified for investigation/action in the coming year;
e. If treatment plant flow has reached 80% of its design flow [3.02 MGD] based on the annual average flow during the reporting year, or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year; and
f. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit.

7. Alternate Power Source

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

D. SLUDGE CONDITIONS

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

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

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

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

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

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

c. Sewage sludge incineration in a sludge only incinerator

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

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

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

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

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

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

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

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.

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

40 CFR § 503.7. If the ultimate use or disposal method is land application, the permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 CFR Part 503 Subpart B.

8. The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted to the address contained in the reporting section of the permit. If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:

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

E. INDUSTRIAL USERS AND PRETREATMENT PROGRAM

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

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

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

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

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

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

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

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

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

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

F. NITROGEN OPTIMIZATION

The permittee shall implement operational changes to the existing wastewater treatment plant in order not to exceed a monthly average mass discharge of total nitrogen of 375 pounds per day.

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

G. SCHEDULE OF COMPLIANCE

No later than 3 years from the effective date of the permit, the permittee shall achieve compliance with the aluminum limit of 0.144 mg/l. The permittee shall submit an annual report to EPA describing measures taken to achieve compliance with the aluminum limit, including a discussion in the report on remaining activities planned to achieve the limit. The first report shall be submitted to EPA within 12 months of the effective date of the permit.

H. MONITORING AND REPORTING

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

1. Submittal of DMRs and the Use of NetDMR

Beginning the effective date of the permit the permittee must submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP no later than the 15th day of the month following the completed reporting period. **For a period of six months from the effective date of the permit**, the permittee may submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP either in hard copy form, as described in Part I.H.4, or in DMRs electronically submitted using NetDMR. NetDMR is a web-based tool that allows permittees to electronically submit DMRs and other required reports via a secure internet connection. NetDMR is accessed from: http://www.epa.gov/netdmr. **Beginning no later than six months after the effective date of the permit**, the permittee shall begin reporting monthly monitoring data using NetDMR, unless, in accordance with Part I.H.6, the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs. The permittee must continue to use the NetDMR after the permittee begins to do so. When a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs to EPA or MassDEP.

2. Submittal of Reports as NetDMR Attachments

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

3. Submittal of Pre-treatment Related Reports

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

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

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

4. Submittal of Requests and Reports to EPA/OEP

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

A. Request for changes in sampling location
B. Request for reduction in testing frequency
C. Request for Reduction in WET Testing Requirement
D. Report on unacceptable dilution water / request for alternative dilution water for WET testing

These reports, information, and requests shall be submitted to EPA/OEP electronically at R1NPDES.Notices.OEP@epa.gov or by hard copy mail to the following address:

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

5. Submittal of Reports in Hard Copy Form

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

A. Written notifications required under Part II
B. Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting
C. Whole Effluent Toxicity Reports
D. Nitrogen optimization Evaluation
E. Nitrogen optimization Annual Report

F. Collection System Operation and Maintenance Map
G. Collection System Operation and Maintenance Plan
H. Report on annual activities related to O&M Plan
I. Aluminum Compliance Report
J. Reports and DMRs submitted prior to the use of NetDMR

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

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

6. State Reporting

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

MassDEP – Central Region
Bureau of Resource Protection
8 New Bond Street
Worcester, Massachusetts 01606

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

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

7. Submittal of NetDMR Opt-Out Requests

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

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

And

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
1 Winter Street, 5th Floor
Boston, Massachusetts 02108

8. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA-New England and to MassDEP. This includes verbal reports and notifications which require reporting within 24 hours. (As examples, see Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.) Verbal reports and verbal notifications shall be made to EPA's Office of Environmental Stewardship at:

U.S. Environmental Protection Agency
Office of Environmental Stewardship
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912
617-918-1510

I. STATE PERMIT CONDITIONS

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

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 CMR 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.

FRESH WATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

Southbridge Wastewater Treatment Plant (MA0100901)

I. GENERAL REQUIREMENTS

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

• **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**

• **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

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

II. METHODS

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

III. SAMPLE COLLECTION AND USE

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

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

toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

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

IV. DILUTIONWATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits. The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

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

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

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

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

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:
Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code OEP06-5
Boston, MA 02109-3912
and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.
V.1. Use of Reference Toxicity Testing Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

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

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

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

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

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

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

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

VI. CHEMICAL ANALYSIS

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

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

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness1, 4	x	x	0.5
Total Residual Chlorine (TRC)2, 3, 4	x		0.02
Alkalinity4	x x x x	x x x	2.0
pH4			--
Specific Conductance4			--
Total Solids 6			--
Total Dissolved Solids 6	x	x	--
Ammonia4	x		0.1
Total Organic Carbon 6	x	x	0.5
Total Metals 5			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

All samples held overnight shall be refrigerated at 1- 6^{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/enforcement/water/dmr.html *for further important details on alternate dilution water substitution requests.*

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

V. TEST CONDITIONS

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

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

1.	Test type	Static, non-renewal
2.	Temperature (^{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	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 other
8.	No. of fish per chamber	10
9.	No. of replicate test vessels per treatment	4
10.	Total no. organisms per concentration	40
11.	Feeding regime	As per manual, lightly feed test age larvae using concentrated brine shrimp nauplii while holding prior to initiating test
12.	Aeration	None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.)
13.	dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC

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

Footnotes:

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

VI. CHEMICAL ANALYSIS

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

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

Notes:

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

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

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 V.

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

ITEM VI.

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

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

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

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

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

2. Permit Actions

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

3. Duty to Provide Information

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

4. Reopener Clause

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

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

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

5. Oil and Hazardous Substance Liability

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

6. Property Rights

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

7. Confidentiality of Information

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

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

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

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

8. Duty to Reapply

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

9. State Authorities

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

10. Other Laws

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

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

b. Bypass not exceeding limitations

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

c. Notice

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

d. Prohibition of bypass

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

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

5. Upset

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

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

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

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

e. Twenty-four hour reporting.

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

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

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

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

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

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

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

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

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

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

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

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

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

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

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

EPA means the United States "Environmental Protection Agency".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Commonly Used Abbreviations

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

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

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

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

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES.

NPDES PERMIT NO.: MA0100901

PUBLIC COMMENT PERIOD: August 13, 2014 – September 11, 2014

NAME AND ADDRESS OF APPLICANT:

Town of Southbridge
185 Guelphwood Road
Southbridge, Massachusetts 01550

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Southbridge Wastewater Treatment Plant
83 Dresser Hill Road
Southbridge, Massachusetts 01550

RECEIVING WATER: **Quinebaug River, Segment (MA41-03)**

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

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

The Town of Southbridge has requested that the U.S. Environmental Protection Agency (EPA) reissue its NPDES permit to discharge into the Quinebaug River. The Southbridge Wastewater Treatment Plant (WWTP) is engaged in the collection and treatment of municipal wastewater.

The existing NPDES permit was signed on September 27, 2006, became effective on December 1, 2006 and expired on November 30, 2011. The applicant filed a complete application as required by 40 Code of Federal Regulations (CFR) Part 122.6 so the existing permit has been administratively extended and will remain in effect until a renewed permit has been issued. The existing permit and Draft Permit authorize only one discharge, from Outfall 001 at the facility. The Draft Permit has been written to reflect current operations and conditions at the facility.

II. Quantitative Data and Tables and Figures in the fact sheet

A quantitative description of the treatment plant's discharge in terms of significant effluent parameters based on recent monitoring data is attached to the fact sheet as Attachment B, Southbridge Wastewater Treatment Facility - Discharge Monitoring Report (DMR) Data. The data in Attachment C, Effluent and Ambient Hardness Data and Attachment D, Whole Effluent Toxicity Test Chemistry Data were used to calculate the

Draft Permit's proposed water quality-based effluent limits for metals. Data used to determine the need to limit metals in the Draft Permit are in Table 1, Acute and Chronic Total Recoverable Criteria for Metals and Table 2, Reasonable Potential Table. Table 3, Proposed Copper Limits provides data used to determine the copper limits.

Table 4, In-stream Ammonia Criteria and Table 5, Ammonia Whole Effluent Toxicity Test Data have ammonia data from recent whole effluent toxicity tests that were used to assess the need for winter ammonia limits in the Draft Permit.

Table 6, Chronic and modified Acute WET Test Results provides data reported in the facility's quarterly whole effluent toxicity test.

Figure 1 of the fact sheet is a site locus map of the facility, Figure 2 of the fact sheet is a diagram of the facility's flow process.

III. Limitations and Conditions

The proposed effluent limitations and monitoring requirements may be found in the Draft Permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The Town of Southbridge operates a 3.77 million gallon per day (MGD) advanced wastewater treatment facility located in Southbridge, Massachusetts that serves approximately 18,500 people in the Town of Southbridge and approximately 250 people in the Town of Sturbridge. There are six significant industrial users contributing wastewater to the plant. The collection system is 100 percent separate sanitary sewers.

Wastewater enters the treatment plant through the headwork's, where large debris is screened out by a mechanical bar screen, sand and grit are settled out in aerated grit chambers, and small debris and solids are ground by a comminutor. Wastewater then flows to the primary clarifiers where heavy organic material is removed by settling. Biological treatment follows, as the wastewater first flows through two activated biofilters, followed by four activated sludge aeration tanks equipped with fine bubble diffusers and variable speed blowers. Wastewater discharged from the aeration tanks is dosed with alum to remove phosphorus in the final clarifiers. Solids settle out in the final clarifiers and the effluent is measured through a Parshall flume flow meter. The effluent enters a chlorine contact tank where sodium hypochlorite is added for disinfection and then it is de-chlorinated with sodium bisulfate for removal of residual chlorine prior to discharge to the Quinebaug River.

The treatment plant may divert up to 2 MGD of effluent to the Millennium Power Plant where it is filtered and used for cooling water. The flow reported on the monthly discharge monitoring report is treated wastewater minus flow that is diverted to the Millenium Power Plant.

The facility has accepted up to 200,000 gallons per year of septage from residential septic systems in Southbridge and surrounding communities. The septage is discharged from septic waste tanks to the headworks of the facility.

Sludge is pumped to a holding tank where polymer and potassium permanganate are added before it is dewatered in a belt filter press. Wood ash is mixed with the belt pressed sludge and composted in aerated static piles. The final product is marketed for use in landfill closures, where it is mixed with other soils and used for final landfill covers. It is also sold to small vendors for fertilizer application.

Overview of Federal and State Regulations General Requirements

The Clean Water Act (CWA or the Act) prohibits the discharge of pollutants to waters of the United States without an NPDES permit unless such a discharge is otherwise authorized by the Act. NPDES permits are 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.

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Act. Under Section 301(b)(1)(B) of the CWA, publicly owned treatment works (POTWs) must have achieved effluent limitations based upon secondary treatment by July 1, 1977. The secondary treatment requirements are set forth at 40 CFR Part 133.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to limits more stringent than technology-based limits where necessary to meet water quality standards. The Massachusetts Surface Water Quality Standards (MA SWQS) 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, be used unless a site specific criterion is established. The MA SWQS (314CMR 4.00) require that discharges of pollutants to surface waters be limited or prohibited to assure that surface water quality standards of the receiving waters are protected and maintained or attained. See 314 CMR 4.03(1)(a).

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

EPA's anti-backsliding provisions, found in Sections 402(o) and 303(d)(4) of the CWA and at 40 CFR 122.44(l), prohibit the relaxation of permit limits, standards, and conditions, except under certain, limited conditions. Anti-backsliding provisions apply to effluent limits based on technology, water quality, Best Professional Judgement and State Certification requirements. A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirement of the CWA. Anti-backsliding does not apply because there is no potential backsliding.

Waterbody Classification and Usage

The facility discharges to segment (MA41-03) of the Quinebaug River as stated on page 134 of the French & Quinebaug River Watersheds 2004-2008 Water Quality Assessment Report published by MassDEP in November 2009. A copy of the Assessment Report can be reviewed at http://www.mass.gov/dep/water/resources/wqassess.htm. The Massachusetts Department of Environmental Protection (MassDEP) lists this segment of the river as a Class B warm water fishery.

Class B water
These waters are designated as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. 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[1].

A warm water fishery is defined in the MA SWQS (314 CMR 4.02) as, *"Water in which the maximum mean monthly temperature generally exceeds 68 ^{0} F (20 ^{0} C) during the summer months and are not capable of sustaining a year-round population of cold water stenothermal aquatic life*[2].

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. To meet this goal, the CWA requires states to develop information on the quality of their water resources and report this information to the EPA, the U.S. Congress, and the public. To this end, the EPA released guidance on November 19, 2001, for the preparation of an integrated "List of Waters" that could combine reporting elements of both §305(b) and §303(d) of the CWA. The integrated list format allows the states to provide the status of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories:

1) Unimpaired and not threatened for all designated uses; 2) Unimpaired waters for some uses and not assessed for others; 3) Insufficient information to make assessments for any uses; 4) Impaired or threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and 5) Impaired or threatened for one or more uses and requiring a TMDL. Section 303(d) of the CWA requires states to identify and list those water bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such, require the development of Total Maximum Daily Load.

The MassDEP combines the requirements in Sections 305(b) and 303(d) of the CWA into one report and it is available on the MassDEP website at *http://www.mass.gov/dep/water/resources/10lists2.pdf* as the "*Final Massachusetts Year 2012 Integrated Lists of Water"*(2012 Integrated List).

Segment MA41-03 of the Quinebaug River is listed as not in attainment of state water quality standards and requiring a TMDL for the following pollutants: fecal coliform, taste, odor, dissolved oxygen and other. EPA believes that the limits and conditions in the Draft Permit are sufficient to ensure that this discharge will not cause or contribute to non-attainment for these pollutants

River Flow and Available Dilution

Water quality-based effluent limits in the Draft Permit are determined using water quality criteria and the available dilution during the 7Q10 low flow period. A 7Q10 low flow period is defined as the lowest mean stream flow for seven consecutive days with a ten year recurrence interval. For rivers and streams, Massachusetts regulations at 314 CMR 4.03(3)(a) requires that the 7Q10 low flow be used to represent the critical hydrologic conditions at which the instream water quality criteria must be met. The 7Q10 low flow at the discharge and river flow upstream of the discharge are used to calculate a dilution factor.

EPA and MassDEP calculated a dilution factor of 3.20 for a design flow of 3.77 MGD. As shown below, the dilution factor was calculated using the 7Q10 low flow measured at the USGS gage 1123600, located below the Westville Dam and upstream of the treatment plant's discharge, the drainage area at the gage station, and an estimated drainage area at the discharge location.

[1] Massachusetts Surface Water Quality Standards, 314 CMR 4.05(3)(b).
[2] Massachusetts Surface Water Quality Standards, 314 CMR 4.02

Available Dilution

The 7Q10, 9.94 cubic foot per second (cfs), is slightly higher than the 7Q10 used in the existing permit. It was recalculated using flow data recorded from1964 through 2012 at the USGS gage station noted above.

Q_{gage} = Estimated 7Q10 flow at the gage = 9.94 cfs
A_{gage} = Drainage area at gage = 94.4 square miles
$A_{outfall}$ = Estimated drainage area at the outfall = 122 square miles
Q_{df} =3.77 MGD (5.83 cfs)

$$Q_{7Q10 \text{ at outfall}} = \frac{A_{outfall}}{A_{gage}} * (Q_{gage})$$

$$Q_{7Q10 \text{ at outfall}} = \frac{122 \text{ sq.mi.}}{94.4 \text{ sq.mi.}} * (9.94)$$

$Q_{7Q10 \text{ at outfall}}$ =12.85 cfs

Dilution Factor
(12.85 + 5.83)/5.83 = 3.20

Permit Limits and Effluent Data

Flow

As described previously, the treatment plant has an annual average design flow of 3.77 MGD, but up to 2 MGD of effluent flow may be diverted to the Millenium Power Plant for use as cooling water, so the difference between influent and effluent flows at the facility may differ by as much as 2 MGD. The Draft Permit requires flow treated by the facility be reported on the DMR and flow discharged to the river be reported as an attachment to the DMR.

Calculations of mass discharges to the river are to be based on the flow actually discharged to the river; however, compliance with the flow limit is based on the flow treated by the facility, since this is the design flow of the treatment units.

The annual average flow limit in the Draft Permit is the same as in the existing permit, 3.77 MGD (5.83 cfs) and monthly average flows for the period from January 2009 through December 2013 were from 0.97 MGD to 5.04 MGD.

For the period from January 2009 through December 2013, the annual average flow to the facility was consistently below the design flow of the facility, as shown in Attachment B, Southbridge Wastewater Treatment Plant-Discharge Monitoring Report Data. A review of monthly average and daily maximum flow data submitted with the monthly discharge monitoring report show periodic yet significant increases in effluent discharged to the river which do not appear to occur on sampling days. In order to ensure that the discharge is adequately characterized, EPA has increased the monitoring frequency of several parameters in the Draft Permit. The Draft Permit includes an increase in the monitoring frequency for BOD_5, TSS, TRC, ammonia and, phosphorus.

Biochemical Oxygen Demand (BOD_5),, and, Total Suspended Solids (TSS), Dissolved Oxygen (DO), pH and Bacteria

The Draft Permit limits for BOD_5, TSS, pH, the DO concentration, and bacteria have been established to achieve MA SWQS for a Class B water.

BOD_5 and TSS

The concentration (mg/l) and mass (lbs/day) limits for BOD_5, and TSS in the Draft Permit are the same as in the existing permit. They are based on a wasteload allocation completed by MassDEP and, are more stringent than technology-based secondary treatment requirements found at 40 CFR Part 133.

For BOD_5 and TSS, the monthly average and weekly average limits are 629 lbs/day and 20.0 mg/l, respectively, from November through March. For April through October, the monthly average and weekly average BOD_5 limits are 315 lbs/day and 10 mg/l, respectively, and 409 lbs/day and 13 mg/l, respectively, for TSS. The maximum daily reporting requirements for BOD_5 and TSS have been carried over to the Draft Permit.

There were no monthly average or weekly average BOD_5 or TSS exceedances between January 2009 and December 2013. See Attachment B, Southbridge Wastewater Treatment Plant - Discharge Monitoring Report Data of the fact sheet for recent DMR data.

The Draft Permit also contains 85% BOD_5 and 85% TSS removal limitations based on the requirements of 40 CFR 133.102(3). These limitations are the same as in the existing permit. A review of DMR data from January 2009 through December 2013 demonstrates the facility has been in compliance with the 85% BOD_5 removal limit. The 85% TSS removal limit was achieved in all months except March 2011when it was reported as 84%.

pH and Dissolved Oxygen (DO)

The Draft Permit has pH limits that are at least as stringent as the requirements set forth at 40 CFR 133.102(c) and the MA SWQS for Class B waters. The MA SWQS require Class B waters maintain a pH range of 6.5 through 8.3 standard units with not more than 0.5 standard units outside of the receiving water background range. The water quality standards also require there be no change from background conditions that would impair any use assigned to this class. There were no exceedances of the maximum pH limit. In April and October of 2010, the minimum pH was reported as 6.4 standard units, below MA SWQS for a Class B water.

The DO limit, 6.0 mg/l, in the exiting permit is more stringent than the MA SWQS. The State Standard is “not less than 5.0 mg/l” for a Class B warm water fishery. EPA reviewed the NPDES anti-backsliding regulations to determine if it could be relaxed in the Draft Permit. A review of Section 402(o)(3) of the CWA prohibits the relaxation of a limit if the revised limit would result in a water quality violation. The State has listed dissolved oxygen as an impairment for this segment of the Quinebaug River (MA41-03) in the 2012 Integrated Lists, which requires a TMDL be calculated for this parameter. Therefore, the DO permit limit cannot be relaxed at this time and shall remain the same as in the existing permit “not less than 6.0 mg/l”. There were four DO violations reported from January 2009 through December 2013.

See Attachment B, Southbridge Wastewater Treatment Plant-Discharge Monitoring Report of the fact sheet for recent pH and DO data submitted on the facility’s DMRs.

Fecal coliform bacteria and Escherichia coli (*E. coli*) bacteria

On December 29, 2006 the State revised the bacteria criteria in its water quality standards for Class B waters, changing the criteria from fecal coliform bacteria to Escherichia coli (*E. coli)* bacteria. EPA approved this revision on September 19, 2007 and the Draft Permit reflects this change.

To allow time for the permittee to meet the revised bacteria standards, the fecal coliform limits will be in effect for the duration of the first disinfection season (April-October) following the effective date of the permit. Fecal coliform limits in the Draft Permit are the same as in the existing permit; a monthly average geometric mean of 200 colony forming units (cfu) per 100 ml and a daily maximum geometric mean of 400 cfu per 100 ml. After the first disinfection period, limitations on *E.coli* bacteria will become effective, and the fecal coliform monitoring requirements and effluent limits will end. The *E.coli* bacteria limits will then be in effect for the remaining permit term.

The permit provides a one year period for the operators at the facility to make adjustments at the treatment plant to consistently attain the new *E.coli* bacteria limits however, *E.coli* monitoring and reporting is required to begin upon the effective date of the permit.

The *E. coli* bacteria limitations proposed in the Draft Permit are a monthly average geometric mean of 126 cfu/100 ml and a maximum daily value of 409 cfu/100 ml. The maximum daily value is the 90% distribution of the geometric mean of 126 cfu/100 ml. Before the limits become effective, the monitoring frequency is once per month and after the *E.coli* limits are in effect the monitoring frequency is two times per week.

A review of DMR data from January 2009 through December 2013, showed one exceedance of the maximum daily fecal coliform limit. See Attachment B, Southbridge Wastewater Treatment Plant-Discharge Monitoring Report Southbridge Wastewater Treatment Plant-Discharge Monitoring Report for DMR data.

Disinfection

Chlorine and chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The seasonal effluent limits for Total Residual Chlorine (TRC) have been carried forward from the existing permit. The limits were developed using the chronic and acute criteria defined in the National Recommended Water Quality Criteria: 2002, as adopted by the MassDEP into the MA SWQS. The criteria states that the average total residual chlorine in the receiving water should not exceed 11 µg/l for chronic toxicity protection and 19 µg/l for acute toxicity protection. The criteria are multiplied by the available receiving water dilution factor to obtain the TRC Draft Permit limits.

Chlorine calculation:

Acute chlorine water quality criterion is 19 µg/l.
Chronic chlorine water quality criterion is 11 µg/l.
Design flow dilution factor is 3.20

Average Monthly Total Residual Chlorine Limit = 3.20 x 0.011 mg/l = 0.035 mg/l = 35 µg/l
Maximum Daily Total Residual Chlorine Limit = 3.20 x 0.019 mg/l = 0.0608 mg/l = 61 µg/l

The Draft Permit requires the TRC be monitored twice per day.

Liquid sodium hypochlorite is added to the effluent for disinfection before entering the chlorine contact

chambers. Chlorine dosage is controlled by an on-line chlorine analyzer to meet a concentration of 1.75 to 2.5 mg/l sodium hypochlorite in the chlorine contact tank effluent. It is then dechlorinated with liquid sodium bisulfite prior to final discharge into the river. For the period from April 2009 through August 2013 the permittee reported several exceedances of the monthly average and maximum daily TRC concentration. See Attachment B, Southbridge Wastewater Treatment Plant - Discharge Monitoring Report Data.

Metals

Certain metals in water can be toxic to aquatic life. There is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. An evaluation of the concentration of metals in the effluent from the facility's Whole Effluent Toxicity (WET) reports submitted between January 2009 and December 2013 were used to determine reasonable potential for toxicity caused by aluminum, cadmium, lead, nickel and, zinc. For copper, effluent data from the facility's DMR reports were used to determine reasonable potential for toxicity.

Metals may be present in both dissolved and particulate forms in the water column. Extensive studies suggest that it is the dissolved fraction that is biologically available and therefore, presents the greatest risk of toxicity to aquatic life inhabiting the water column. This conclusion is widely accepted by the scientific community both within and outside of EPA (Water Quality Standards Handbook: Second Edition, Chapter 3.6 and Appendix J, EPA 1994 [EPA 823-B-94-005a]. Also see http://www.epa.gov/waterscience/standards/handbook/chapter03.html #section6). As a result, water quality criteria are established in terms of dissolved metals.

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

The facility's recent effluent concentrations were characterized assuming a lognormal distribution in order to determine the estimated 95th percentile of the daily maximum. For metals with hardness-based water quality criteria, the criteria were determined using the equations in *EPA National Recommended Water Quality Criteria: 2002*. The downstream hardness was calculated to be 72 mg/l as $CaCO_3$, using a mass balance equation with the design flow, receiving water 7Q10, an upstream median hardness of 26 mg/l as $CaCO_3$ and an effluent median hardness of 173 mg/l as $CaCO_3$. See Attachment C, Effluent and Ambient Hardness for median hardness data used in the equation below.

EPA's Office of Water - Office of Science and Water Technology stated in a letter dated July 7, 2000 that; "The hardness of water containing the discharged toxic metal should be used for determining the applicable criterion. Thus the downstream hardness should be used." Hardness is reported as an equivalent concentration of calcium carbonate.

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

Where:

Q_s =7Q10 river flow upstream of plant =12.85 cfs
$Q_{d,}$ =the discharge flow from the plant =3.77 MGD (5.83 cfs)
Q_r =the sum of the downstream river flow (7Q10 + plant flow) =18.68 cfs
C_s=the upstream hardness concentration = 26 mg/l - from WET test results
C_d =the effluent hardness =173 mg/l - from WET test results
C_r =the receiving water hardness downstream of the outfall

$$C_r = \frac{Q_d C_d + Q_s C_s}{Qr} = \frac{(5.83 \text{ cfs})(173 \text{ mg/l}) + (12.85 \text{ cfs})(26 \text{ mg/l})}{(18.68 \text{ cfs})} = 71.88 \text{ mg/l}$$

Table 1, Acute and Chronic Total Recoverable Criteria for Metals presents factors used to determine the acute and chronic total recoverable criteria for each metal:

Table 1. Acute and Chronic Total Recoverable Criteria for Metals[1]

Metal	Parameters				Total Recoverable Criteria	
	ma	ba	mc	bc	Acute Criteria (CMC)* (µg/L)	Chronic Criteria (CCC)** (µg/L)
Aluminum	—	—	—	—	750	87
Cadmium	1.0166	-3.924	0.7852	-4.719	1.53	0.21
Copper	—	—	—	—	25.7	18.1
Lead	1.273	-1.46	1.273	-4.705	53.74	2.099
Nickel	0.846	2.255	0.846	0.0584	355.33	39.51
Zinc	0.8473	0.884	0.8473	0.884	90.71	90.71

*Acute Criteria (CMC) = exp{ma*ln(hardness)+ba}
**Chronic Criteria (CCC) = exp{mc*ln(hardness)+bc}

[1]Criteria from *National Recommended Water Quality Criteria: 2002*. These are the applicable state water quality criteria for all of the listed metals except copper. The state has adopted, and EPA has approved, site specific criteria for this receiving water. See **Copper** section for a further discussion.

In order to determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the in-stream water quality criteria for each metal, the following mass balance is used

to project in-stream metal concentrations downstream from the discharge.

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

rewritten as:

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

where:

Q_d = effluent flow (design flow = 3.77 mgd = 5.83 cfs)
C_d = effluent metals concentration in µg/l (95th percentile)
Q_s = stream flow upstream (7Q10 upstream = 12.85 cfs)
C_s = background in-stream metals concentration in µg/l (median)
Q_r = downstream in-stream flow, downstream of the discharge ($Q_s + Q_d$ = 18.68 cfs)
C_r = in-stream concentration downstream of the discharge in µg/l

Reasonable potential is then determined by comparing this in-stream concentration, C_r, (for both acute and chronic conditions) with the criteria for each metal. In EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration criterion. If there is reasonable potential (for either acute or chronic conditions), the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_d) using the criterion as the in-stream concentration (C_r). See the table below for the results of this analysis with respect to aluminum, cadmium, lead, nickel and zinc.

Table 2. Reasonable Potential Table

A	B	C	D	E	F	G	H		I	J	
Metal	**Qd**	**Cd[1] (95th Percentile)**	**Qs**	**Cs[2] (Median)**	**Qr = Qs + Qd**	**Cr = (QdCd+QsCs) / Q_R**	**Criteria**		**Reasonable Potential**	**Limit = (QrCr-QsCs) / Qd**	
	cfs	**µg/l**	**cfs**	**µg/l**	**cfs**	**µg/l**	**Acute (µg/l)**	**Chronic (µg/l)**	**Cr > Criteria**	**Acute (µg/l)**	**Chronic (µg/l)**
Aluminum	5.83	328.39	12.85	61	18.68	144.45	750	87	Y	N/A	144
Cadmium[3]		0.25		0.25		0.25	1.53	0.21	Y	N/A	0.13
Lead		1.44		0.85		1.03	53.74	2.09	N	N/A	N/A
Nickel		11.52		1.0		4.28	355.33	39.15	N	N/A	N/A
Zinc		39.78		5		15.85	90.71	90.71	N	N/A	N/A

[1] Values calculated from the statistical analysis. The statistical analyses is part of the administrative file for this facility.
[2] Median upstream data taken from Whole Effluent Toxicity (WET) tests on the Quinebaug River just upstream of the Southbridge WWTF outfall (see Attachment D, Whole Effluent Toxicity Test Chemistry Data).
[3] The WET data were all, less than 0.5 µg/l, the minimum level. The 95th percentile (Cd**)** and the in-stream concentration (Cs) are based on half the minimum detection level.

As indicated in the table above, there is reasonable potential that the discharge of aluminum will cause or contribute to an exceedance of applicable chronic water quality criterion and monthly average aluminum limits are included in the Draft Permit. Monitoring and reporting of all metals listed in the table above will continue to be required as part of the annual WET tests.

Reasonable Potential Analysis for Aluminum

The acute and chronic water quality criteria for aluminum are 750 µg/l and 87 µg/l and are expressed in terms of total recoverable metal in the water column. Aluminum criteria are not dependent on the hardness of the receiving water.

These calculations show that there is not a reasonable potential for the discharge to cause or contribute to exceedance of the acute water quality criteria, but there is reasonable potential for the discharge to exceed the chronic water quality criteria of aluminum. The Draft Permit has a monthly average aluminum limit of 0.144 mg/l.

Where

C_r =Concentration downstream of the outfall	= 87 µg/l
Q_d =Discharge flow	= 5.83 cfs
C_d =monthly average discharge concentration	= x µg/l
Q_s =Upstream flow	= 12.85 cfs
C_s =Median background concentration	= 61 µg/l
Q_r =Streamflow below outfall	= 18.68 cfs (effluent + upstream)

The calculated limit is 0.144 mg/l as shown below.

$C_d = (Q_r * C_r) – (Q_s * C_s)/Q_d$

(18.68 cfs * 87 µg/l) – (12.85 cfs * 61 µg/l)/(5.83 cfs) = 144.30 µg/l (0.144 mg/l)

The aluminum limit in the Draft Permit is more stringent than the limit in the current permit. The calculation of the Draft Permit limit uses the median upstream aluminum concentration, which was not considered in the current permit. The method used for the Draft Permit is more consistent with recommendations in the EPA *NPDES Permit Writers' Manual* (see page 6-19, Receiving Water Background Pollutant Concentration) and better ensures that water quality criteria will be attained. Because the Draft Permit limit is more stringent than the current limit and is not currently being attained, a two year compliance schedule has been included in the Draft Permit to allow time for the permittee to achieve the more stringent limit. Such schedules are allowed under MA SWQS (see 314 CMR 4.03(1)(b)).

Cadmium

A review of the cadmium data from the facility's WET test were all reported as non-detect (at or less than 0.5 µg/l, the minimum level) as shown in Attachment D of the fact sheet and referenced in footnote 3 of Table 2. EPA used ½ the minimum level in the statistical analysis to determine the 95th percentile for cadmium that resulted in an instream concentration downstream of the discharge, C_r, as 0.25 ug/l, an exceedance of the chronic water quality criterion, 0.21 µg/l (see column H of Table 2) and a calculated

limit of 0.13µg/l. However, data reported below the minimum level is potentially unreliable. Therefore the Draft Permit does not include a limit since the calculated limit shown in Table 2 is based on all non-detects.

Copper

The existing permit includes a monthly average copper limit of 16 µg/l and a maximum daily copper limit of 21 µg/l. The chronic and acute criteria for these limits were calculated using hardness (45 mg/l) reported as an equivalent concentration of Calcium Carbonate ($CaCO_3$) of the receiving water, as recommended in the EPA 1998 National Recommended Water Quality Criteria for Copper.

In December 2006, the MA SWQS were revised to include site specific copper criteria that were developed for certain water bodies in the State. The national criteria were invalid due to site specific physical, chemical, or biological considerations, and do not exceed the safe exposure levels determined by toxicity testing [314 CMR 4.05(5)(e) Table 28]. MassDEP adopted an acute dissolved copper criterion of 25.7 µg/l and a chronic dissolved criterion of 18.1 µg/l for the Quinebaug River from river mile 19.7 to 7.9 (state line of CT). EPA approved these criteria on March 26, 2007. The point of discharge from the facility is approximately at river mile 12, therefore, the site specific criteria apply. Effluent limits based on the site specific copper criteria were calculated and considered in the analysis of the copper limits in the Draft Permit as set forth in the State guidance, "Protocol for and Determination of Site specific Copper criteria for Ambient Waters in Massachusetts" and, the anti-backsliding provisions of the Clean Water Act 402(o) and 303(d)(4).

Page 7 of the "Protocol for and Determination of Site specific Copper Criteria for Ambient Waters In Massachusetts" states, "While site specific copper criteria are being established, prudence dictates that loads of copper and other metals be minimized. Therefore, as part of the site specific criteria, all reasonable efforts to minimize the load of metals (copper in this case), are part of the criteria revision protocol and copper limits will be developed on a case-by-case basis. Each determination will be based not only on the adjusted concentration resulting from the appropriate multiplier but, will reflect the demonstrated level of copper reduction routinely achieved at the facility in order to minimize copper loads and thereby reduce its accumulation in the sediment."

Anti-backsliding requirements found at CWA 402(o) and 40 CFR 122.44(l) generally prohibit relaxation of effluent limits. Water quality-based effluent limits can only be relaxed if one of the exceptions found at CWA 402(o)(2) is met or if the requirements of CWA 303(d)(4) are met. In this case, the requirements in CWA 303(d)(4) apply. CWA 303(d)(4) requires that a determination be made whether the receiving water is attaining the applicable water quality standard. If the receiving water is in attainment of the standard, a relaxation of the limit may be allowed subject to the state anti-degradation policy. If the receiving water is not in attainment of the applicable standard, the limit cannot be relaxed except in accordance with a wasteload allocation or a total maximum daily load.

Thus, determination of the appropriate effluent limits under the site specific protocol requires calculating both (i) the actual effluent concentrations achieved by the facility based on DMR data, hereinafter referred to as the facility "performance-based limits", and (ii) the required effluent limits that would meet the site specific numeric criteria, hereinafter referred to as the "criteria-based limits." Both sets of calculated limits must be compared with the limits in the existing permit.

In determining the appropriate limits, water quality data must first be reviewed to determine if the receiving water is attaining the site-specific water quality standards for copper. If it is not, limits cannot be relaxed. If it is, then limits may be relaxed only to the extent that the proposed limits ensure attainment of the site specific water quality standards and are not less stringent than the performance

achieved by the facility.

Monitoring Data

Copper is monitored as part of the facility's monthly discharge monitoring requirement. Attachment B, Southbridge Wastewater Treatment Plant-Discharge Monitoring Report Data, provides copper data reported by the permittee from January 2009 through December 2013. The attachment shows a range from non-detect to 16 µg/l.

A median copper concentration of 3 µg/l upstream of the discharge shown in Attachment D, Whole Effluent Toxicity Test Chemistry Data. The analytical method used to measure the concentration in the toxicity tests had a minimum detection level of 2.0 µg/l. Therefore, non-detects were estimated as one-half of the minimum detection level or 1.0 µg/l. The data shows that the site specific criteria have been attained in the receiving water. Since the receiving water upstream of the discharge is attaining water quality standards, a relaxation of the effluent limits can be considered.

Facility Performance - Based Copper Limits

The copper concentrations routinely achieved through treatment were determined using a statistical analysis of discharge monitoring data for the period of January 2009 through December 2013. The analysis was based on the methodology set forth in the "Technical Support Document for Water Quality based Toxics Control, Appendix E", published in March 1991, EPA/505/2-90-001. The maximum daily and average monthly discharge concentrations were estimated as the 99th and 95th percentiles of a lognormal distribution, based on the facility's effluent data. The Reasonable Potential Analysis is available for review in the administrative file at EPA Region 1.

Using this method, the estimated monthly average discharge is 14 mg/l and the maximum daily discharge is 22 mg/l.

Site Specific Criteria-Based Copper Limits

The effluent copper concentrations necessary to achieve the site specific water quality criteria downstream of the discharge were determined using mass balance equations. The site specific criteria, the upstream copper data reported in recent WET tests, the receiving water 7Q10 low flow, and facility design flow were used in this calculation.

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

Q_r = receiving water flow downstream of the discharge (7Q10 + plant flow), 18.68 cfs
C_r = copper concentration in the receiving water downstream of the discharge (equal to the site-specific criteria), 18.1 µg/l and 25.7 µg/l
Q_d = design flow of the discharge, 5.83 cfs
C_d = copper concentration in the discharge (the allowable effluent limit)
Q_s = receiving water flow upstream of the discharge, 12.85 cfs
C_s = copper concentration in the receiving water upstream of the discharge, 3.0 µg/l

In the equation above, the monthly average and daily maximum effluent limits were calculated with the in-stream copper concentration equivalent to the site specific criteria, 18.1 µg/l and 25.7 µg/l. Using an upstream median copper concentrations of 3.0 µg/l (C_s), the treatment plant design flow of 5.83 cfs, (Q_d),

the upstream 7Q10 low flow of 12.85 cfs, (Q_s), the downstream flow of 18.68 (Q_r), and downstream copper concentration equal to the total recoverable criteria (C_r = 18.1 µg/l, chronic and 25.7 µg/l, acute) the monthly average copper limit would be 51.38 µg/l and the maximum daily limit would be 75.73 µg/l.

$$C_d \text{ (chronic)} = \frac{(18.68 \text{ cfs} * 18.1 \text{ µg/l}) - (12.85 \text{ cfs} * 3.0 \text{ µg/l})}{5.83} = 51.38 \text{ µg/l}$$

$$C_d \text{ (acute)} = \frac{(18.68 \text{ cfs} * 25.7 \text{ µg/l}) - (12.85 \text{ cfs} * 3.0 \text{ µg/l})}{5.83} = 75.73 \text{ µg/l}$$

Table 3. Proposed Copper Limits

	Monthly Average Limit	Daily Maximum Limit
Existing Permit Limits	16 µg/l	21 µg/l
Site Specific Criteria Based Limits	51 µg/l	75 µg/l
Facility Performance Based Limits	14 µg/l	22 µg/l

The monthly average and maximum daily effluent limits in the Draft Permit are 16 µg/l and 22 µg/l. A relaxation of the maximum daily limit is allowed since the receiving water is attaining the site-specific water quality criteria and the copper data submitted on the Town's DMRs from January 2009 through December 2013 show that treatment at the facility has been sufficient to meet the limit.

Nitrogen

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.

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 including all POTWs in the watershed. The following table summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings:

Basin	Baseline Loading[1] lbs/day	TMDL Target[2] lbs/day	Current Loading[3] 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

[1]. Estimated loading from TMDL, (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998).
[2]. Reduction of 25% from baseline loading.
[3]. Estimated current loading from 2004 – 2005 DMR data – detailed summary attached as Exhibit A.

The TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met, and the overall loading from MA, NH and VT wastewater treatment plants discharging to the Connecticut River watershed has been reduced by about 36 percent.

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 this permit. EPA's intent is 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 375 lbs/day**.** The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years.

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

Total Nitrogen, Nitrate, Nitrite and Total Kjeldahl Nitrogen

The Draft Permit includes a year-round monitoring and reporting requirement for total nitrogen, nitrate, nitrite and total Kjeldahl nitrogen. The data will provide additional information on the fate of nitrogen through the treatment process.

Ammonia

Ammonia can reduce the receiving stream's dissolved oxygen concentration through nitrification and can also

be toxic at elevated levels.

The current permit includes a monthly average ammonia limit of 10 mg/l for the month of April, monthly average, weekly average and maximum daily limits in May that are 5.0 mg/l, 5.0 mg/l and 8.0 mg/l, respectively, and monthly average, weekly average and, maximum daily effluent limits in June through October that are 1.3 mg/l, 1.3 mg/l and 2.0 mg/l, respectively. These limits are based on a waste load allocation calculated by MassDEP and shall remain in the Draft Permit.

Winter Ammonia Limits

Winter ammonia limits may be necessary to ensure that ammonia toxicity does not cause or contribute to violations of water quality standards for a Class B water. In-stream ammonia criteria for the cold weather season are dependent on pH and temperature of the receiving water as explained in the 1999 Update of Ambient Water Quality Criteria for Ammonia, Volume 64, Number 245, Federal Register pages, 71973-71980. Ammonia data from recent whole effluent toxicity tests were reviewed to determine if reasonable potential exists for the discharge to exceed the water quality criteria for ammonia during the cold weather months. See 40 CFR 122.45(d).

Table 4. Ammonia In-stream Criteria

Month	pH	Temp. C	Acute Criteria	Chronic Criteria
November 2011	7.65	2	11.40 mg/l	3.98 mg/l
February 2012	7.11	4	22 mg/l	5.67 mg/l

Table 5. Ammonia Whole Effluent Toxicity Test Data[3]

	Effluent Ammonia as N, mg/l [3,4]	Ambient Ammonia as N, mg/l[3,4]
Feb-2009	15 mg/l	0.12 mg/l
Nov-2009	ND/<0.1 mg/l	ND/<0.1 mg/l
Feb-2010	8.6 mg/l	0.13 mg/l
Nov-2010	0.8 mg/l	ND/<0.1 mg/l
Feb-2011	7.3 mg/l	0.11 mg/l
Nov-2011	ND/<0.1 mg/l	ND/<0.1 mg/l
Feb-2012	0.27 mg/l	ND/<0.1 mg/l
Nov-2012	ND/<0.1 mg/l	ND/<0.1 mg/l
Feb-2013	9.3 mg/l	ND/<0.1 mg/l
Nov-2013	ND/<0.1 mg/l	ND/<0.1 mg/l

A 30Q10 flow at the point of discharge was also used to determine the need for winter ammonia limits. The 30Q10 is defined as the mean stream flow for thirty consecutive days with a ten year recurrence interval and was calculated to be 17.83 cfs for the period of November 1 to April 30.

Q_{gage} = Estimated 30Q10 flow at the gage = 13.8 cfs
A_{gage} = Drainage area at gage = 94.4 square miles
$A_{outfall}$ = Estimated drainage area at the outfall = 122 square mile
Q_d = 3.77 (5.83 cfs)

[3] Ambient and effluent ammonia data reported in whole effluent toxicity tests.
[4] Non-detect replaced with one half the minimum detection level, 0.05 mg/l.

$$Q_{30Q10 \text{ at outfall}} = \frac{A_{outfall}}{A_{gage}} * (Q_{gage})$$

$$Q_{30Q10 \text{ at outfall}} = \frac{122 \text{ sq.mi.}}{94.4 \text{ sq.mi.}} * (13.8 \text{ cfs})$$

$Q_{30Q10 \text{ at outfall}} = 17.83$ cfs

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

Where:

Q_s, 30Q10 river flow upstream of plant	= 17.83 cfs
Q_d, Discharge flow from plant	= 3.77 MGD (5.83 cfs)
Q_r,, Combined river flow (30Q10 + plant flow)	= 23.66 cfs
C_s, Ambient ammonia concentration (instream criteria)	= 0.050 mg/l
C_d, Effluent ammonia concentration	= x
C_r, Receiving water ammonia concentration downstream, (acute and chronic criteria)	= 11.40 mg/l, 3.98 mg/l

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

$C_d = (23.7 \text{ cfs})(11.40 \text{ mg/l}) - (17.83)(0.050)/5.83 \text{ cfs})$
$C_d = 46.19$ mg/l, maximum daily

$C_d = (23.7 \text{ cfs})(3.98 \text{ mg/l}) - (17.83)(0.05)/5.83 \text{ cfs})$
$C_d = 16.04$ mg/l, monthly daily

The projected effluent limits calculated above are greater than the ammonia concentration in the effluent. There is no reasonable potential for ammonia in the effluent to cause or contribute to an exceedance of the in-stream ammonia criterion and the Draft Permit does not include a limit. Ammonia monitoring will continue to be required as part of the annual WET tests.

Phosphorus

Phosphorus is an essential nutrient for plant growth, but excessive amounts of phosphorus in a water body has the potential to accelerate stream eutrophication, characterized by excessive plant growth, low dissolved oxygen, and large diurnal swings in dissolved oxygen in the water body.

The "French and Quinebaug River Watersheds 2004-2008 Water Quality Assessment Report" published in November 2009 by MassDEP states that MA41-03, the segment that receives the treatment plant's discharge, is impaired. The Assessment Report, page 134, reads, "This segment is on the 2008 Integrated List of Waters in Category 5 – waters requiring a TMDL (nutrients, organic enrichment/low DO, (other habitat alterations), pathogens, taste, odor and color (objectionable deposits)).

The 2012 Integrated List also lists this segment as impaired for fecal coliform, taste and odor, dissolved oxygen and, other. The 2012 report also has this segment impaired for physical substrate habitat alterations and debris/floatables and trash.

The existing permit has a 0.2 mg/l monthly average limit for total phosphorus from April through October, which is based on Highest and Best Practical Treatment (HBPT) pursuant to 314 CMR 4.05(5)(c) of the MA SWQS and a 1.0 mg/l monthly average limit from November through March. As shown in Attachment B, Southbridge Wastewater Treatment Plant-Discharge Monitoring Report Data, the monthly average phosphorus data reported in the facility's DMRs from 2009 through 2013 for the months of April through October ranged from 0.05 mg/l to 0.4 mg/l and the monthly average data for the months of November through March were from 0.05 mg/l to 0.70 mg/l.

Regulatory Background

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

In the absence of numeric criteria or a TMDL, EPA interprets the narrative criteria using the procedures found at 40 CFR Part 122.44(d)(1)(vi), including the use of available guidance and other relevant information. This information would include EPA- published national guidance documents which contain recommended total phosphorus criteria and other indicators of eutrophication. The "Quality Criteria for Water 1986" document, http://www.epa.gov/waterscience/criteria/library/goldbook.pdf commonly known as the "Gold Book", follows an effects-based approach and, recommends maximum threshold concentrations designed to prevent or control adverse nutrient-related impacts from occurring in-stream. The Gold Book document recommends that in-stream phosphorus concentrations not exceed 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly into lakes or impoundments, and 0.025 mg/l within a lake or reservoir.

The effects-based Gold Book threshold is a general target applicable in free-flowing streams. As the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophication response to phosphorus inputs; in some waters more stringent phosphorus reductions may be needed, while in some others a higher phosphorus threshold could be assimilated without inducing a eutrophic response. In this case, EPA is not aware of any evidence that the Quinebaug River is unusually susceptible to eutrophication impacts, so that 100 µg/l threshold appears sufficient in this receiving water. With respect to factors that can reduce susceptibility, the Gold Book identifies morphometric features (steep banks, great depths and substantial flows), limitations by nutrients other than phosphorus, reduced light penetration where waters are highly laden with natural silts or color, or other naturally occurring phenomena that limit plant growth.[5]

5 The Gold Book also includes waters where "technological or cost-effective limitations may help control induced pollutants"; "waters managed primarily for waterfowl or other wildlife" and waters where phosphorus control cannot be sufficiently effective under present technology to make phosphorus the limiting nutrient". As these factors do not address water body response but instead alternative technological solutions or changes in management goals, EPA does not consider them altering the threshold necessary to meet the narrative water quality standard.

More recently, EPA has released recommended Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published criteria represent conditions in waters within ecoregions that are minimally impacted by human activities, and thus free from the effects of cultural eutrophication. Southbridge is located within Ecoregion XIV, Eastern Coastal Plains. The recommended total phosphorus criterion for this ecoregion, found in "Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV" http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/upload/2007_09_27_criteria_nutrient_ecoregions_rivers_rivers_14.pdf published by EPA in December 2000 is 24 µg/l (0.024 mg/l).

Total Phosphorus Limit

EPA typically uses a mass balance equation to calculate the phosphorus limit necessary to ensure that the instream criteria is met downstream of the discharge. For phosphorus, the target instream concentration is typically the Gold Book criterion of 100 µg/l, to be met at treatment plant design flow and 7Q10 receiving water flow conditions.

The mass balance equation also requires data on the in-stream phosphorus concentration upstream of the discharge, and recent ambient upstream data is not available at this time, so the limit necessary to achieve the Gold Book targets cannot be calculated directly. Even if such data were available, it may not be representative, as the phosphorus discharges from the upstream Sturbridge and Charlton treatment plants has been significantly reduced pursuant to the requirements of their most recent NPDES permits.

What EPA has done is to first calculate the upstream concentration that would ensure that the Southbridge discharge does not cause an exceedance of the 100 µg/l Gold Book target under 7Q10 flow conditions. This can be done by solving the mass balance equation for the upstream concentration, assuming a downstream target of 100 µg/l and an effluent concentration of 200 µg/l (the current limit). An upstream concentration of 55 µg/l (0.05541) mg/l is calculated as shown below.

$$Qr*Cr = Qd*Cd + Qs*Cs$$

$$Cs = \frac{(Qr*Cr)-(Qd*Cd)}{Qs}$$

Where: Cs= upstream phosphorus concentration = x mg/l
Qr = downstream flow - Qs + Qd = 18.68 cfs
Cr = downstream concentration = 0.1 mg/l
Cd = discharge concentration = 0.2 mg/l
Qd = discharge flow (design flow) = 5.83 cfs
Qs = upstream flow – 7Q10 = 12.85 cfs

$$Cs = \frac{(18.68 \text{ cfs})(0.1 \text{ mg/l}) – (5.83)(0.2 \text{ mg/l})}{12.85 \text{ cfs}}$$

$$Cs = 0.055 \text{ mg/l}$$

Therefore, if the upstream concentration is equal to or less than 0.055 mg/l, the effluent limit is sufficiently stringent to achieve the Gold Book criteria of 0.1 mg/l.

The upstream concentration can be estimated by summing the phosphorus loads from the Sturbridge POTW

the load from the Charlton POTW, and the load from the watershed from other sources, and then dividing this sum by the total flow upstream of Southbridge.

The generalized equation is as follows:

$$\frac{QaCa + QbCb + QcCc}{Qa + Qb + Qc}$$

Where:
Qa = flow from the Sturbridge POTW
Ca = Concentration of the Sturbridge discharge = permit limit of 0.12 mg/l
Qb = flow from the Charlton POTW
Cb = Concentration of the Charlton discharge = permit limit of 0.11 mg/l
Qc = other flows in the watershed = 7Q10 (12.85 cfs) minus the sum of the Sturbridge and Charlton flows
Cc = concentration of other flows in the watershed = 0.030 mg/l (concentration measured in the Quinebaug River upstream of Sturbridge – see Sturbridge fact sheet)

EPA first ran this calculation with the Sturbridge and Charlton POTWs discharging at flows typical of 7Q10 dry weather conditions. Flows were selected from discharging monitoring data over the past three years. The lowest monthly average flow that occurred during the months of June through September was chosen. For Sturbridge that flow is 0.505 MGD (0.78 cfs), from June 2013, and for Charlton that flow is 0.182 MGD (0.28 cfs), from September 2013.

Using these assumptions, the upstream concentration is:

$$= \frac{(0.78 \text{ cfs})(0.12 \text{ mg/l}) + (0.28 \text{ cfs})(0.11 \text{ mg/l}) + (11.79 \text{ cfs})(0.03 \text{ mg/l})}{12.85 \text{ cfs}}$$

= 0.037 mg/l

This value is significantly less than the 0.055 mg/l necessary for the current limits to be protective.

Next EPA ran the same calculation, but with the Sturbridge and Charlton facilities discharging at their annual average design flows. This should represent conditions that would produce the highest upstream concentrations. It is unlikely that these flows would actually be discharged by these facilities during the summer months, given seasonal variation of flow. Put another way, a facility that is operating at its annual average flow limit would typically discharge flows higher than the annual average during wet weather months and lower than the annual average during dry weather summer months. This analysis is also conservative in that it does not include any attenuation of phosphorus of the upstream phosphorus loads.

For Sturbridge, the design flow is 1.3 MGD (2.01 cfs) and for Charlton this flow is 0.45 MGD (0.696 cfs).

Under these conditions the upstream concentration is:

$$= \frac{(2.01\text{cfs})(0.12 \text{ mg/l}) + (0.696 \text{ cfs})(0.11 \text{ mg/l}) + (0.030 \text{ mg/l})(10.14 \text{ cfs})}{12.85 \text{ cfs}}$$

= 0.048 mg/l

This is less than the upstream concentration (0.055 mg/l) necessary to ensure that the discharge does not cause

an exceedance of the Gold Book target under 7Q10 stream flow.

Therefore, the Draft Permit includes the same limits that are in the current permit. However, EPA has also included a requirement in the Draft Permit that the permittee routinely monitor and report upstream phosphorus concentrations during the months of May through October. This data will be reviewed to verify that the existing permit limits achieve criteria downstream of the discharge. If more stringent limits are necessary to achieve the criteria, the permit may be reopened to revise the phosphorus limits. Therefore, the Draft Permit includes the same limits that are in the current permit. However, EPA has also included a requirement in the Draft Permit that the permittee routinely monitor and report upstream phosphorus concentrations during the months of June through October. This data will be reviewed to verify that the existing permit limits achieve criteria downstream of the discharge. If more stringent limits are necessary to achieve the criteria, the permit may be reopened to revise the phosphorus limits.

Bis 2 Ethylhexylphthalate

Bis 2 Ethylhexylphthalate (also known as Di(2-ethylhexyl) Phthalate) is used in the production of polyvinyl chloride (PVC). It is commonly detected in the environment due to the widespread use of plastic products, though it is only slightly soluble in water and is broken down quickly in the presence of oxygen. Additional information on this chemical can be accessed at url: http://www.atsdr.cdc.gov/phs/phs.asp?id=376&tid=65 .

Bis 2 Ethylhexylphthalate was detected in two of the three required priority pollutant scans submitted in the Town's NPDES Permit Application; see Part D. Expanded Effluent Testing Data. The data reported are shown below.

Date	Concentration
2/2011	10 µg/l
4/2011	16 µg/l

The human health criteria for Di(2-ethylhexyl) Phthalate are 1.2 µg/l for consumption of water and organisms and 2.2 µg/l for consumption of organisms only. When the water body is a drinking water source the more stringent criterion applies however, the Town's source of drinking water is not the Quinebaug River and the more stringent criterion does not apply. To determine if an effluent limit was necessary, EPA used the organism-only criterion of 2.2 µg/l to assess the reasonable potential of Bis 2 Ethylhexylphthalate to cause or contribute to an instream excursion of the water quality standards under an annual average instream flow. The annual average flow at the nearest USGS gage for the period of 1963 through 2013 reported in the Water-Data Report 2013 was 185 cfs. The USGS report is at http://wdr.water.usgs.gov/wy2013/pdfs/01123600.2013.pdf .

As shown below, the concentration downstream of the discharge is less than the water quality criterion and a permit limit is not required at this time.

Available Dilution at the outfall

Q_{gage} = Annual average flow at the gage = 185 cfs
A_{gage} = Drainage area at gage = 94.4 square miles
$A_{outfall}$ = Estimated drainage area at the outfall = 122 square miles
$Q_{design\ flow}$ = 3.77 MGD (5.83 cfs)

$Q_{\text{at outfall}} = \frac{122 \text{ sq.mi.}}{94.4 \text{ sq.mi.}} * (185 \text{ cfs})$

$Q_{\text{at outfall}} = 239.09$ cfs

Dilution Factor
(239.09 + 5.83)/5.83 = 42.01

Reasonable Potential Analysis for Bis 2 Ethylhexylphthalate

Where

C_r	=Concentration downstream of the outfall	= x µg/l
Q_d	=Discharge flow	= 5.83 cfs
C_d	=discharge concentration	= 16 µg/l
Q_s	=Upstream flow	= 239.09 cfs
C_s	=Background concentration	= 0 µg/l
Q_r	=Streamflow below outfall	= 244.92 cfs (effluent + upstream)

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

(5.83 cfs * 16 µg/l) + (244.92 cfs * 0 µg/l)/(244.92 cfs) = 0.381 µg/l

0.38 µg/l < 2.20 µg/l

Chloroform

Chloroform is also known as trichloromethane or methyltrichloride. It is a colorless liquid with a pleasant, non-irritating odor and a slightly sweet taste. Chloroform enters the environment from chemical companies and paper mills. It is also found in wastewater from sewage treatment plants and drinking water to which chlorine has been added. Additional information on this chemical can be accessed at url: http://www.atsdr.cdc.gov/phs/phs.asp?id=16.

Chloroform was detected in two of the three required priority pollutant scans submitted as part of the Town's NPDES Permit Application in Part D. Expanded Effluent Testing Data. The data reported are shown below.

Date	Concentration
2/2011	23 µg/l
4/2011	7.4 µg/l

The human health criterion for chloroform is 5.7 µg/l for consumption of water and organisms and 470 µg/l for consumption of organisms only. In this case, to determine if an effluent limit was necessary, EPA used the organism-only criterion of 470 µg/l to assess the reasonable potential of chloroform to cause or contribute to an instream excursion of the water quality criterion under an annual average flow.

As shown below, there is no reasonable potential to cause or contribute to an exceedance of the water quality criterion for this pollutant and a permit limit has not be included in the Draft Permit. EPA will review the data for this pollutant submitted with the next permit application to determine if a permit limit is necessary at that time.

Reasonable Potential Analysis for Chloroform

Where

C_r	=Concentration downstream of the outfall	= x µg/l
Q_d	=Discharge flow	= 5.83 cfs
C_d	=discharge concentration	= 23 µg/l
Q_s	=Upstream flow	= 239.01 cfs
C_s	=Background concentration	= 0 µg/l
Q_r	=Streamflow below outfall	= 244.84 cfs (effluent + upstream)

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

(5.83 cfs * 23 µg/l) + (239.09 cfs * 0 µg/l)/(244.92 cfs) = 0.547 µg/l

0.55 µg/l < 470 µg/l

Whole Effluent Toxicity Testing

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

All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822-R-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. Site specific limits, human health risk levels and permit limits will be established in accordance with the following 314 CMR 4.05(5)(e)(1)(2)(3)and(4).

National studies conducted by the EPA have demonstrated that industrial and domestic sources contribute toxic constituents, such as metals, chlorinated solvents, aromatic hydrocarbons, and other pollutants to POTWs. The impact of such complex mixtures is often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity testing. In addition, 40 CFR 122.44 (d) requires whole effluent toxicity limits in NPDES permits when the effluent has a reasonable potential to cause toxicity.

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

The Draft Permit includes acute and chronic whole effluent 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/505-90-001). The LC_{50} limitation prohibits acute effects, lethality, to more than 50% of the test organisms when exposed to POTW undiluted effluent for 48 hours. The chronic-no observed effect concentration (C-NOEC) limitation in the Draft Permit prohibits chronic adverse effects such as survival, growth, and reproduction when aquatic organisms are exposed to the POTW discharges at the calculated available dilution.

The LC_{50} limitation in the Draft Permit is 100%, consistent with MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters", February 23, 1990, which requires an effluent limitation of 1 toxic unit (LC_{50} = 100%) for discharges with dilution factors less than 100.

The Chronic - No Observed Effect Concentration (C-NOEC) limitation in the Draft Permit prohibits chronic adverse effects that adversely affect survival, growth, or reproduction when aquatic organisms are exposed to the POTW effluent at several different dilution concentrations. The C-NOEC is established equal to the inverse of the dilution factor consistent with MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters", February 23, 1990. The C-NOEC, 31%, is slightly higher than in the existing permit, due to a slightly lower dilution factor.

C-NOEC = 1/dilution factor = 1/3.20 = 31%

A review of the 2010 through 2013 chronic and modified acute toxicity tests show compliance with the existing permit limits. However, in May 2012, the WET test the Percent Minimum Significant Difference (PMSD) was computed as 33.3%, slightly outside the acceptable range of 10% to 30% for the fathead minnow.

The slightly elevated PMSD is due to mortality of minnows in a replicate of a control test with river water in which no test organisms survived and a replicate of a control comprised of river water and 25% effluent in which only 10% of the minnows survived. Therefore, the Draft Permit shall continue to require four toxicity tests per year using the fathead minnows, (*Pimephales promelas*) only. Tests are to be conducted the second week in February, May, August and, November using the protocol in Attachment A, US EPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol and Attachment A-1, US EPA Region Freshwater Acute Toxicity Tests Procedure and Protocol of the Draft Permit.

Table 6. Chronic and modified Acute Toxicity Tests Results below show the results for chronic and modified acute toxicity tests conducted on the effluent.

Table 6. Chronic and modified Acute Toxicity Tests Results

Date	C-NOEC Pimphales	LC50–Acute Pimephales	C-NOEC Ceriodaphnia	LC50–Acute Ceriodaphnia
November 2013	100%	100%	100%	100%
August 2013	100%	100%	100%	100%
May 2013	100%	100%	100%	100%
February 2013	100%	100%	100%	100%
November 2012	100%	100%	100%	100%
August 2012	100%	100%	100%	100%
May 2012	100%	100%	100%	100%
February 2012	100%	100%	100%	100%
November 2011	100%	100%	100%	100%

August 2011	100%	100%	100%	100%
May 2011	100%	100%	100%	100%
February 2011	100%	100%	100%	100%
November 2010	100%	100%	100%	100%

Sludge Information and Requirements

Sludge from the treatment plant is processed in a belt filter press for composting on-site using aerated static piles. The compost is classified as Type 1 finished compost under MassDEP regulations. The total sludge generated and handled at the facility in 2013 was 478.44 dry metric tons.

Section 405(d) of the CWA requires that sludge conditions be included in all municipal permits. The sludge conditions in the Draft Permit satisfy this requirement and are taken from EPA's Standards for the Disposal of Sewage Sludge codified at 40 CFR Part 503 (February 6, 1989-54 FR 5746). The pollutants listed are to be limited by 40 CFR Part 503. The Sludge Compliance Guidance can be seen at http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

Sewer System Operation and Maintenance

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

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

Proper operation of the collection systems is critical to prevent blockages and equipment failures that would cause overflows of the collection system (sanitary sewer overflows, or SSOs), and to limit the amount of non-wastewater flow entering the collection system (inflow and infiltration or I/I). I/I in a collection system can pose a significant environmental problem because it may displace wastewater flow and thereby cause, or contribute to causing, SSOs. Moreover, I/I could reduce the capacity and efficiency of the treatment plant and cause bypasses of secondary treatment. Therefore, reducing I/I will help to minimize any SSOs and maximize the flow receiving proper treatment at the treatment plant.

MassDEP has stated that the inclusion in NPDES permits of I/I control conditions is a standard State Certification requirement under Section 401 of the CWA and 40 CFR § 124.55(b). Therefore, specific permit conditions have been included in Part I.B. and I.C. of the Draft Permit. These requirements include mapping of the wastewater collection system, preparing and implementing a collection system operation and maintenance plan, reporting unauthorized discharges including SSOs, maintaining an adequate maintenance staff, performing preventative maintenance, controlling infiltration and inflow to the extent necessary to prevent SSOs and I/I related-effluent violations at the wastewater treatment plant, and maintaining alternate power where necessary. These requirements are intended to minimize the occurrence of permit violations that have a reasonable likelihood of adversely affecting human health or the environment.

Several of the requirements in the Draft Permit are not included in the current permit, including collection system mapping, and preparation of a collection system operation and maintenance plan. EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance of the POTW and the requirements have been included in POTW NPDES Permits recently issued in Massachusetts.

Unauthorized Discharges

This permit only authorizes the discharge from the wastewater treatment plant outfall 001. Other discharges of wastewater, such as pump station emergency overflows or sanitary sewer overflows are not authorized and must be reported in accordance with reporting requirements found in Section D.1.e of Part II of the permit (24 hour reporting), including requirements for both oral notice within 24 hours and written notice within 5 days.

V. Anti-Degradation Review

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

VI. Essential Fish Habitat Determination

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

The Amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," 16 U.S.C. § 1802(10). "Adverse impact" means any impact which reduces the quality and/or quantity of EFH, 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Id.

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

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

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

VII. Endangered Species Act

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

EPA and the MassDEP have determined that an ESA consultation is not required for this discharge, since no listed species or critical habitats are located in an area that could be affected by the facility's discharge.

VIII. Monitoring and Reporting

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

The Draft Permit requires the permittee to report monitoring results obtained during each calendar month in the Discharge Monitoring Reports (DMRs) no later than the 15th day of the month following the completed reporting period.

The Draft Permit includes new provisions related to electronic DMR submittals to EPA and the State. The Draft Permit requires that, no later than six months after the effective date of the permit, the permittee submit all DMRs to EPA using NetDMR, unless the permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request").

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

NetDMR is a national web-based tool for regulated CWA permittees to submit DMRs electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR can be found on the EPA Region 1 NetDMR website located at url: http://www.epa.gov/region1/npdes/netdmr/index.html.

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To learn more about upcoming trainings, please visit the EPA Region 1 NetDMR website http://www.epa.gov/region1/npdes/netdmr/index.html .

The Draft Permit also includes an "opt-out" request process. Permittees who believe they cannot use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA at least sixty (60) days prior to the date the facility would otherwise be required to begin

using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the permittee must submit DMRs to EPA using NetDMR, unless the permittee submits a renewed opt-out request sixty (60) days prior to expiration of its opt-out, and such a request is approved by EPA.

In most cases, reports required under the permit shall be submitted to EPA as an electronic attachment through NetDMR, subject to the same six month time frame and opt-out provisions as identified for NetDMR. Certain exceptions are provided in the permit such as for the submittal of pre-treatment reports and for providing written notifications required under the Part II Standard Permit Conditions. Once a permittee begins submitting reports to EPA using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

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

IX. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection with jurisdiction over the receiving water certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of MassDEP have reviewed the Draft Permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the Draft Permit will be certified.

X. Public Comment Period and, Procedures for Final Decision

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the United States Environmental Protection Agency, 5 Post Office Square-Suite 100, Mailcode OEP06-1, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the Draft Permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

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

XI. EPA and MassDEP Contacts

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

Betsy Davis
US Environmental Protection Agency
5 Post Office Square – Suite 100
Mailcode: OEP06-1
Boston, MA 02109-3912
Telephone: (617) 918-1576
Facsimile: (617) 918-0045
davis.betsy@epa.gov

or

Claire Golden
Massachusetts Department of Environmental Protection
Division of Watershed Management
205 B Lowell Street
Wilmington, MA 01887
Telephone: (978) 694-3244
Facsimile: (978) 694-3498
claire.golden@state.ma.us

Date: 8/6/14

Ken Moraff, Director
Office of Ecosystems Protection
U.S. Environmental Protection Agency

Attachment A of the Fact Sheet*
Southbridge Wastewater Treatment Plant
Summary of NPDES Permit Reporting Requirements

Permit page#	Requirements and Dates	Submit to:
8	Whole Effluent Toxicity Tests results are March 31, June 30, September 30, and December 31	EPA/MassDEP
11	Collection System Mapping, 30 months of the effective date of the permit	
12	Collection System Operation and Maintenance Plan, 6 months of the effective date of the permit	EPA/MassDEP
12	Full Collection System Operation and Maintenance Plan, 24 months of the effective date of the permit	EPA/MassDEP
13	Annual Collection System Operation and Maintenance Plan, March 31, annually	EPA/MassDEP
15	Sludge Report, February 19, annually	EPA/MassDEP
15	Local Limits Evaluation, 120 days from the effective date of the permit	EPA
16	Annual Pretreatment Report, March 1, annually	EPA/MassDEP
16	The permittee shall submit a report of the evaluation on nitrogen optimization at the facility within six months of the effective date of the permit.	EPA/MassDEP
17	Nitrogen Optimization Report, April 1, annually	EPA/MassDEP
17	Aluminum Compliance Report	EPA/MassDEP
17-20	Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the effective date of the permit. Monitoring results and reports shall be submitted electronically using NetDMR, no later than six months from the effective date of the permit (unless there is a reasonable basis that precludes the use if NetDMR as described in Section G, Monitoring and Reporting of the permit).	EPA/MassDEP

* If there is any difference between the information in this attachment and the permit, the terms and conditions in the permit are the effective requirement.

tachment B	Southbridge Wastewater Treatment Facility - Discharge Monitoring Report Data							Attachment B	Southbridge
MONITORING PERIOD END DATE	Flow (Mgal/d)	Flow (Mgal/d)	BOD, 05 day, 20 C (mg/l)	BOD, 05 day, 20 C (mg/l)		BOD, 5-day, percent removal	Dissolved Oxygen (mg/l)	MONITORING PERIOD END DATE	pH (s.u.)
	Monthly Average	Annual Average	Daily Maximum	Monthly Average	Monthly Average	Monthly Minimum	Daily Minimum		Minimum
1/31/2009	2.40	2.93	7.00	4.00		98.00	8.00	1/31/2009	6.90
2/28/2009	2.33	2.88	6.00	5.00		96.00	8.00	2/28/2009	6.80
3/31/2009	2.96	2.68	10.00	9.00		93.00	8.30	3/31/2009	6.90
4/30/2009	2.93	2.58	11.00		5.00	98.00	7.50	4/30/2009	6.70
5/31/2009	2.23	2.57	3.00		2.00	99.00	7.00	5/31/2009	6.80
6/30/2009	1.87	2.56	3.00		2.00	98.00	6.20	6/30/2009	6.80
7/31/2009	2.81	2.57	4.00		3.00	98.00	5.00	7/31/2009	6.80
8/31/2009	2.25	2.65	4.00		3.00	98.00	7.50	8/31/2009	6.90
9/30/2010	1.72	2.63	3.00		2.00	99.00	6.40	9/30/2009	5.00
10/31/2009	1.81	2.54	2.00		2.00	98.00	7.90	10/31/2009	6.90
11/30/2009	1.94	2.51	5.00	3.00		96.00	9.00	11/30/2009	6.88
12/31/2010	2.58	2.45	6.00	3.00		98.00	7.00	12/31/2009	6.80
1/31/2009	2.38	2.32	4.00	3.00		98.00	9.00	1/31/2010	6.90
2/28/2010	2.52	2.33	5.00	4.00		96.00	9.00	2/28/2010	6.89
3/31/2010	4.13	2.43	6.00	3.00		98.00	6.30	3/31/2010	6.90
4/30/2010	2.43	2.98	6.00		3.00	98.00	8.50	4/30/2010	6.40
5/31/2010	1.85	2.40	3.00		2.00	98.00	7.00	5/31/2010	6.90
6/30/2010	1.79	2.40	3.00		3.00	98.00	7.00	6/30/2010	6.90
7/31/2010	1.60	2.29	4.00		2.00	99.00	7.00	7/31/2010	6.80
8/31/2010	1.51	2.23	3.00		3.00	98.00	6.70	8/31/2010	6.70
9/30/2010	1.81	2.24	3.00		2.00	99.00	7.00	9/30/2010	6.80
10/31/2010	2.12	2.26	3.00		2.00	99.00	8.00	10/31/2010	6.40
11/30/2010	2.12	2.28	6.00	3.00		98.00	8.00	11/31/2010	6.80
12/31/2010	2.82	2.30	6.00	4.00		98.00	9.00	12/31/2010	7.00
1/31/2011	2.21	2.29	9.00	4.00		98.00	8.00	1/31/2011	7.00
2/28/2011	2.47	2.28	8.00	4.00		97.00	10.00	2/28/2011	7.00
3/31/2011	5.04	2.36	9.00	3.00		96.00	7.00	3/31/2011	6.90
4/30/2011	3.05	2.36	3.00		2.00	98.00	9.00	4/30/2011	6.90
5/31/2011	2.23	2.39	3.00		2.00	98.00	8.00	5/31/2011	6.90
6/30/2011	2.15	2.42	6.00		3.00	98.00	7.30	6/30/2011	6.90
7/31/2011	1.87	2.44	4.00		3.00	98.00	6.60	7/31/2011	6.90
8/31/2011	2.68	2.54	3.00		2.00	98.00	6.30	8/31/2011	6.60
9/30/2011	3.47	2.68	3.00		2.00	97.00	4.20	9/30/2011	6.50
10/31/2011	2.77	2.73	3.00		2.00	98.00	7.00	10/31/2011	6.90
11/30/2011	3.08	2.81	14.00	4.00		96.00	8.00	11/30/2011	7.00
12/31/2011	3.09	2.84	3.00	2.00		98.00	8.80	12/31/2011	7.00
1/31/2012	2.60	2.87	3.00	2.00		99.00	9.00	1/31/2012	7.00
2/29/2012	2.27	2.85	6.00	4.00		98.00	9.00	2/29/2012	6.90
3/31/2012	2.30	2.63	3.00	2.00		98.00	8.60	3/31/2012	6.80
4/30/2012	2.04	2.55	2.00		2.00	99.00	8.60	4/30/2012	6.80

5/31/2012	1.99	2.53	3.00		3.00	98.00	8.00	5/31/2012	6.90
6/30/2012	1.78	2.50	3.00		2.00	98.00	7.00	6/30/2012	6.80
7/31/2012	1.72	2.48	4.00		3.00	98.00	7.00	7/31/2012	7.00
8/31/2012	1.67	2.40	4.00		2.00	98.00	6.80	8/31/2012	6.90
9/30/2012	1.74	2.26	4.00		2.00	98.00	6.50	9/30/2012	6.90
10/31/2012	1.80	2.17	7.00		3.00	98.00	6.40	10/31/2012	6.70
11/30/2012	1.81	2.08	2.00	20.00		99.00	7.70	11/30/2012	6.80
12/31/2012	2.29	2.00	4.00	3.00		97.00	7.90	12/31/2012	6.80
1/31/2013	2.52	2.00	4.00	4.00		98.00	8.90	1/31/2013	6.70
2/29/2013	2.04	2.39	4.00	6.00		97.00	9.80	2/29/2013	7.00
3/31/2013	3.22	2.52	4.00	6.00		96.00	9.60	3/31/2013	7.20
4/30/2013	1.14	2.54	4.00		3.00	98.00	8.70	4/30/2013	7.10
5/31/2013	1.39	2.49	4.00		3.00	98.00	7.60	5/31/2013	6.90
6/30/2013	3.48	2.57	4.00		3.00	97.00	5.00	6/30/2013	6.80
7/31/2013	1.62	2.12	4.00		2.00	98.00	5.88	7/31/2013	6.90
8/31/2013	0.97	2.06	4.00		2.00	98.00	6.80	8/31/2013	6.90
9/30/2013	1.41	2.50	3.00		3.00	98.00	6.10	9/30/2013	6.80
10/31/2013	1.85	2.47	4.00		2.00	98.00	6.00	10/31/2013	6.90
11/30/2013	1.40	2.41	3.00	2.00		99.00	7.60	11/30/2013	7.00
12/31/2013	2.15	2.37	2.00	2.00		98.00	10.80	12/31/2013	7.10
06 Draft Per	3.77	Report	Report	20.00	10.00	85.00	6.00	2006 Draft Permit	6.50
Minimum	0.97	2.00	2.00	2.00	2.00	93.00	4.20	Minimum	5.00
Maximum	5.04	2.98	14.00	20.00	5.00	99.00	10.80	Maximum	7.20
Average	2.27	2.47	4.55	4.36	2.49	97.78	7.60	Average	6.83
Standard Deviation	0.71	0.22	2.33	3.62	0.66	1.01	1.28	Standard Deviation	0.28
# Measurements	60.00	60.00	60.00	25.00	35.00	60.00	60.00	# Measurements	60.00
# Exceeds Limits	2			0	0	0	4	# Exceeds Limits	3
								* seasonal monitoring an	

e Wastewater Treatment Facility - Discharge Monitoring Report Data Attachment B Southbridge Wastewater Treatmen

pH (s.u.)	Fecal Coliform, 400/100mL *	Fecal Coliform, 200/100mL *	Aluminium, mg/l	Copper, Total (ug/l)	Total Residual Chlorine (mg/l)*	MONITORING PERIOD END DATE	Total Residual Chlorine (mg/l)		Total Suspe (TSS)
Maximum	Daily Maximum	Monthly Average	Monthly Average	Monthly Average	Daily Maximm		Monthly Average	Daily Maximm	Monthly Average
7.30			0.12	10.00		1/31/2009		8.00	6.00
7.70			0.08	9.80		2/28/2009		6.00	5.00
7.20			0.13	9.00		3/31/2009		13.00	10.00
7.20	70.00	12.00	0.14	8.00		4/30/2009		13.00	
7.10	10.00	10.00	0.07	7.00		5/31/2009		4.00	
7.10	20.00	11.00	0.08	5.00		6/30/2009		4.00	
7.10	100.00	15.00	0.13	8.00		7/31/2009		12.00	
7.30	310.00	27.00	0.09	6.00		8/31/2009		8.00	
7.20	30.00	12.00	0.20	14.00		9/30/2009		6.00	
7.20	10.00	10.00	0.25	15.00		10/31/2009		8.00	
7.51			0.20	13.00		11/30/2009		7.00	5.00
7.30			0.26	10.00		12/31/2009		8.00	5.00
7.10			0.10	9.00		1/31/2010		8.00	3.00
7.30			0.00	0.00		2/28/2010		5.00	4.00
7.30			0.06	3.00		3/31/2010		6.00	5.00
7.20	10.00	10.00	0.06	0.00	2200.00	4/30/2010	70.00	4.00	
7.10	10.00	10.00	0.13	11.00		5/31/2010		6.00	
7.20	30.00	13.00	0.23	11.00		6/30/2010		7.00	
7.20	60.00	15.00	0.46	7.00	380.00	7/31/2010	30.00	7.00	
7.20	60.00	19.00	0.23	9.00		8/31/2010		7.00	
7.20	160.00	17.00	0.23	8.00		9/30/2010		8.00	
7.30	160.00	22.00	0.18	4.00	210.00	10/31/2010	20.00	5.00	
7.50			0.14	0.00		11/31/2010		12.00	2.00
7.50			0.15	3.00		12/31/2010		3.00	4.00
7.50			0.20	5.00		1/31/2011		7.00	5.00
7.50			0.23	6.00		2/28/2011		8.00	6.00
7.80			0.88	16.00		3/31/2011		9.00	11.00
7.30	10.00	10.00	0.09	3.00	14.	4/30/2011	5.00	28.00	
7.20	10.00	10.00	0.24	8.00	236.	5/31/2011	15.00	4.00	
7.30	10.00	10.00	0.14	7.00	6.	6/30/2011	6.00	8.00	
7.40	20.00	11.00	0.29	15.00	19.	7/31/2011	8.00	12.00	
7.50	140.00	28.00	0.12	7.00	30.	8/31/2011	9.00	11.00	
7.10	30.00	13.00	0.20	4.00	276.	9/30/2011	25.00	9.00	
7.80			0.18	6.00	48.	10/31/2011		14.00	
7.50			0.17	4.00		11/30/2011		7.00	5.00
7.40			0.07	1.00		12/31/2011		3.00	2.00
7.20			0.08	5.00		1/31/2012		2.00	1.00
7.30			0.13	4.00		2/29/2012		6.00	3.00
7.40			0.13	2.00		3/31/2012		4.00	2.00
7.40	10.00	8.00	0.07	0.00	22.	4/30/2012	8.00	1.90	

7.20	10.00	10.00	0.12	0.00	13.	5/31/2012	6.00	3.00	
7.30	30.00	11.00	0.18	4.00	18.	6/30/2012	8.00	4.00	
7.40	20.00	12.00	0.12	4.00	31.	7/31/2012	11.00	4.00	
7.30	40.00	15.00	0.12	6.00	18.	8/31/2012	7.00	4.00	
7.30	10.00	10.00	0.14	3.00	13.	9/30/2012	7.00	4.00	
7.30	110.00	15.00	0.16	3.00	11.	10/31/2012	5.00	3.00	
7.60			0.21	4.70		11/30/2012		5.00	4.00
7.40			0.13	3.00		12/31/2012		4.00	3.00
7.30			0.16	2.00		1/31/2013		5.00	4.00
7.50			0.22	3.00		2/29/2013		7.00	4.00
7.60			0.10	0.00		3/31/2013		5.00	2.00
7.40	11.00	5.00	0.14	0.00	11.	4/30/2013		4.00	
7.30	23.00	6.00	0.15	0.00	23.	5/31/2013		5.00	
7.50	667.00	25.00	0.27	3.00	667.	6/30/2013		9.00	
7.30	36.00	8.00	0.07	0.00	36.	7/31/2013		2.00	
7.40	38.00	8.00	0.06	2.00	38.	8/31/2013		2.00	
7.40	17.00	8.00	0.08	3.00	17.	9/30/2013		5.00	
8.00	17.00	8.00	0.08	2.00	17.	10/31/2013		6.00	
7.70			0.11	6.00		11/30/2013		3.00	2.00
7.50			0.08	0.00		12/31/2013		1.20	0.90
8.50	400.00	200.00	0.28	16.00	60.00	2006 Draft Permit	35.00	Report	20.00
7.10	10.00	5.00	0.00	0.00	6.00	Minimum	5.00	1.20	0.90
8.00	667.00	28.00	0.88	16.00	2200.00	Maximum	70.00	28.00	11.00
7.36	67.62	12.76	0.16	5.36	181.42	Average	15.00	6.57	4.16
0.19	123.33	5.63	0.12	4.22	458.05	Standard Deviation	16.46	4.14	2.42
60.00	34.00	34.00	60.00	60.00	24.00	# Measurements	16.00	60.00	25.00
0	1	0	3	0	4	# Exceeds Limits	1		0
d reporting only						* seasonal monitoring and reporting only			

t Facility - Discharge Monitoring R			Attachment B	Southbridge Wastewater Treatment Facility - Discharge M					Attachment B
nded Solids (mg/l)	TSS percent removal	Phosphorus, Total, mg/l*	MONITORING PERIOD END DATE	Phosphorus, Total, mg/l*	Phosphorus, Total, mg/l*	Orthophosphate, Total, mg/l*	Nitrogen Ammonia, Total, mg/l*	Nitrogen Ammonia, Total, mg/l*	MONITORING PERIOD END DATE
Monthly Average	Monthly Minimum	Monthly Average		Daily Maximum	Monthly Average	Monthly Average	Maximum Daily	Monthly Average	
	94.00		1/31/2009	0.27	0.21	0.00			1/31/2009
	95.00		2/28/2009	0.18	0.16	0.00			2/28/2009
	90.00		3/31/2009	0.33	0.25	0.01			3/31/2009
6.00	97.00	0.20	4/30/2009				10.00	5.00	4/30/2009
3.00	98.00	0.12	5/31/2009						5/31/2009
3.00	97.00	0.20	6/30/2009						6/30/2009
4.00	97.00	0.30	7/31/2009						7/31/2009
5.00	98.00	0.20	8/31/2009						8/31/2009
5.00	97.00	0.20	9/30/2009						9/30/2009
5.00	95.00	0.20	10/31/2009						10/31/2009
	96.00		11/30/2009	0.30	0.20	0.07			11/30/2009
	97.00		12/31/2009	0.27	0.18	0.00			12/31/2009
	96.00		1/31/2010	0.17	0.12	0.00			1/31/2010
	97.00		2/28/2010	0.15	0.09	0.00			2/28/2010
	96.00		3/31/2010	0.20	0.10	0.00			3/31/2010
2.00	98.00	0.07	4/30/2010				10.00	6.00	4/30/2010
4.00	97.00	0.12	5/31/2010						5/31/2010
5.00	98.00	0.20	6/30/2010						6/30/2010
5.00	99.00	0.28	7/31/2010						7/31/2010
4.00	98.00	0.20	8/31/2010						8/31/2010
5.00	97.00	0.30	9/30/2010						9/30/2010
3.00	98.00	0.10	10/31/2010						10/31/2010
	98.00		11/31/2010	0.10	0.07	0.00			11/31/2010
	98.00		12/31/2010	0.20	0.10	0.00			12/31/2010
	98.00		1/31/2011	0.24	0.15	0.02			1/31/2011
	92.00		2/28/2011	0.20	0.18	0.02			2/28/2011
	84.00		3/31/2011	0.70	0.30	0.06			3/31/2011
3.00	98.00	0.10	4/30/2011				4.00	5.00	4/30/2011
3.00	98.00	0.10	5/31/2011						5/31/2011
4.00	98.00	0.10	6/30/2011						6/30/2011
6.00	96.00	0.30	7/31/2011						7/31/2011
4.00	97.00	0.40	8/31/2011						8/31/2011
6.00	92.00	0.14	9/30/2011						9/30/2011
6.00	95.00	0.10	10/31/2011						10/31/2011
	92.00		11/30/2011	0.14	0.11	0.05			11/30/2011
	98.00		12/31/2011	0.07	0.05	0.01			12/31/2011
	99.00		1/31/2012	0.07	0.05				1/31/2012
	96.00		2/29/2012	0.18	0.10	0.14			2/29/2012
	98.00		3/31/2012	0.13	0.07	0.16			3/31/2012
1.00	99.00	0.05	4/30/2012				0.30	0.20	4/30/2012

2.00	98.00	0.08	5/31/2012						5/31/2012
3.00	98.00	0.20	6/30/2012						6/30/2012
3.00	98.00	0.40	7/31/2012						7/31/2012
2.00	99.00	0.14	8/31/2012						8/31/2012
2.00	99.00	0.10	9/30/2012						9/30/2012
2.00	98.00	0.10	10/31/2012						10/31/2012
	98.00		11/30/2012	0.17	0.11	0.02			11/30/2012
	96.00		12/31/2012	0.16	0.11	0.01			12/31/2012
	96.00		1/31/2013	0.15	0.12	0.01			1/31/2013
	97.00		2/29/2013	0.18	0.14	0.00			2/29/2013
	97.00		3/31/2013	0.13	0.09	0.00			3/31/2013
3.00	97.00	0.10	4/30/2013				12.00	8.00	4/30/2013
3.00	99.00	0.09	5/31/2013						5/31/2013
4.00	99.00	0.70	6/30/2013						6/30/2013
1.00	96.00	0.07	7/31/2013						7/31/2013
2.00	99.00	0.10	8/31/2013						8/31/2013
2.00	99.00	0.11	9/30/2013						9/30/2013
2.00	99.00	0.10	10/31/2013			0.02			10/31/2013
	99.00		11/30/2013	0.14	0.10	0.00			11/30/2013
	98.00		12/31/2013	0.04	0.04				12/31/2013
13.00	85.00	0.20	2006 Draft Permit	1.50	1.00	Report	Report	10.00	2006 Draft Permit
1.00	84.00	0.05	Minimum	0.04	0.04	0.00	0.30	0.20	Minimum
6.00	99.00	0.70	Maximum	0.70	0.30	0.16	12.00	8.00	Maximum
3.51	96.83	0.18	Average	0.19	0.13	0.03	7.26	4.84	Average
1.46	2.55	0.13	Standard Deviation	0.13	0.06	0.04	4.91	2.87	Standard Deviation
35.00	60.00	35.00	# Measurements	25.00	25.00	24.00	5.00	5.00	# Measurements
0	1	0.00	# Exceeds Limits	0	0			0	# Exceeds Limits
			* seasonal monitoring and reporting only						* seasonal m

Southbridge Wastewater Treatment Facility - Discharge Monitoring Report Data

Nitrogen Ammonia, Total, mg/l*	Nitrogen Ammonia, Total, mg/l*	Nitrogen Ammonia, Total, mg/l*	Nitrogen Ammonia, Total, mg/l*
Maximum Daily	Monthly Average	Maximum Daily	Monthly Average
5.30	1.99		
		0.40	0.20
		0.30	0.20
		2.60	0.68
		2.00	0.50
		0.20	0.10
0.60	0.30		
		0.40	0.20
		0.14	0.11
		0.20	0.20
		0.20	0.10
		0.40	0.10
3.00	1.00		
		0.40	0.30
		0.30	0.30
		2.60	2.40
		2.00	1.60
		0.20	0.20

0.26	0.19		
		0.30	0.30
		0.40	0.40
		0.30	0.30
		0.30	0.20
		0.20	0.20
0.70	0.30		
		5.70	2.60
		0.38	0.24
		0.30	0.20
		0.30	0.20
		1.00	0.40
8.00	5.00	2.00	1.30
0.26	0.19	0.14	0.10
5.30	1.99	5.70	2.60
1.97	0.76	0.86	0.49
2.15	0.76	1.26	0.68
5.00	5.00	25.00	25.00
0	0	3	3
ıonitoring and reporting only			

Attachment C - Effluent and Ambient Hardness Data from Whole Effluent Toxicity Tests
Southbridge WWTP, MA0100901

Effluent Hardness

Date	Sample 1	Sample 2	Sample 3	Average
11/1/2013	270	230	190	230.00
8/1/2013	280	290	310	293.33
5/1/2013	220	220	220	220.00
2/1/2013	140	130	120	130.00
11/1/2012	170	170	170	170.00
8/1/2012	190	200	220	203.33
5/1/2012	190	170	170	176.67
2/1/2012	130	120	120	123.33
11/1/2011	150	150	160	153.33
8/1/2011	220	160	190	190.00
5/1/2011	230	270	270	256.67
2/1/2011	140	150	150	146.67
11/1/2010	120	120	120	120.00
8/1/2010	170	200	160	176.67
5/1/2010	160	190	190	180.00
2/1/2010	140	140	140	140.00
11/1/2009	210	220	200	210.00
8/1/2009	150	170	180	166.67
5/1/2009	130	140	120	130.00
2/1/2009	97	110	110	105.67
Median				**173**

Ambient Hardness

Date	Sample 1	Sample 2	Sample 3	Average
11/1/2013	26	25	26	25.67
8/1/2013	25	25	27	25.67
5/1/2013	27	27	29	27.67
2/1/2013	26	28	25	26.33
11/1/2012	28	28	27	27.67
8/1/2012	30	29	29	29.33
5/1/2012	23	24	23	23.33
2/1/2012	22	23	23	22.67
11/1/2011	19	20	19	19.00
8/1/2011	26	19	21	22.00
5/1/2011	25	27	28	26.67
2/1/2011	28	31	31	30.00
11/1/2010	30	30	26	28.67
8/1/2010	39	37	38	38.00
5/1/2010	25	25	25	25.00
2/1/2010	25	24	25	24.67
11/1/2009	27	27	29	27.67

8/1/2009	26	23	25	24.67
5/1/2009	22	25	24	23.67
2/1/2009	29	26	29	28.00
Median				**26**

Attachment D - Whole Effluent Toxicity Test Chemistry Data
Southbridge WWTP, MA0100901

Metals-Quinebaug River Water*, ug/l

Date	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
11/1/2013	<20 ND	<0.5ND	<2ND	<0.5ND	<2ND	<2ND
8/1/2013	52	<0.5ND	3	0.8	<2ND	5
5/1/2013	57	<0.5ND	<2ND	0.7	<2ND	4
2/1/2013	38	<0.5ND	<2ND	<0.5ND	<2ND	3
11/1/2012	65	<0.5ND	6	0.9	<2ND	8
8/1/2012	53	<0.5ND	1	1	1	2
5/1/2012	61	<0.5ND	4	0.6	1	2
2/1/2012	34	<0.5ND	1	0.25	1	3
11/1/2011	64	<0.5ND	11	1	1	2.5
8/1/2011	82	<0.5ND	1	2	1	6
5/1/2011	77	<0.5ND	6	2	1	5
2/1/2011	47	<0.5ND	1	0.8	1	4
11/1/2010	62	<0.5ND	1	0.8	1	19
8/1/2010	51	<0.5ND	3	1	1	7
5/1/2010	61	<0.5ND	5	1	7	8
2/1/2010	10	<0.5ND	12	0.8	1	14
11/1/2009	70	<0.5ND	3	0.8	<2ND	9
8/1/2009	100	<0.5ND	3	1.2	<2ND	11
5/1/2009	80	<0.5ND	<2ND	1	<2ND	4
2/1/2009	40	<0.5ND	3	0.5	<2ND	14
Median**	**61**	**<0.5ND**	**3**	**0.85**	**<2ND**	**5**

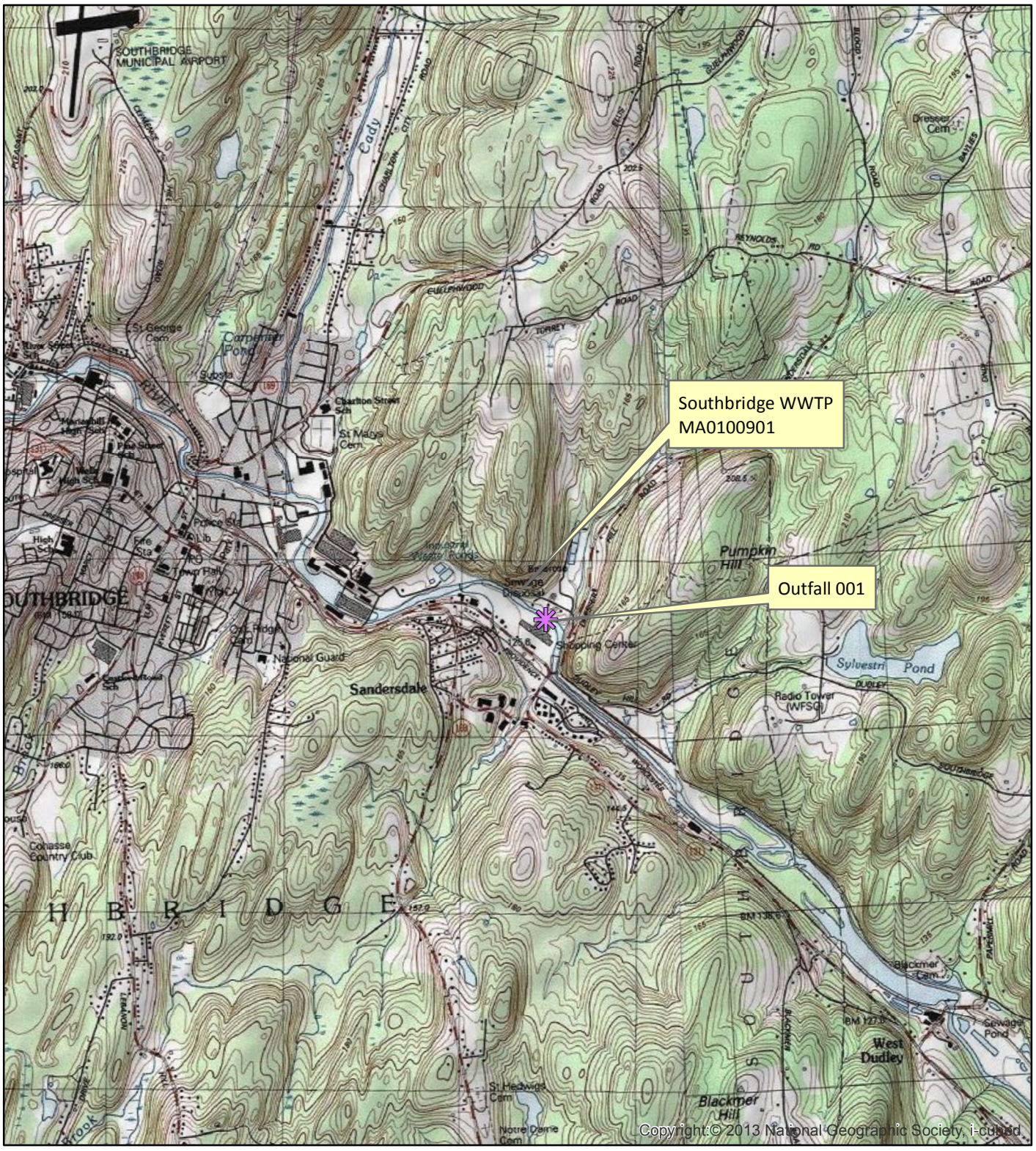
* Quinebaug River Water is collected upstream of the discharge pipe.

**The Median is calculated using the entire data set for each metal. Metals reported below the minimum detection level are written as ND/<0.5 or ND/<2 and one half the minimum detection level (0.25 and 1) is used to calculate the median.

Metals - Treatment Plant Effluent, ug/l

Date	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
11/1/2013	97	<0.5ND	5	0.5ND	13	23
8/1/2013	48	<0.5ND	7	0.5ND	7	15
5/1/2013	22	<0.5ND	3	0.6	8	32
2/1/2013	200	<0.5ND	2	0.5ND	6	14
11/1/2012	170	<0.5ND	6	0.5ND	10	14
8/1/2012	91	<0.5ND	4	0.5	7	13
5/1/2012	73	<0.5ND	1	0.5	6	18
2/1/2012	15	<0.5ND	7	0.5	3	15
11/1/2011	160	<0.5ND	7	0.8	6	14
8/1/2011	94	<0.5ND	11	0.5	8	13
5/1/2011	120	<0.5ND	2	0.8	8	22
2/1/2011	200	<0.5ND	3	1	4	28

11/1/2010	140	<0.5ND	3	0.5	4	19
8/1/2010	160	<0.5ND	8	0.6	6	20
5/1/2010	160	<0.5ND	1	1	8	46
2/1/2010	20	<0.5ND	16	3	8	41
11/1/2009	19	<0.5ND	8	0.7	5	24
8/1/2009	280	<0.5ND	9	0.6	5	26
5/1/2009	130	<0.5ND	4	0.6	9	17
2/1/2009	120	<0.5ND	10	0.9	<2ND	36



Scale 1 : 31,404

0 500 Meters

0 1,000 2,000 Feet

Regulated Facilities: EPA

FIGURE 1
Southbridge WWTP

Southbridge, MA

EPA

4/15/2014

Figure 2. Flow Process Control

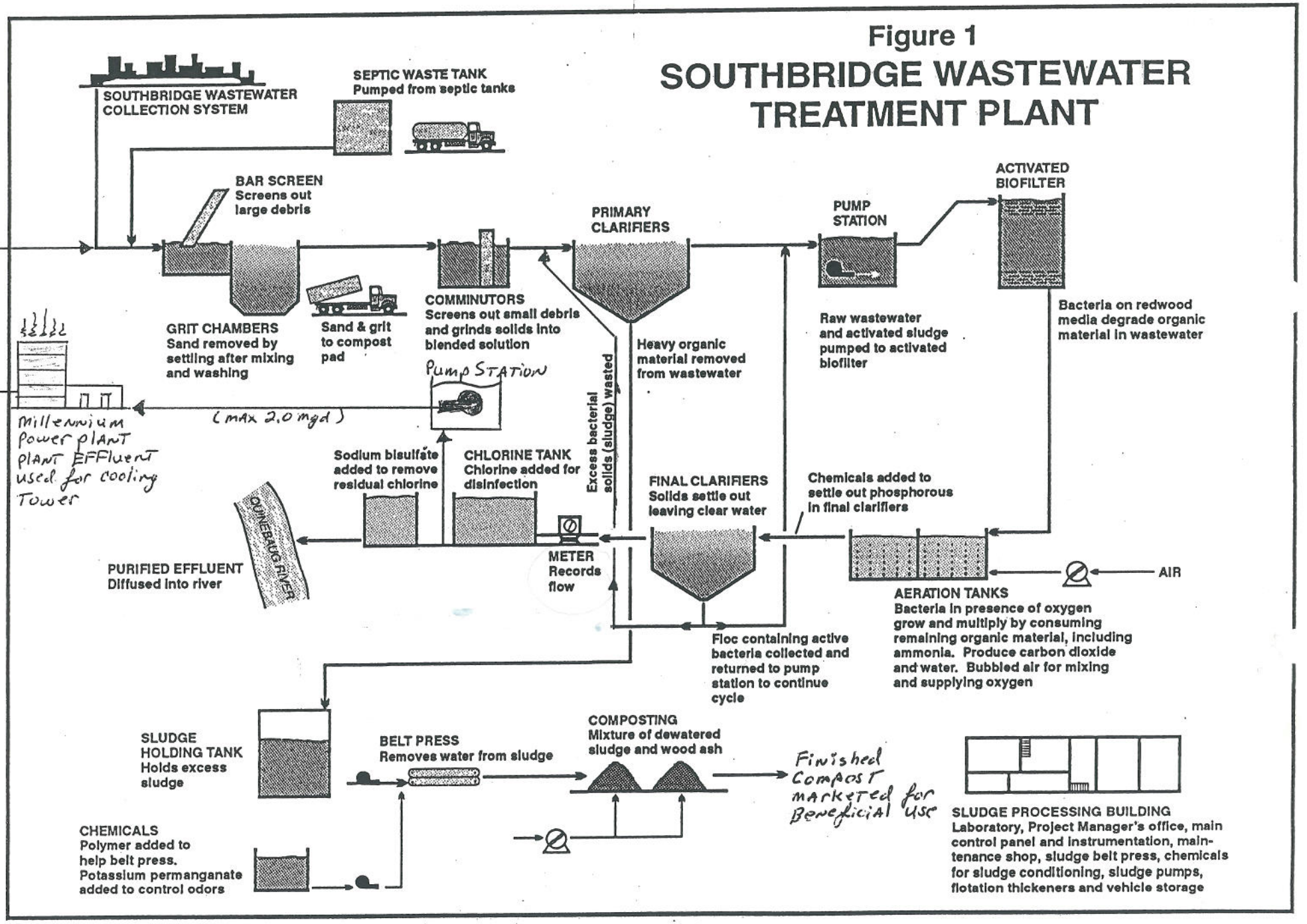


Exhibit A
Nitrogen Loads

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

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 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)

Procedures for a pH Adjustment Demonstration Project

This document describes the procedures to adjust the pH limits in an NPDES permit. The limits may be adjusted as long as the pH of the effluent remains between 6.0-9.0 (standard units) and the pH of the receiving water remains between 6.5-8.0 or as naturally occurs. Please note that a pH limits adjustment is valid only for the duration of the existing NPDES permit. A subsequent pH limits adjustment demonstration project can be conducted and submitted with a NPDES permit reapplication or anytime thereafter (in accordance with the State Permit Conditions and Special Conditions sections of the NPDES permit).

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

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

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

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

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

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

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

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

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

6. Taking precautions to minimize sample agitation, mix the receiving water and effluent samples in four separate (glass) containers in the following proportions:

   - 1 @ the facility↘s dilution factor

   - 1 @ 20% above the facility↘s dilution factor (1.2 x dilution factor)

   - 1 @ 20% below the facility↘s dilution factor (0.8 x dilution factor)

   - 1 @ 40% below the facility↘s dilution factor (0.6 x dilution factor)

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

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

Please include description of the critical low flow of the receiving stream and verify your facility's dilution factor and calculate the volumes of effluent and receiving water that should be combined for each of the four mixtures.

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

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

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

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

RESPONSE TO COMMENTS
NPDES PERMIT NO. MA0100901
SOUTHBRIDGE WASTEWATER TREATMENT PLANT
SOUTHBRIDGE, MASSACHUSETTS

In accordance with the provisions of 40 C.F.R. §124.17, this document presents the United States Environmental Protection Agency's (EPA) responses to comments received on the Draft National Pollution Discharge Elimination System (NPDES) Permit, #MA0100901. The response to comments explains and supports the EPA determinations that form the basis of the final permit. From August 13, 2014 to September 11, 2014, the EPA and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a Draft NPDES permit, #MA0100901, developed pursuant to a permit application from the Town of Southbridge, for the reissuance of a NPDES permit to discharge treated wastewater from outfall number 001 to the Quinebaug River in Southbridge, Massachusetts.

On September 11, 2014, the Town of Southbridge (the "Town") submitted comments via email on the Town's Draft Permit to EPA Region 1. EPA responded to the comments and they are part of the administrative record. EPA determined that the comments did not raise any substantial new questions concerning the Southbridge Wastewater Treatment Plant permit. EPA found the comments informative, and made minor adjustments to the final permit based on the comments.

The final permit, essentially the same as the Draft Permit that was available for public comment, has been adjusted minimally as a result of the Town's comments. The changes to the Final Permit are described below and explained briefly in the Responses to Comments.

A copy of the final permit and this response to comment document will be posted on the EPA Region 1 web site: http://www.epa.gov/region1/npdes/permits_listing_ma.html.

A copy of the final permit may also be obtained by writing or calling Betsy Davis, United States Environmental Protection Agency, 5 Post Office Square, Suite 100 (Mail Code: OEP06-1), Boston, Massachusetts 02109-3912; Telephone (617) 918-1576.

Changes from the Draft Permit to the Final Permit

Pages 2-4 of 20:
The monitoring frequency for BOD_5 and TSS have been changed to 2 times per week.
The monitoring frequency for ammonia in April and May has been changed to 2 times per week and the monitoring frequency for total phosphorus from November through March has been changed to 2 times per week.

(See Response to Comment #1)

Page 7 of 20: The first paragraph of footnote #7 in the Final Permit now reads,

> "Total residual chlorine monitoring is required whenever chlorine is added to the treatment process (i.e. TRC sampling is not required if chlorine is not added for disinfection or other purpose). The limitations are in effect year-round. The sampling frequency is 2 times per day during regular operating business hours, Monday through Friday and once per day on weekends and holidays. The TRC samples shall be collected concurrently with the fecal coliform and E.coli limits.

Page 17 of 20: A 36-month compliance schedule has been added to the final permit for achieving the aluminum effluent limit. The purpose of this schedule is to allow the Town time to characterize sources of aluminum in the effluent and to analyze alternative treatment for meeting the limit. The Town is required to submit annual reports describing progress made toward attaining the aluminum limit.

(See Response to Comment # 4.)

Page 3 of 20: The frequency of in-stream monitoring for total phosphorus is once per month and the sample type is grab.

(See Response to Comment # 5.)

Pages 2-4 of 20: The distance of the sampling location in the Final Permit has been changed from 25 inches to 25 feet.

(See Response to Comment # 8.)

Page 16 of 20: Section F. Nitrogen Optimization of the Final Permit: The requirement to submit an evaluation report has been deleted from the Final Permit.

(See Response to Comment # 9.)

The Final Permit has address changes from those in the Draft Permit for submitting reports to the MassDEP. The permittee should send reports to the MassDEP at the addresses shown in Section H, Monitoring and Reporting, #6, State Reporting and #7 NetDMR Opt-Out Requests of the Final Permit.

COMMENTS FROM THE TOWN OF SOUTHBRIDGE

Comment #1: The sampling frequency increase to three (3) times per week (from the current frequency of two (2) per week) for BOD, TSS, Ammonia and Phosphorus as described on Pages 2-4 of 21 in the Draft Permit.

Discussion: The Applicant would like to make all parties aware that a discharge of 400 to 500 gpm from the WWTP is continuous to the Quinebaug River regardless of the Effluent withdrawal from the Millennium Power Plant. Static mixers are located at the base of the chlorine contact chambers prior to dechlorination, and are regulated to provide a continuous flow of dechlorinated effluent to the discharge structure of the WWTP. The flow paced, 24 hour composite sampling is controlled by the "treated" effluent flow meter which takes more samples per volume than would be required if the flow meter was on the discharge to the river. With that in mind, the Applicant finds that sampling three (3) times per week is unnecessary for BOD, TSS, Ammonia & phosphorus to obtain representative samples of the effluent discharge. The additional cost of analysis, manpower usage and potential sampling schedules to meet a three (3) times per week sampling program with a one shift per day operation is excessive for this plant.

Requested Relief/Revision: *The Applicant requests the current two (2) times per week sampling/analysis remains in effect for BOD, TSS, Ammonia and Phosphorus in the new permit.*

Response to Comment #1. A review of the Town's discharge monitoring report (DMR) data for BOD_5, and TSS supports the Town's request to maintain the monitoring frequency requirements at 2 times per week (the same as in the Town's 2006 Permit) and the monitoring frequency has been changed in the Final Permit. The DMR data for ammonia in April and May and total phosphorus from November through March also supports the current monitoring frequency of twice per week and the Final Permit has been adjusted accordingly.

The DMR data for ammonia from June through October and total phosphorus from April through October show several exceedances of the monthly average limit for each parameter during the permit cycle and the monitoring frequency shall remain at 3 times per week for this permit cycle.

Comment #2: The sampling frequency increase to two (2) times per day for Total Residual Chlorine (TRC) as described on Page 2 of 21 in the Draft Permit.

Discussion: The WWTP is staffed with one shift per day, Monday through Friday and a four hour shift for coverage on Saturdays, Sundays and Holidays. The increase in sampling and analysis for Total Residual Chlorine (TRC) from once per day to two times per day will cause a significant increase in laboratory staff hours. The weekend shift time becomes very difficult with the addition of another 20-25 minute sampling and analysis for TRC. Also, the TRC is recorded on 24 hour chart recorder with continuous ORP instrument monitoring.

Requested Relief/Revision: *Therefore, the Applicant requests that the current once per day sampling/analysis remain in effect for TRC in the new permit. If that will not be possible, then, at a minimum, the Applicant requests the weekend/holiday shifts be limited to once per day sampling/analysis, during chlorination season.*

Response to Comment #2: The presence of chlorine compounds in water from disinfection of wastewater can be highly toxic to aquatic life subsisting in the river. DMR data for this parameter provides a means of assessing the effectiveness of the disinfection process.

There have been several exceedances of the maximum daily permit limit and one monthly average exceedance since reissuance of the 2006 NPDES Permit. The data shows several of the exceedances are considerably higher than the calculated maximum daily limit of 60 µg/l in the Draft Permit, one as high as 2200 ug/l. Additionally, due to the low dilution at the point of discharge (less than a 10 to 1 ratio), minor variations in the amount of residual chlorine discharged may have a greater negative effect on the quality of the receiving water. For these reasons, the Final Permit maintains an increase in the monitoring frequency for this parameter from Monday through Friday and due to staffing limitations a once per day monitoring frequency on weekends and holidays.

The permittee is encouraged to evaluate state-of-the-art chlorination systems that enable operators to have adequate control over the amount of chlorine added to the effluent or the use of alternatives, such as ultraviolet disinfection since such systems eliminate the risk of toxicity from chlorine and chlorine by-products.

Comment #3: The only acceptable method for testing trace metals being the Furnace Atomic Absorption method (EPA Method 220.2) as described on Page 13 of the 2014 Fact Sheet.

Discussion: The most updated analytical method for effluent copper, which is performed by a certified outside lab, uses ICP MS Mass spectrophotometer (Trace metals by 200.8) with a

minimum (ML) of detection at 2 µg/L. This ML is below the required level of 3 µg /L and well within permit limits.

Requested Relief/Revision: *The Applicant requests that this method (ICP MS 200.8) for Trace metals be incorporated into the permit as acceptable, along with the Furnace Atomic Absorption analytical method (EPA Method 220.2).*

Response to Comment #3: The ICP MS 200.8 method has already been approved by EPA to analyze copper. See 40 CFR 136.3, Table 1.B, List of Approved Inorganic Test Procedures for a list of approved methods for analyzing metals.

Paragraph 3 of footnote 3, in the Draft Permit state, "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." The same language is in the Final Permit.

Comment #4: The reduced average monthly permit limit of Aluminum to 0.144 mg/L (from the current limit of 0.28 mg/L) as described on Page 3 of 21 in the Draft Permit.

Discussion: The *Applicant* understands the potential for Aluminum toxicity in the receiving stream and has already been minimizing the use of aluminum based chemicals in the summer months as part of the phosphorus optimization process that was developed several years ago. Rental equipment has been used for Ferric Chloride addition and the *Applicant* is working on the design/installation of a permanent Ferric & polymer feed system.

Requested Relief/Revision: *The Applicant requests that the current 0.28 mg/L Aluminum permit limit stay in effect as an interim limit for 3 years to allow for design and construction of a new chemical feed system. Once the 3 year interim period is up, the 0.144 Aluminum limit would take effect.*

Response to Comment #4: The schedule of compliance to achieve the more stringent aluminum limit has been extended to three years for design and construction of a chemical feed system for ferric chloride. The compliance schedule requires annual progress reports be submitted to EPA

Comment #5: The sampling frequency of three (3) times per week for Total Phosphorus as well as the 24-hr composite sample type as described on Page 3 of 21 in the Draft Permit.

Discussion: In regard to in-stream Total Phosphorus monitoring, the Applicant would like more information on the method required and the need for a 24-hr composite sample that is flow proportional or 24 Grab samples taken over a 24 hour period. There is no river flow meter to provide flow proportional sampling and the WWTP is staffed eight hours per day. Trying to meet this requirement is extremely difficult and burdensome on plant staff. Also, the permit requires 3 times per week but is listed as 1 time per month under footnote 10. It is unknown which one would be expected.

Requested Relief/Revision: *The Applicant requests that this monitoring criterion be removed from the permit.*

Response to Comment #5: The frequency of the in-stream sampling requirement has been corrected on page 3 of the Final Permit to once per month and the sampling method has been changed to grab.

Comment #6: The average monthly effluent limit for Total Phosphorus between April 1 and October 31 of 0.200 mg/L as described on Page 3 of 21 in the Draft Permit.

Discussion: In regard to the Total Phosphorus seasonal (April 1 – October 31) limitation of 0.2 mg/L, the Applicant has successfully met this limit and will continue to apply the phosphorus optimization and removal strategies derived from a study performed approximately 3 years ago. The study is entitled, "Report on Full Scale Phosphorus Removal; Plant Optimization Tests", prepared by Veolia Water North America - Northeast LLC, dated September 2012. The Applicant is concerned that the EPA, based on language in the Draft Permit Fact Sheet (pages 20-22 of the Fact Sheet), could re-open the permit to revise Total Phosphorus limits. Tighter permit limits could be extremely difficult to achieve with chemical addition alone and would probably require a significant capital improvement (i.e. effluent filtration).

Requested Relief/Revision: *The Applicant requests that if the need for more stringent permit limits are needed for Total Phosphorus the limit of 0.2 mg/L would remain in effect under the current Draft Permit (5 year period) so the Applicant would have time to develop a strategy to meet more stringent limits in future permits.*

Response to Comment #6: The general conditions in Part II (NPDES Part II Standard Conditions) of the permit has a reopener clause that gives the Regional Administrator the authority to reopen a permit at any time to establish appropriate effluent limitations or a schedule of compliance to bring all discharges into compliance with the requirements of the Clean Water Act.

The Agency will work with the Town to develop a reasonable compliance schedule and/or an administrative order if the phosphorus limits need to be revised during this permit cycle.

Comment #7: The toxicology testing frequency as described on Pages 24-26 of the 2014 Fact Sheet.

Discussion: In regard to toxicity testing, Pages 25 and 26 of the Fact Sheet show thirteen consecutive toxicity tests within permit compliance. The permit allows for reduced sampling requirements after four consecutive tests.

Requested Relief/Revision: *The Applicant requests the new permit to include the reduction to a 2x per year toxicity testing requirement.*

Response to Comment #7: The number of species used in each Whole Effluent Toxicity tests for this permit reissuance has been reduced to one. The Agencies approach to reductions in the number of toxicity tests required annually considers test results and the dilution factor for the receiving water. For treatment plants that discharge to a surface water with a dilution factor of greater than 100, the risk of toxicity from the discharge is typically considerably less than if the dilution factor is less than 10. A dilution factor of 3.2 was calculated for this permit based on the 7Q10 of the receiving water and the treatment plant design flow as shown in the fact sheet. EPA considers four toxicity tests per year the minimum required when the dilution factor is less than 10.

The language in footnote 13 allowing a reduction in the number of required tests is not applicable for this discharge and it has been deleted from the Final Permit.

Comment # 8: The Sampling Location of "manhole 25" from outfall 001."

Discussion: The permit Sampling Location is incorrect; referencing inches instead of feet.

Requested Relief/Revision: *The permit Sampling Location should be changed from "manhole 25" from outfall 001," to read "manhole 25' from outfall 001," on Pages 2-5 of the Draft Permit.*

Response to Comment #8: The distance from the manhole to the outfall has been corrected from 25 inches from the outfall to 25 feet from the outfall, in the Final Permit.

Comment # 9: The evaluation of the WWTP's nitrogen optimization requirement as described on Pages 16 and 17 of 21 in the Draft Permit.

Discussion: The Applicant participated in an evaluation of the WWTP for Nitrogen Optimization with NEIWPCC/JJ Environmental. A report concerning the evaluation, entitled, "Technical Memorandum – Low Cost Retrofits for Nitrogen Removal at Wastewater Treatment Plans in the Upper Long Island Sound Watershed", dated August 20, 2014 (Final Memo) and prepared by JJ Environmental, LLC and NEIWPCC, is provided with this response. The Applicant requests that the report be accepted as the study to meet the requirements for such an evaluation within six (6) months of the effective date of the permit, as described in the first paragraph of Section F of the Draft Permit.

Requested Relief/Revision: *The Applicant requests that Section F be revised to recognize and reference the NEIWPCC/JJ Environmental report as satisfying the requirements for an evaluation of alternative methods to optimize the removal of nitrogen.*

Response to Comment #9: EPA commends the Town for participating in the New England Interstate Water Pollution Control Commission (NEIWPCC) project and has reviewed the NEIWPCC report attached to the comments submitted on the Draft Permit. According to the report, the Town was eliminated for further participation in the study based on the sample results of effluent ammonia (reported at 0.15 mg/l), the concentration of Nox (reported at 6.1 mg/l) and final effluent total nitrogen concentration reported at 6.6 mg/l). EPA agrees the limited data appears good.

The evaluation report to be submitted 6 months from the effective date of the Final Permit is no longer necessary and this requirement has been deleted from the Final Permit. The annual summary report on optimizing nitrogen removal efficiencies and documenting the annual nitrogen discharge load remains a requirement of the Final Permit.

Comment #10: The 375 lb/day limit of total nitrogen discharge as described on Pages 16 and 17 of the Draft Permit.

Discussion: In Section F of the Draft Permit, the last sentence in the first paragraph reads: "The permitee shall implement the recommended operational charges in order to not exceed a monthly average mass discharge of total nitrogen of 375 pounds per day." The Applicant has already been diligent and continues to be diligent to reduce the discharge of Total Nitrogen into the Quinebaug River. As the Applicant continues to remove I/I within the collection system to reduce wet weather flow to the WWTP and continues with the current process control strategies it is requested that the Applicant not be placed under a 375 lb/day limit while progress is being made at the WWTP/collection system with capital improvements. It should be known that the Applicant

recently raised sewer use rates by 15% to raise capital monies to improve the Wastewater Treatment operations. Furthermore, based on current 2014 effluent analysis at a 2.27 MGD flow rate (Avg. from Draft Permit Attachment B) and a Total nitrogen concentration of 6.8 mg/L (Feb & June 2014 actual results) the Southbridge WWTP is discharging 129 lbs/day for TN which is already achieving a 66% reduction from the 375 lb/day calculated with 2004-2005 discharge data. A cold weather, high flow event could cause a short term permit violation if a lbs/day limit is imposed while nitrification is "naturally inhibited" and this would unfairly impose an "isolated event violation" on the facility based on an annual average contribution of nitrogen to the Quinebaug, French and Thames river watershed.

The Applicant would prefer more data collection via the 1 time per week analysis for total nitrogen so a more accurate "actual annual contribution of nitrogen" to the watershed, from the Southbridge WWTP can be determined. At that point a limit could be calculated and put into the next 5 year permit cycle, if needed.

Requested Relief/Revision: *The Applicant requests that Section F of the Draft Permit be revised by deleting the lbs/day nitrogen limit and inserting in lieu thereof a "Monitor Only" requirement for reporting in the new 5 year permit cycle. During the 2019 permit cycle a lb/day limit could be evaluated for incorporation into future permits, if necessary.*

Response to Comment #10: EPA encourages the Town to continue to optimize nitrogen removal at the treatment plant since nitrogen from POTWs is a major source of eutrophication in freshwater and marine waters. As explained in the fact sheet, the estimated 2004-2005 annual average total nitrogen load from the Town's treatment plant was 375 pounds per day. In an effort to achieve the conditions in the Long Island Sound Total Maximum Daily Load (TMDL), EPA has limited the monthly average mass discharge of total nitrogen in NPDES permit in Massachusetts and New Hampshire that discharge is to the Connecticut, Housatonic or Thames watershed. The mass limit will help ensure that the out-of-basin total nitrogen aggregate calculated is maintained. EPA also considers it important to document and track nitrogen optimization efforts undertaken by the Town to meet the requirements of the TMDL.

Comment #11: The reporting milestones for the Collection System Mapping, as described on Pages 11-13 of 21 in the Draft Permit.

Discussion: The Applicant has been proactive in efforts to find Inflow & Infiltration (I/I) within the collection system and has taken a "Find & Fix" approach. Several liners have been installed in the collection system, grouting work has been done, root control applied, pipe repairs and inflow dishes installed in suspect manholes. The WWTP staff jet cleans 9.0 miles and TV's 4.5 miles of collection system as an annual routine. I/I studies have been completed and utility mapping has taken place on a computerized platform. Some upgrades have been made at pumping stations and capital monies are now available to keep that improvement program going.

Requested Relief/Revision: *The Applicant is requesting an extension of time for all Collection System Mapping. The Applicant requests three years rather than 30 months, from the effective date of the permit, to complete the full O&M plan and collection system mapping in place and to remove the (6) month and (24) month reporting milestones from the new permit. The Applicant will submit annual progress reports as outlined by March 31 of each year.*

Response to Comment #11: EPA commends the Town for its "Find & Fix" approach of reducing I/I. From the discussion above and the facility's annual I/I reports, it appears the Town

has been committing resources to the critical and on-going task of reducing I/I. A collection mapping system is a primary tool for efficient collection system maintenance and repairs.

It is unclear why an additional six months is needed to complete the collection system mapping and full O&M plan. The Town has already completed utility mapping on a computerized platform and several of the permit requirements such as the preventative maintenance program and maintaining adequate staff are requirements that were in the previous permit that presumably have been factored into the Town's budget and schedules for managing the POTW.

The revised Capacity, Management, Operation and Maintenance (CMOM) language and requirements have been standard permit requirements in all NPDES permits for Publicly Owned Treatment Works (POTWs) in Massachusetts since 2011. EPA and MassDEP met with the Town and its consultants for a site visit in April 2012 to discuss the NPDES renewal process and the Town was notified that the renewed permit would include updated CMOM requirements. The CMOM requirements in the Final Permit remain the same as in the Draft Permit.

Comment #12: The Total Copper limits of 0.016 mg/L monthly average and 0.022 mg/L daily maximum as described on Page 2 of 21 in the Draft Permit.

Discussion: The Applicant understands the need for controlling copper in the WWTP effluent so the site specific criteria developed by MA SWQS are not exceeded. Mass DEP adopted an acute dissolved copper criterion of 0.0257 mg/l and a chronic dissolved criterion of 0.0181 mg/L for the Quinebaug River from river mile 19.7 to 7.9. Southbridge being at river mile 12 is included in the site specific zone. The Applicant is placing emphasis on the "Dissolved" site specific criterion outlined in the fact sheet. The proposed permit has "Total" copper limits at 0.016 mg/L monthly and 0.022 mg/L daily maximum concentrations. The draft permit limits are being stringently applied to the Applicant's treatment plant based on "facility performance" which was driven by the requirement to meet past permit limits that were not site specific. EPA & DEP should take into account the new "site specific allowances" in the draft permit. The bases for performing site specific analysis is to apply the "actual" river physical, chemical and biological considerations and not just applying the National criteria. It should be noted that Southbridge has been one of the leaders in the removal of copper from the plant effluent since 1998 and would like to be considered for a relaxation of permit limits to get closer to Site Specific Criteria Based Limits of 0.051 mg/L chronic and 0.075 mg/L acute. The impact on the Applicant's budget is significant to purchase chemicals for copper treatment and could be better spent on capital improvements.

Requested Relief/Revision: *The Applicant requests the monthly average and maximum daily limits on Page 2 of 21 of the Draft Permit be revised to be 0.046 mg/l and 0.067 mg/L, respectively, to make use of the site specific criteria and allow a 10% safety factor.*

Response to Comment #12: As discussed in the fact sheet, the analysis of the copper limits were based on the anti-backsliding provision of the Clean Water Act 402(o) and 303(d)(4) and the MassDEP issued guidance titled, " Protocol for and Determination of Site Specific Copper Criteria for Ambient Waters In Massachusetts". The requirements of 303(d)(4) of the CWA have been met, however the calculated site-specific copper criteria based limits does not meet the requirements of the State's guidance. Page 7 of the guidance explains, that the Department will develop copper limits on a case-by-case basis and each determination will be based not only on the adjusted concentration resulting from the appropriate multiplier but that copper limits must also reflect the demonstrated level of copper reduction rountinely achievable at the facility in order to minimize copper loads and thereby reduce accumulation in the sediment.

The data range for copper submitted on the discharge monitoring reports from January 2009 through July 2014 is non-detect to 16 ug/l. EPA believes that increasing the permit limits would be contrary to the State's guidance.

Comment #13: The pH range of 6.5-8.3, as described on Page 2 of 21 and 9 of 21 in the Draft Permit.

Discussion: The pH limit range in the Draft Permit is 6.5-8.3 and references both MA SWQS 314 CMR 4, and 40 C.F.R 133.102(c). The 40 C.F.R 133.102(c) sets the rate at 6.0-9.0. Ferric chloride is used at the WWTP to assist in the removal of phosphorus. Ferric is utilized as it is a non-aluminum based coagulant that has proven effective in the removal of phosphorus. One of the effects of using coagulants (including ferric chloride) is that it will reduce the pH of the effluent. The new Draft Permit also establishes an effluent phosphorous limit, which could result in the use of additional ferric chloride. The use of additional ferric chloride will further suppress the pH.

Requested Relief/Revision: *Therefore, in order for the Applicant to consistently meet its phosphorus limit, we request that the permit pH range be set at 6.0-8.3 in the Draft Permit (Page 2 of 21 and Page 9 of 21, Paragraph I.A.1.b).*

Response to Comment #13: EPA is unable to determine whether or not adjusting the minimum pH limit to 6.0 s.u. will cause an excursion of the minimum pH standard for a Class B water defined in 314 CMR 4.05 (3)(b) but, has an obligation under the Clean Water Act to establish permit limits that achieve state water quality standards. The Massachusetts State Water Quality Standards (MA SWQS) antidegradation provision at 314 CMR 4.04 (1) require, "in all cases existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." The minimum pH to protect existing uses that include protection of habitat for fish, other aquatic life and wildlife that is necessary for their reproduction, migration, growth and other critical functions for a Class B water is 6.5 s.u.

In considering the Town request, EPA reviewed the water quality criterion for alkalinity, (20 mg/l) and the alkalinity of the receiving water. Alkalinity is important for fish and other aquatic life in freshwater systems since it buffers pH that occur naturally in a waterbody. See EPA's "Quality Criteria for Water" or "Gold Book" (1986) for a summary on the Agency's recommendation of acceptable limits for aquatic life protection, http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009_01_13_criteria_goldbook.pdf.

Receiving water alkalinity data from the treatment plant's recent whole effluent toxicity test shown below are all less than the recommended criterion of 20 mg/l and would be unable to provide the capacity necessary to buffer a rapid change in pH in the receiving water.

Date	Upstream pH	Receiving Water Alkalinity	Effluent pH	Effluent Alkalinity
May 2014	7.30	9.2	7.24	77
February 2014	7.25	12	7.52	88
November 2013	7.45	13	7.60	66
August 2013	7.40	16	7.43	81
May 2013	7.36	13	7.48	78
February 2013	7.34	9.7	7.43	110

November 2012	7.18	14	7.54	82
August 2012	7.39	18	7.40	62
May 2012	7.23	12	7.48	80
February 2012	7.11	10	7.35	73

Based on this limited data, the Agency has decided to issue the Final Permit with pH limits based on state water quality standards for a Class B water.

EPA recommends the Town complete a pH adjustment demonstration project during this permit cycle to provide data that is necessary to determine if lowering the minimum pH to 6.0 s.u. will ensure the receiving water remains within the pH range of a Class B water, 6.5-8.3 standard units with not more than 0.5 standard units outside of the receiving water background range. The results of the project can be submitted with the Town's next NPDES Application. "Procedures for a pH Adjustment Demonstration Study" provide instructions on conducting the project and is included as an enclosure with the final permit documents.