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 Ware
Department of Public Works

is authorized to discharge from the facility located at

Ware Wastewater Treatment Plant
30 Robbins Road
Ware, MA 01082

to receiving water named

Ware River

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

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

This permit expires at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on May 1, 2007.

This permit consists of 19 pages in Part I Part I including effluent limitations and monitoring requirements, 25 pages in Part II including General Conditions and Definitions, Attachment A – 2007 Revised Freshwater Chronic Toxicity Test Protocol, Attachment B - NPDES Permit Requirement for Industrial Pretreatment Annual Report, Attachment C - Reassessment of Technically Based Local Limits, and Attachment D - Summary of Required Report Submittals.

Signed this 2nd day of September, 2013.

/S/ SIGNATURE ON FILE

Ken Moraff, Acting Director Office of Ecosystem Protection Environmental Protection Agency Boston, MA	David R. Ferris, Director Massachusetts Wastewater Management Program Department of Environmental Protection Commonwealth of Massachusetts Boston, MA

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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 Ware 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**
FLOW[2]	*********	*********	1.0 MGD	*********	Report MGD	CONTINUOUS	RECORDER
FLOW[2]	*********	*********	Report MGD	*********	*********	CONTINUOUS	RECORDER
BOD_5 [4]	208 lbs/Day	208 lbs/Day	25 mg/L	25 mg/L	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TSS[4]	208 lbs/Day	208 lbs/Day	25 mg/L	25 mg/L	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
pH RANGE[1]	6.5 - 8.3 SU (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
ESCHERICHIA COLI [1,6] April 1st – October 31st	*********	**********	126 cfu/100 mL	*********	409 cfu/100 mL	1/WEEK	GRAB
TOTAL RESIDUAL CHLORINE[1,7] April 1st – October 31st	*********	**********	116 µg/L	*********	200 µg/L	1/DAY	GRAB
TOTAL COPPER[8,14]	*********	**********	9.0 µg/L	*********	17.9 µg/L	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL ALUMINUM[9,14]	*********	**********	96 µg/L	*********	*********	1/MONTH	24-HOUR COMPOSITE[5]

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A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from treated effluent from outfall serial number **001** to the Ware 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 PHOSPHORUS April 1st - October 31st	*********	*********	584 µg/L	1.0 mg/L	1.5 mg/L	2/WEEK	24-HOUR COMPOSITE[5]
TOTAL PHOSPHORUS November 1st - March 31st	*********	*********	1.0 mg/L	*********	Report mg/L	1/WEEK	24-HOUR COMPOSITE[5]
ORTHO-PHOSPHORUS, DISSOLVED November 1st - March 31st	*********	*********	*********	Report mg/L	*********	1/WEEK	24-HOUR COMPOSITE[5]
AMMONIA-NITROGEN June 1st – October 31st	*********	*********	1.0 mg/L	1.0 mg/L	1.5 mg/L	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL KJELDAHL NITROGEN	*********	*********	Report mg/L	*********	*********	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL NITRATE NITROGEN	*********	*********	Report mg/L	*********	*********	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL NITRITE NITROGEN	*********	*********	Report mg/L	*********	*********	1/MONTH	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [10, 11, 12,13] Acute LC_{50} Chronic C-NOEC Aluminum Cadmium Chromium Copper Lead Nickel Zinc Hardness	 ≥ 100% ≥10% Report maximum daily µg/L Report maximum daily µg/L Report maximum daily µg/L Report maximum daily µg/L Report maximum daily µg/L Report maximum daily µg/L Report maximum daily µg/L Report maximum daily mg/L					4/YEAR	24-HOUR COMPOSITE[5]

Footnotes:

1. Required for State Certification.

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

3. Effluent sampling shall be of the discharge from the dechlorination chamber. 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. The monthly average limit for *E. coli* is expressed as a geometric mean. *E. coli* monitoring shall be conducted concurrently with a total residual chlorine sample.

7. Total residual chlorine monitoring is required whenever chlorine is added to the treatment. The limitations are in effect from April 1st through October 31st. The permittee is not authorized to discharge chlorine during the winter months.

   The minimum level (ML) for total residual chlorine is defined as 20 µg/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 µg/L, compliance/non-compliance will be determined based on the ML. Sample results of 20 µg/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 µg/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 µg/L. Sampling results of 3 µg/L or less shall be reported as zero on the Discharge Monitoring Report.

9. The aluminum sample shall be taken concurrently with one of the total phosphorus samples.

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

Test Dates 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	Ceriodaphnia dubia (daphnid)	≥ 100%	≥ 10%

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

12. 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 10% or greater" limit is defined as a sample which is composed of 10% (or greater) effluent, the remainder being dilution water.

13. 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**.

14. The Permittee shall comply with the aluminum and copper limits in accordance with the facility upgrade schedule contained in Section F below. In the interim, the facility shall be operated in order to minimize the use of aluminum compounds to the extent practicable while meeting its total phosphorus and total suspended solids limits.

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 DEP 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 on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up to date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

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

h. Other major appurtenances such as inverted siphons and air release valves;
i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
j. The scale and a north arrow; and
k. The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow.

5. Collection System Operation and Maintenance Plan

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

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

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

b. The full Collection System O & M Plan shall be completed, implemented and submitted to EPA and MassDEP within 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 [0.8 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.

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

D. SLUDGE CONDITIONS

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

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

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

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

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

   c. Sewage sludge incineration in a sludge only incinerator

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

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

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

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

determining the applicable requirements.[2]

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

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

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

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

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

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

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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

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

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

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

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

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

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

3. The permittee shall provide the EPA and MassDEP with an annual report describing the permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in Attachment D of this permit and shall be submitted no later than **November 28** 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 1'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. SPECIAL CONDITIONS

1. Compliance Schedules for Aluminum and Copper

   The permittee shall attain the monthly average aluminum and copper limits according to the following schedule:

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

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

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

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

e. The limits shall go into effect forty-eight (48) months after the effective date of the permit.

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

2. Optimizing Nitrogen Removal Efficiency - Within **one year of the effective date of the permit**, the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen, and submit a report to EPA and MassDEP documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. The permittee shall implement the recommended operational changes to maintain the mass discharge of total nitrogen less than the existing annual average discharge load. The annual average total nitrogen load from this facility (2004-2005) is estimated to be 58 lbs/day.

After submittal of the Initial Nitrogen Optimization Report, the permittee shall also submit an annual report to EPA and MassDEP, **by February 1 each year**, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous year.

G. MONITORING AND REPORTING

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

form and for submittal using NetDMR are described below:

a. Submittal of Reports Using NetDMR

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

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

b. Submittal of NetDMR Opt-Out Requests

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

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

And

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

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period. All reports required under this permit, including MassDEP Monthly Operation and Maintenance Reports, shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

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

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

MassDEP – Western Region
Bureau of Resource Protection
436 Dwight Street, Suite 402
Springfield, MA 01103

Copies of toxicity tests and nitrogen optimization reports only to:

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

Any verbal reports, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA-New England and to MassDEP.

H. STATE PERMIT CONDITIONS

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

contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

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

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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

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

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

2. Permit Actions

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

3. Duty to Provide Information

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

4. Reopener Clause

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

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

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

5. Oil and Hazardous Substance Liability

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

6. Property Rights

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

7. Confidentiality of Information

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

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

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

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

8. Duty to Reapply

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

9. State Authorities

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

10. Other Laws

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

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

b. Bypass not exceeding limitations

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

c. Notice

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

d. Prohibition of bypass

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

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

5. Upset

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

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

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

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

e. Twenty-four hour reporting.

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

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

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

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

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

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

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

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

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

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

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

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

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

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

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

EPA means the United States "Environmental Protection Agency".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Commonly Used Abbreviations

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

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

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

FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic (and modified acute) 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 and modified acute toxicity data shall be reported as outlined in Section VIII. The chronic fathead minnow and daphnid test data can be used to calculate an LC50 at the end of 48 hours of exposure when both acute (LC50) and chronic (C-NOEC) test endpoints are specified in the permit.

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. DILUTION WATER

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

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

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

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

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

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

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

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
One Congress St., Suite 1100
Boston, MA 02114-2023

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
One Congress Street, Suite 1100
Boston, MA 02114-2023

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 IC25s and LC50 values and ≥ two concentration intervals for NOECs or NOAECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

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

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

VI. CHEMICAL ANALYSIS

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

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

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

Notes:

1. Hardness may be determined by:

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

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

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

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

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

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

2. Test Variability (Test Sensitivity)

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

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

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

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

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

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

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

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

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

2. *Pimephales promelas*

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

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

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

3. *Ceriodaphnia dubia*

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

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

In addition to the summary sheets the report must include:

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

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.

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)

Summary of Required Report Submittals*

Required Report	Date Due	Submitted by:	Submitted to:
Chlorination System Report (Part I.A.1. Footnote 9)	With monthly DMRs, if interruption or malfunction of the chlorine dosing system occurs (See Footnote 9).	Newburyport WPCF	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205A Lowell Street Wilmington, MA 01887
Whole Effluent Toxicity Test Report (Part I.A.1. Footnote 10)	By February 28th, March 31st, August 31st and November 30th of each year	Newburyport WPCF	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205A Lowell Street Wilmington, MA 01887
			MassDEP Division of Watershed Management Surface Water Discharge Permit Program 627 Main Street, 2nd Floor Worcester, MA 01608
Notification of SSO discharge	Within 24 hours	Newburyport WPCF	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205A Lowell Street Wilmington, MA 01887

Required Report	Date Due	Submitted by:	Submitted to:
Collection System Mapping (Part I.C.4)	Within 30 months of the effective date	Newburyport WPCF	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205A Lowell Street Wilmington, MA 01887
Initial Collection System Operation and Maintenance Plan (Part I. C.5.a)	Within 6 months of the effective date	Newburyport WPCF	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205A Lowell Street Wilmington, MA 01887
Full Collection System Operation and Maintenance Plan (Part I. C.5.a)	Within 24 months of the effective date	Newburyport WPCF	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205A Lowell Street Wilmington, MA 01887

Required Report	Date Due	Submitted by:	Submitted to:
Annual Summary Report of Activities related to implementation of Collection System O & M Plan	Annually by March 31	Newburyport WPCF	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205A Lowell Street Wilmington, MA 01887
Local Limits Technical Evaluation (Part I.B.1)	Within 120 days of the effective date	Newburyport WPCF	EPA New England Attn: Justin Pimpare 5 Post Office Square Mail Code: OEP6-3 Boston, MA 02109-3912
			MassDEP Bureau of Waste Prevention Industrial Wastewater Program One Winter Street Boston, MA 02108
Annual Pretreatment Report (Part I. B.3)	Annually by March 1	Newburyport WPCF	EPA New England Attn: Justin Pimpare 5 Post Office Square Mail Code: OEP6-3 Boston, MA 02109-3912
			MassDEP Bureau of Waste Prevention Industrial Wastewater Program One Winter Street Boston, MA 02108

* This table is a summary of the reports required to be submitted under this NPDES permit as an aid to the permittee(s). If there are any discrepancies between the permit and this summary, the permittee(s) shall follow the permit requirements.

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)			

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION 1
FIVE POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

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

NPDES PERMIT NUMBER: MA0100889

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

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Ware
Department of Public Works
4 ½ Church Street
Ware, Massachusetts 01082

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Ware Wastewater Treatment Plant
30 Robbins Road
Ware, Massachusetts 01082

RECEIVING WATER(S):

Ware River (Segment MA 36-06)
Chicopee River Basin

RECEIVING WATER CLASSIFICATION(S): B - Warm Water Fishery, CSO*

* Although this segment is classified as a CSO (combined sewer overflow) in the 2006 standards, there are currently no CSOs in this segment. Future standards will reflect this fact.

Table of Contents

Figures

Appendices

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

The facility's discharge outfalls are listed below:

Outfall	Description of Discharge	Receiving water	Outfall Location
001	Treated Effluent	Ware River	42º 15' 1" N 72° 15' 1" W

The above named applicant has applied to the U.S. Environmental Protection Agency ("EPA") for the reissuance of its NPDES permit to discharge into the designated receiving waters. The facility collects and treats domestic wastewater, septage, and industrial wastewater. The discharge from this secondary wastewater treatment facility is via Outfall 001 to the Ware River (See Figure 1 – Facility Location Map).

The Town of Ware Wastewater Treatment Plant (WWTP) is a 1.0 million gallon per day (MGD) secondary wastewater treatment facility located in Ware, Massachusetts, serving a population of about 5,500. There is one industrial user contributing wastewater to this facility: Kanzaki Specialty Papers, which contributes approximately 54,500 gallons per day of process wastewater from paper coating operations.

The collection system is 100% separate sanitary sewers.

2. Description of Discharge

A quantitative description of the discharge based on recent monitoring data from July 2009 through June 2012 is shown in Appendix A.

3. Receiving Water Description

3.1 Designated Use

The Ware River is a Class B (Warm Water Fishery) waterbody. The Massachusetts Surface Water Quality Standards (MA SWQS) at 314 CMR 4.05(3)(b) state that Class B waters shall have the following designated uses:

"These waters are designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."

The Chicopee River Basin 2003 Water Quality Assessment Report indicates that the river segment receiving the Ware WWTP's discharge is attaining its uses for aquatic life and aesthetics with other uses not assessed. This river segment is listed the Massachusetts Year 2010 Integrated List of Waters [Clean Water Act, Section 303(d) list] as impaired and requiring a TMDL for fecal coliform. The

2003 assessment included an "Alert" status for the aquatic life use because of ongoing chronic and acute toxicity results from Ware WWTP's WET test. The assessment also noted sedimentation, undercut banks, and trash deposits on this segment.

The limits in the draft permit are based on information in the application, the existing permit, discharge monitoring reports, and a site visit.

3.2 Flow and Dilution Factor

The design flow of the facility is 1.0 MGD (1.55 cfs) and is unchanged since issuance of the current permit.

Water quality based limitations are established with the use of a calculated available dilution. 314 CMR 4.03(3)(a) requires that effluent dilution be calculated based on the receiving water 7Q10. The 7Q10 is the lowest observed mean river flow for 7 consecutive days, recorded over a 10-year recurrence interval. EPA calculated the 7Q10 and 30Q10 based on the flow at USGS gage 01173000 plus flow from the 90 square miles between the gage and the Ware outfall. This flow was calculated as follows:

7Q10 at USGS 011723000, Ware River at Intake Works Near Barre, MA = 5.84 cubic feet per second (cfs)
Drainage Area = 96.3 square miles

7Q10 at USGS 01173500, Ware River at Gibbs Crossing, MA = 15.8 cfs
Drainage Area = 197 square miles

Flow factor for area between USGS 01173000 and USGS01173500 =

(15.8 cfs – 5.84 cfs)/(197 sq. mi. – 96.3 sq. mi.) = 10 cfs/100.7 sq. mi. = 0.099 cfs/sq. mi.

Drainage Area at Outfall = 186 square miles

7Q10 = 5.84 cfs + 0.099 cfs/sq. mi x (186 sq. mi. – 96.3 sq. mi.) = **14.7 cfs = 9.49 MGD**

Ware WWTP design flow = 1.0 MGD x 1.55 cfs/MGD = 1.55 cfs

Dilution Factor = (Facility Flow + 7Q10)/Facility Flow
Dilution Factor = (1.55 cfs + 14.7 cfs)/1.55 cfs = **10.5**

4. Limitations and Conditions

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

5. Permit Basis: Statutory and Regulatory Authority

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

Under Section 301(b)(1)(B) of the CWA, publicly owned treatment works (POTWs) had to achieve effluent limitations based upon secondary treatment by July 1, 1977. The secondary treatment requirements are set forth in 40 CFR Part 133. The regulations describe the secondary treatment requirements for biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH. The average monthly and average weekly BOD_5 and TSS limitations are based on the requirements of 40 CFR §133.102. Numerical limitations for pH and *E. coli* are based on state certification requirements under Section 401(a)(1) of the CWA as described in 40 CFR §124.53 and state water quality standards in 314 CMR 4.05(3)(b) 3 and 4, respectively.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The MA SWQS, 314 CMR 4.00, include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless site specific criteria are established. The State will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained.

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

Also note that according to EPA regulations 40 CFR §122.44(l), when a permit is reissued, effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards or conditions in the previous permit, unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued. Additionally, MassDEP has developed and adopted a statewide antidegradation policy to maintain and protect existing in-stream water quality. The Massachusetts Antidegradation Provisions are found at 314 CMR 4.04. No lowering of water quality is allowed, except in accordance with the antidegradation provisions.

The limits in the draft permit are based on information in the application, the existing permit, a site visit, discharge monitoring reports, and toxicity test results.

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

6.1 Facility Information

The Ware WWTP is an advanced wastewater treatment facility with a design flow of 1.0 MGD, which discharges to the Ware River. The wastewater treatment consists of a grit removal chamber, aeration tanks, chemical addition for phosphorus removal, two secondary clarifiers, chlorination and dechlorination. Liquid sludge (290 metric tons per year) is stored in a holding tank at the WWTP and is pumped directly into tankers and transported offsite for incineration.

The facility's location and flow schematic are shown on Figures 1 and 2 of this fact sheet.

6.2 Permitted Outfalls

The outfall regulated in the draft permit is named 001.

6.3 Derivation of Effluent Limits under the Federal CWA and/or the Commonwealth of Massachusetts

BOD_5 and TSS

Under Section 301(b)(1)(B) of the CWA, POTWs had to achieve effluent limitations based on secondary treatment by July 1, 1977. The secondary treatment requirements for biochemical oxygen demand (BOD_5) and total suspended solids (TSS) are in 40 CFR §133. The 30-day average percent removal limit of at least 85% for BOD_5 and TSS is based on the requirements in 40 CFR §133.102.

The limits from the current permit, which are 25 mg/L average monthly and 25 mg/L average weekly and are based on water quality considerations. These limits, which are more stringent than secondary treatment requirements, will be carried over to the draft permit. The mass limits calculations for BOD_5 and TSS are below, and are also the same as the current permit. Monitoring frequency is once per week. From July 2009 through June 2012, Ware had one exceedance of its BOD limits, when the reported value for monthly average loading was 210 lbs/day, above the permit limit of 208 lbs/day. There were no exceedances of the TSS limits during that time period.

Mass limits: Flow x Concentration x Conversion Factor = lbs/day

Average monthly/weekly limit: 1.0 MGD x 25 mg/L x 8.34(lb)(L)/(mg)(gal) = 208 lbs/day

pH

The draft permit includes pH limitations that are required by state water quality standards and are at least as stringent as pH limitations set forth at 40 CFR § 133.102(c). The pH of the effluent shall not be less than 6.5 or greater than 8.3 standard units at any time. No violations of the pH limit occurred from July 2009 through June 2012. Monitoring frequency is once per day.

Escherichia coli

The current permit includes seasonal (April 1st – October 31st) limits for fecal coliform of 200 cfu/100 mL geometric monthly mean and 400 cfu/100 mL maximum daily value. From July 2009 through June 2012, there were three violations of the maximum daily limit and one violation of the geometric monthly mean limit (see Appendix A). The current permit also requires that an *Escherichia coli (E. coli)* sample be taken once per month from April through October concurrent with the fecal coliform sample, but does not include a limit.

The Commonwealth of Massachusetts promulgated *E. coli* criteria in the SWQS (314 CMR 4.00) on December 29, 2006, replacing fecal coliform bacteria criteria. These new criteria were approved by EPA on September 19, 2007.

The draft permit therefore includes *E. coli* limits and does not include fecal coliform limits or monitoring requirements. The *E. coli* limits for Outfall 001 proposed in the draft permit are in effect from April 1st through October 31st of each year. The limits are 126 colony forming units per 100 ml (cfu/100 ml) geometric monthly mean and 409 cfu/100 ml maximum daily value (this is the 90% distribution of the geometric mean of 126 cfu/100 ml). The past monitoring indicates that these limits would have been exceeded only once (April 2011). The proposed *E. coli* monitoring frequency in the draft permit is once per week and is consistent with the prior fecal coliform monitoring.

Total Residual Chlorine

The draft permit includes total residual chlorine (TRC) limitations, which are seasonal and are based on state water quality standards. Since the draft permit includes seasonal monitoring requirements and limitations for total chlorine residual, the permittee is not authorized to use or discharge chlorine from November 1st through March 31st. Chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The water quality criteria established for chlorine are 19 µg/L daily maximum and 11 µg/l monthly average in the receiving water (see National Recommended Water Quality Criteria: 2002). Given a dilution factor of 10.5, the residual chlorine limits have been set at 200 µg/L daily maximum and 116 µg/L monthly average.

Total Residual Chlorine Limitations:

(acute criteria * dilution factor) = Acute limit (Maximum Daily)
(19 µg/L x 10.5) = 200 µg/L

(chronic criteria * dilution factor) = Chronic limit (Monthly Average)
(11 µg/L x 10.5) = 116 µg/L

These limits are slightly more stringent than the limits in the current permit because of the reduced dilution factor. Past effluent data indicates that the facility has routinely achieved the proposed monthly average limit, but would have occasionally exceeded the more stringent maximum daily limit.

The permit also includes a requirement that the chlorination and dechlorination systems include alarms for indicating system interruptions or malfunctions and that interruptions or malfunctions be reported with the monthly compliance reports. This requirement is intended to supplement the grab

sampling requirements for chlorine and bacteria and is a recognition of the limitations of a grab sampling program for determining consistent compliance with permit limits.

Total Nitrogen

Excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a total maximum daily load (TMDL) for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a waste load allocation (WLA) for point sources and a load allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL.

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

Basin	Baseline Loading[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	940	1,015
Totals	26,211	19,657	17,002

The estimated current loading for the Ware WWTP used in the above analysis was 58 lbs/day, based upon a total nitrogen concentration of 9.4 mg/l and the average flow of 0.74 MGD (9.4 mg/L *0.74 MGD * 8.34), as indicated in the Facility's 2004 through 2005 DMRs. A review of the DMRs from July 2009 through June 2012 indicate that the monthly average total nitrogen load varied from 21 lbs/day to 154 lbs/day with an average value of 76 lbs/day, (refer to Appendix A for TKN and nitrite and nitrate monitoring results) which is more than the estimated loading of 58 lbs/day. Based on a review of the data, total nitrogen levels in the effluent have risen, and it appears that the facility is not denitrifying as effectively in recent years as it was during the baseline years. The permittee has indicated that the reduction in denitrification effectiveness indicated may be partly due to the buildup of solids from Kanzaki Specialty Papers in the aeration basins.

To ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25% reduction over 2004-2005 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

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

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 above the 2004-2005 baseline, and that their aggregate 25% reduction is maintained. Such a requirement has been included in this permit.

Specifically, the permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility 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 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 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 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, EPA strongly recommends that permittees consider alternatives for further enhancing nitrogen reduction in their facility planning.

Ammonia-Nitrogen

High levels of ammonia in the water column can be toxic to fish by making it more difficult for fish to excrete this chemical via passive diffusion from gill tissues. Ammonia toxicity varies with pH and temperature. Ammonia can also lower dissolved oxygen levels by conversion to nitrate/nitrate, which consumes oxygen.

The current permit includes a monthly average limit of 1 mg/l, a weekly average limit of 1 mg/l and a maximum daily limit of 1.5 mg/l during the period from June through October. These limits were established to limit the instream oxygen demand resulting from the nitrification of ammonia to nitrates. The 2007 Fact Sheet evaluated these limits and verified that they were in accordance with the 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-014, December 1999 and 64 FR 71974). Monitoring data indicates that these limits are consistently achieved (one violation of the weekly average limit- September 2011).

The limits proposed in the draft permit are the same as those in the current permit. The draft permit includes a monthly average limit of 1 mg/l, a weekly average limit of 1 mg/l and a maximum daily limit of 1.5 mg/l during the period from June through October, and the proposed monitoring frequency is once per week.

Phosphorus

State water quality standards require any point source discharge containing nutrients in concentrations that encourage eutrophication or growth of weeds or algae be provided with the highest and best practicable treatment to remove such nutrients. Phosphorus and other nutrients promote the growth of nuisance algae and aquatic plants. When these plants and algae undergo their decay processes, they generate strong odors, depress dissolved oxygen levels in the river, and impair benthic habitat.

The MA SWQS (314 CMR 4.00) do not contain numerical criteria for total phosphorus. The narrative criteria for nutrients is found at 314 CMR 4.05(5)(c), which states that

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

EPA has published national guidance documents that contain recommended total phosphorus criteria and other indicators of eutrophication. EPA's Quality Criteria for Water 1986 (the Gold Book) recommends, to control eutrophication, that in-stream phosphorus concentrations should be less than 100 µg/l (0.100 mg/l) in streams or other flowing waters not discharging directly to lakes or impoundments and less than 50 µg/l in flowing waters discharging to lakes or impoundments.

More recently, EPA released 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 ecoregion-specific criteria represent conditions in waters minimally impacted by human activities, and thus representative of water without cultural eutrophication. The Ware Wastewater Treatment Plant is within Ecoregion XIV, Eastern Coastal Plain, Northeastern Coastal Zone. Recommended criteria for this Ecoregion[4] include a total phosphorus criteria of 23.75 µg/l (0.024 mg/l).

EPA has typically applied the Gold Book criterion because it was developed from an effects-based approach versus the reference conditions-based approach used to develop the ecoregion criteria. The effects-based approach is taken because it is more directly associated with an impairment to a designated use (e.g. fishing). The effects-based approach provides a threshold value above which water quality impairments are likely to occur. It applies empirical observations of a causal variable (i.e. phosphorus) and a response variable (i.e. algal growth) associated with designated use impairments. Referenced-base values are statistically derived from a comparison within a population of rivers in the same ecoregional class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

[4] Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV, published in December, 2001

The current permit limits the Ware WWTP effluent to 1 mg/L total phosphorus as a monthly average year-round. The current permit also includes limits of 1.0 mg/L as a weekly average and 1.5 mg/L maximum daily from April through October. From July 2009 through June 2012, there was one violation of the weekly average and daily maximum phosphorus limits, in June 2012 when both results were reported as 1.6 mg/L.

The phosphorus limit calculated for the current permit did not account for upstream concentration of phosphorus when setting effluent limitations. Accounting for upstream concentrations is necessary to ensure that the discharge from the Ware treatment plant does not cause or contribute to an exceedance of water quality standards. The limit has been recalculated to account for the upstream concentration.

The 2003 Chicopee River Watershed Water Quality Assessment (2003 WQA) presented ambient phosphorus concentrations at Upper Church Street, Ware, upstream on the Ware River from the Ware WWTP. During low flow conditions that year, the instream phosphorus concentration was 49 µg/l.

The box below shows the necessary water quality based effluent limitation at an upstream concentration of 49 µg/l under 7Q10 conditions. This analysis shows that an effluent average monthly limitation of 584 µg/L is necessary. The maximum daily seasonal limitation of 1.5 mg/l from the current permit has been maintained to avoid backsliding as has the winter average monthly limitation of 1.0 mg/l.

Average Monthly Phosphorus Limit

$$Q_sC_s = Q_dC_d + Q_rC_r$$

Where

C_s	=	Concentration below outfall	=	100 µg/l
Q_s	=	Streamflow below outfall (effluent + upstream)	=	16.25 cfs
Q_d	=	Discharge flow	=	1.55 cfs
C_d	=	Discharge concentration	=	?
Q_r	=	Upstream flow	=	14.7 cfs
C_r	=	Upstream concentration	=	49 µg/l

Therefore,

$$C_d = \frac{(16.25 \text{ cfs} \times 100 \text{ µg/l}) - (14.7 \text{ cfs} \times 49 \text{ µg/l})}{1.55 \text{ cfs}}$$

$$= 584 \text{ µg/l}$$

To ensure attainment of water quality standards, the draft permit contains a monthly average limit of 584 µg/L, a weekly average limit of 1.0 mg/L, and a maximum daily limit of 1.5 mg/l for the growing season months of April through October, with a monitoring frequency of twice per week. The draft permit carries forward the monthly average limit of 1 mg/l for the non-growing season months of November through March. The monitoring frequency from November through March is once per

week. Past performance indicates that Ware WWTP already meets the new summer phosphorus limit on a routine basis.

If new water quality data or the completion of a total maximum daily load analysis (TMDL) indicates the need for more stringent limits, EPA and DEP may exercise the reopener clause of Part II A.4. of this permit and modify the phosphorus numerical limits.

The current permit includes a monitoring requirement for ortho-phosphorus during the winter period of November through March. The draft permit continues this required monitoring as it is necessary to identify whether the particulate fraction remains low and to further understand the physical dynamics of phosphorus in the non-growing season. Without the continued ortho-phosphate monitoring requirement, EPA and MassDEP cannot ensure that the loads authorized in the winter period are sufficiently protective of standards, specifically that the higher loads will not cause or contribute to instream eutrophication.

Metals

Certain metals in water can be toxic to aquatic life. The Clean Water Act requires EPA to limit toxic metal concentrations in the effluent when metal discharges may result in an exceedance of water quality criteria. An evaluation of the concentration of metals in the facility's effluent (from Whole Effluent Toxicity reports submitted between November 2008 and February 2012) was used to determine reasonable potential for toxicity caused by aluminum, cadmium, chromium, copper, lead, nickel and zinc.

Metals may be present in both dissolved and particulate forms in the water column. However, 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 effluent concentrations (from Appendix A) were characterized assuming a lognormal distribution in order to determine the estimated 95^{th} percentile of the daily maximum. For metals with hardness-based water quality criteria, the criteria were determined using the equations in 2002 National Recommended Water Quality Criteria, using the appropriate factors for the individual metals (see table below). The downstream hardness was calculated to be 23.1 mg/l as $CaCO_3$, using

a mass balance equation with the design flow, receiving water at 7Q10, an upstream median hardness of 20 mg/l as $CaCO_3$ and an effluent median hardness of 52 mg/l as $CaCO_3$.

Hardness Analysis

$$Q_sC_s = Q_dC_d + Q_rC_r$$

Where

C_r	=	Concentration below outfall		
Q_d	=	Discharge flow	=	1.55 cfs
C_d	=	Discharge concentration	=	52 mg/L
Q_s	=	Upstream flow	=	14.7 cfs
C_s	=	Upstream concentration	=	20 mg/L
Q_r	=	Streamflow below outfall (effluent + upstream)	=	16.25 cfs

Therefore,

$$C_r = \frac{(1.55 \text{ cfs} \times 52 \text{ mg/L}) + (14.7 \text{ cfs} \times 20 \text{ mg/L})}{16.25 \text{ cfs}}$$

$$= 23.1 \text{ mg/l}$$

The following table presents the factors used to determine the acute and chronic total recoverable criteria for each metal:

Table 1. Parameters for Calculating Total Recoverable Metals Criteria
Hardness = 23.1 mg/L

Metal	Parameters				Total Recoverable Criteria	
	ma	ba	mc	bc	Acute Criteria (CMC) (ug/L)	Chronic Criteria (CCC) (ug/L)
Aluminum	—	—	—	—	750.00	87.00
Cadmium	1.1280	3.6867	0.7852	2.7150	0.87	0.78
Chromium III	0.819	3.7256	0.819	0.6848	543.01	25.95
Copper	0.9422	1.7000	0.8545	-1.702	3.52	2.67
Lead	1.273	-1.46	1.273	-4.705	12.64	0.49
Nickel	0.846	2.255	0.846	0.0584	135.82	15.10
Zinc	0.8473	0.884	0.8473	0.884	34.62	34.62

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

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 = 1.0 MGD = 1.55 cfs)
C_d = effluent metals concentration in µg/L (95th percentile)
Q_S = stream flow upstream (7Q10 upstream = 14.7 cfs)
C_S = background in-stream metals concentration in µg/L (median)
Q_r = resultant in-stream flow, after discharge ($Q_S + Q_d$ = 16.25 cfs)
C_r = resultant in-stream concentration in µg/L

Reasonable potential is then determined by comparing this resultant in-stream concentration (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 (criteria). 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 resultant in-stream concentration (C_r). See the table below for the results of this analysis with respect to aluminum, cadmium, chromium, copper, lead, nickel and zinc.

Because there is reasonable potential for the discharge of aluminum and copper from Ware WWTP to cause or contribute to a violation of water quality standards, the draft permit includes limits for these two metals. The draft permit proposes a monthly average aluminum limit of 96 µg/L. For copper, the draft permit contains a maximum daily effluent limit of 17.9 µg/L and an average monthly limit of 9.0 µg/L. The proposed monitoring frequency for both metals is once per month. Also, see Appendix B for the aluminum calculations, and Appendix C for the copper calculations.

Table 2. Reasonable Potential Analysis for Metals

Metal	Qd	Cd (95th Percentile)	Qs	Cs (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		200.7		86		96.9	750	87	**Y**	N/A	**96**
Cadmium		0		0		0	0.865	0.779	N	N/A	N/A
Chromium		0		0		0	543.01	25.95	N	N/A	N/A
Copper	1.55	23.1	14.7	2	16.25	4.01	3.52	2.67	**Y**	**17.9**	**9.0**
Lead		0		0		0	12.64	0.49	N	N/A	N/A
Nickel		5		0		0.48	135.82	15.10	N	N/A	N/A
Zinc		140		16		27.8	34.62	34.62	N	N/A	N/A

Whole Effluent Toxicity

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The MA SWQS at 314 CMR 4.05(5)(c) include the following narrative and require that EPA criteria established pursuant to Section 304(a)(1) of the CWA be used as guidance for interpretation of the following narrative criteria: All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

The toxicity limits in the current permit are C-NOEC ≥ 7% and LC50 ≥ 100% and were established using the MassDEP *Implementation Policy for the Control of Toxic Pollutants in Surface* Waters, dated February 23, 1990 (the "Policy"). The Policy requires that the C-NOEC must equal or exceed the receiving water concentration (RWC) of the effluent, which is the inverse of the dilution factor. From August 2009 through February 2012, there were no exceedances of the acute toxicity limit. There were two violations of the chronic toxicity limit, in May 2010 and February 2011, when the C-NOEC was 6.25% effluent.

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. Based on the potential for toxicity from domestic sources, the state narrative water quality criterion, the limited dilution at the discharge location, and in accordance with EPA national and regional policy and 40 C.F.R.§ 122.44(d), the draft permit includes whole effluent chronic and acute toxicity limitations. (See also "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 49 Fed. Reg. 9016 March 9, 1984, and EPA's "Technical Support Document for Water Quality-Based Toxics Control", September, 1991.)

C-NOEC ≥ RWC = 1/dilution factor

=1/10.5
=0.095 (10%)

The draft permit requires quarterly chronic and acute toxicity tests using only the species *Ceriodaphnia dubia*. The acute toxicity endpoint, expressed as LC50, must equal or exceed 100% effluent. The chronic toxicity endpoint, expressed as C-NOEC (no effect concentration), must equal or exceed 10% effluent. The chronic toxicity limit in the draft permit is more stringent than that of the current permit due to the change in dilution factor. The tests must be performed in accordance with the test procedures and protocols specified in **Permit Attachment A**. The tests will be conducted four times a year, during the following months: February, May, August, and November.

Although the Ware WWTP has only two chronic toxicity exceedances, several other chronic tests have indicated chronic toxicity in the 50% and 25% effluent samples. EPA expects that POTWs with secondary treatment should have no chronic toxicity in the 100% effluent sample on a regular basis. The agencies will be monitoring the Ware WWTP's WET test results over the next permit term to determine if the pattern of chronic toxicity continues, and if so, require additional evaluation or WET testing to determine the source of toxicity. These requirements may include a toxicity identification evaluation (TIE) and/or a toxicity reduction evaluation (TRE).

7. Sludge

Section 405(d) of the Clean Water Act (CWA) requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations were signed on November 25, 1992, published in the Federal Register on February 19, 1993, and became effective on March 22, 1993. Domestic sludge that is land applied, disposed of in a surface disposal unit, or fired in a sewage sludge incinerator is subject to Part 503 technical standards and to State Env-Wq 800 standards. Part 503 regulations have a self-implementing provision, however, the CWA requires implementation through permits. Domestic sludge which is disposed of in municipal solid waste landfills are in compliance with Part 503 regulations provided the sludge meets the quality criteria of the landfill and the landfill meets the requirements of 40 CFR Part 258.

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

8. Pretreatment

Ware WWTP has one non-categorical significant industrial user (SIU), Kanzaki Specialty Papers (Kanzaki). Kanzaki is considered non-categorical because it is not within any of the industries for which EPA has promulgated pretreatment standards. Ware WWTP reported in its reissuance application that influent from this user causes problems with the treatment works, due to large amounts of inorganic solids. Planned upgrades to the WWTP, partially financed by Kanzaki, will improve solids handling at the facility. A new tertiary treatment system will remove solids with less interference to the treatment system. Also, Kanzaki plans to install a flow equalization tank, which will reduce the variability in the flow they contribute to the Ware WWTP.

The permittee is required to administer a pretreatment program based on the authority granted under 40 § 122.44(j), 40 CFR § 403 and section 307 of the CWA. In accordance with 40 § 403, the permittee is obligated to modify, if necessary, its pretreatment program plan, to be consistent with current Federal Pretreatment Regulations. The permittee is also required to implement its pretreatment program in accordance with the requirements at 40 C.F.R. Part 403 (General Pretreatment Regulations). These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices. Those activities that the permittee must perform include, but are not limited to, the following: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) issue industrial user discharge permits, (3) conduct compliance monitoring activities (e.g., sampling and inspections at industrial users), and (4) initiate enforcement actions against non-complying industrial users.

Lastly, the permittee must submit an annual pretreatment report on **March 1**, which describes the permittee's pretreatment program activities for the twelve month period ending 60 days prior to the due date.

9. Operations 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.3 of the draft permit and it requires permittees to take all reasonable steps – which in some cases may include operations and maintenance work – to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment.

Proper operation of collection systems is critical to prevent blockages and equipment failures that would cause overflows of the collection system (sanitary sewer overflows, or SSOs), and to limit the amount of non-wastewater flow entering the collection system (inflow and infiltration or I/I). I/I in a collection system can pose a significant environmental problem because it may displace wastewater flow and thereby cause, or contribute to causing, SSOs. Moreover, I/I could reduce the capacity and efficiency of the treatment plant and cause bypasses of secondary treatment. Therefore, reducing I/I will help to minimize any SSOs and maximize the flow receiving proper treatment at the treatment plant. There is presently estimated to be approximately 75,000 gpd of I/I in the sewer system. In its September 6, 2001 Infiltration and Inflow Policy, MassDEP specified that certain conditions related to I/I control be established in NPDES municipal permits.

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.

10. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes; may adversely impact any essential fish habitat as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 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.

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

The Ware River is a tributary of the Chicopee River, which flows into the Connecticut River, which ultimately drains into the Long Island Sound. The Connecticut River system has been designated as EFH for Atlantic salmon. Although EFH has been designated for this general location, EPA has concluded that this activity is not likely to affect EFH or its associated species for the following reasons:

- The quantity of the discharge from the WWTP is 1.0 MGD, and the effluent receives advanced treatment;
- The facility withdraws no water from the Ware River; therefore no life stages of Atlantic salmon are vulnerable to impingement or entrainment from this facility;
- Limits specifically protective of aquatic organisms have been established for phosphorus, chlorine, aluminum, and copper, based on EPA water quality criteria;
- Acute and chronic toxicity testing on *Ceriodaphnia dubia* is required four (4) times per year.
- The permit prohibits any violation of state water quality standards.

EPA believes that the conditions and limitations contained within the draft permit adequately protect all aquatic life, including those species with EFH designation. Impacts associated with issuance of this permit to the EFH species, their habitat and forage, have been minimized to the extent that no significant adverse impacts are expected. Further mitigation is not warranted.

11. Endangered Species Act

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

EPA has reviewed the federal endangered or threatened species of fish, wildlife, or plants to see if any such listed species might potentially be impacted by the re-issuance of this NPDES permit. No federally endangered species have been identified within 30 miles of the Town of Ware. Therefore, EPA concludes that the limits and conditions contained in this draft permit reissuance are not likely to adversely affect species of concern or their habitats. No consultation is necessary.

12. Monitoring

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

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

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

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

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To participate in upcoming trainings, visit http://www.epa.gov/netdmr for contact information for Massachusetts.

The Draft Permit requires the permittee to report monitoring results obtained during each calendar month using NetDMR, no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

The Draft Permit also includes an "opt-out" request process. Permittees who believe they cannot use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA at least sixty (60) days prior to the date the facility would otherwise be required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the permittee must submit DMRs and reports to EPA using NetDMR, unless the permittee submits a renewed opt-out request sixty (60) days prior to expiration of its opt-out, and such a request is approved by EPA.

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

13. State Certification Requirements

The NPDES Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the MassDEP Commissioner.

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

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. Public hearings may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates a 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 a 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.

15. General Conditions

The general conditions of the permit are based on 40 CFR Parts 122, Subparts A and D and 40 CFR §124, Subparts A, D, E, and F and are consistent with management requirements common to other permits.

16. State Certification Requirements

The staff of the Massachusetts Department of Environmental Protection ("MassDEP") has reviewed the draft permit. EPA has requested permit certification by the State pursuant to 40 CFR § 124.53 and expects that the draft permit will be certified.

17. EPA & 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:

Robin L. Johnson
EPA New England – Region 1

5 Post Office Square, Suite 100
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Claire Golden
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205B Lowell Street
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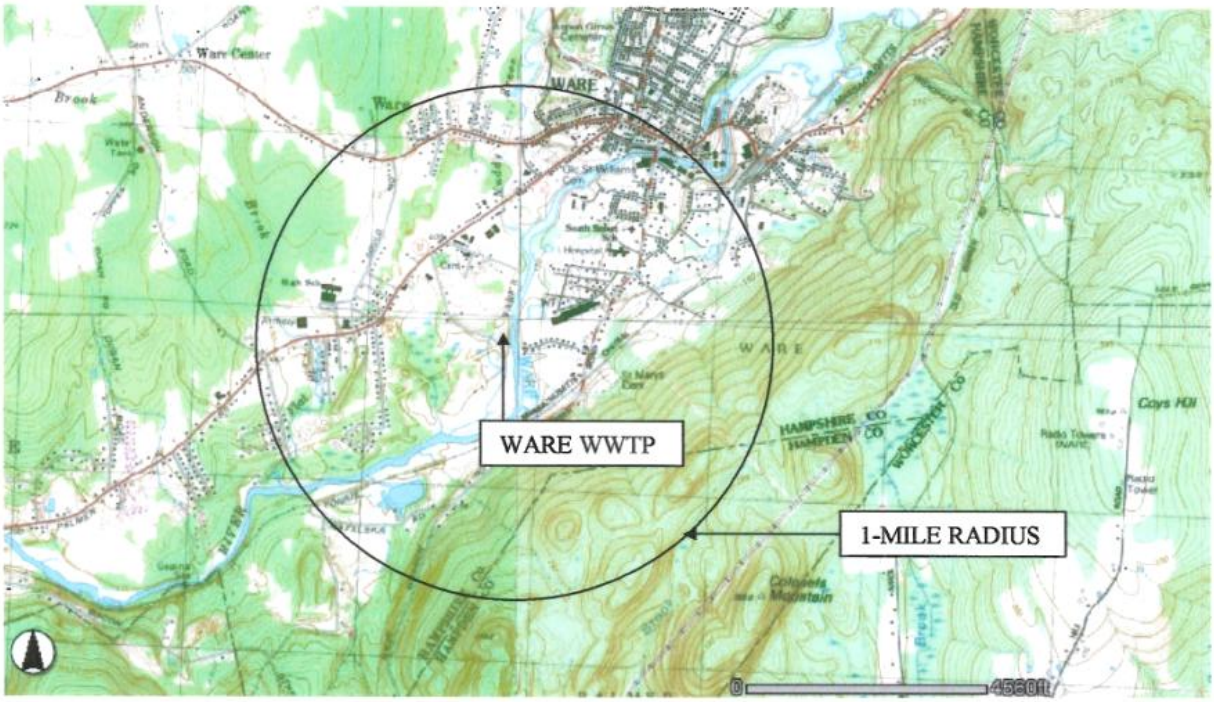
claire.golden@state.ma.us

February 21, 2013
Date

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



A-5

TOPOGRAPHIC MAP

WARE WASTEWATER TREATMENT PLANT

SECTION OF USGS MAP
SCALE 1 IN. = 3,400 FT. +/-

THERE ARE NO WELLS, SPRINGS, OR SURFACE WATER BODIES, OTHER THAN THE WARE RIVER, WITHIN ¼ MILE OF THE WARE WASTEWATER TREATMENT PLANT.

Figure 1 – Facility Location Map

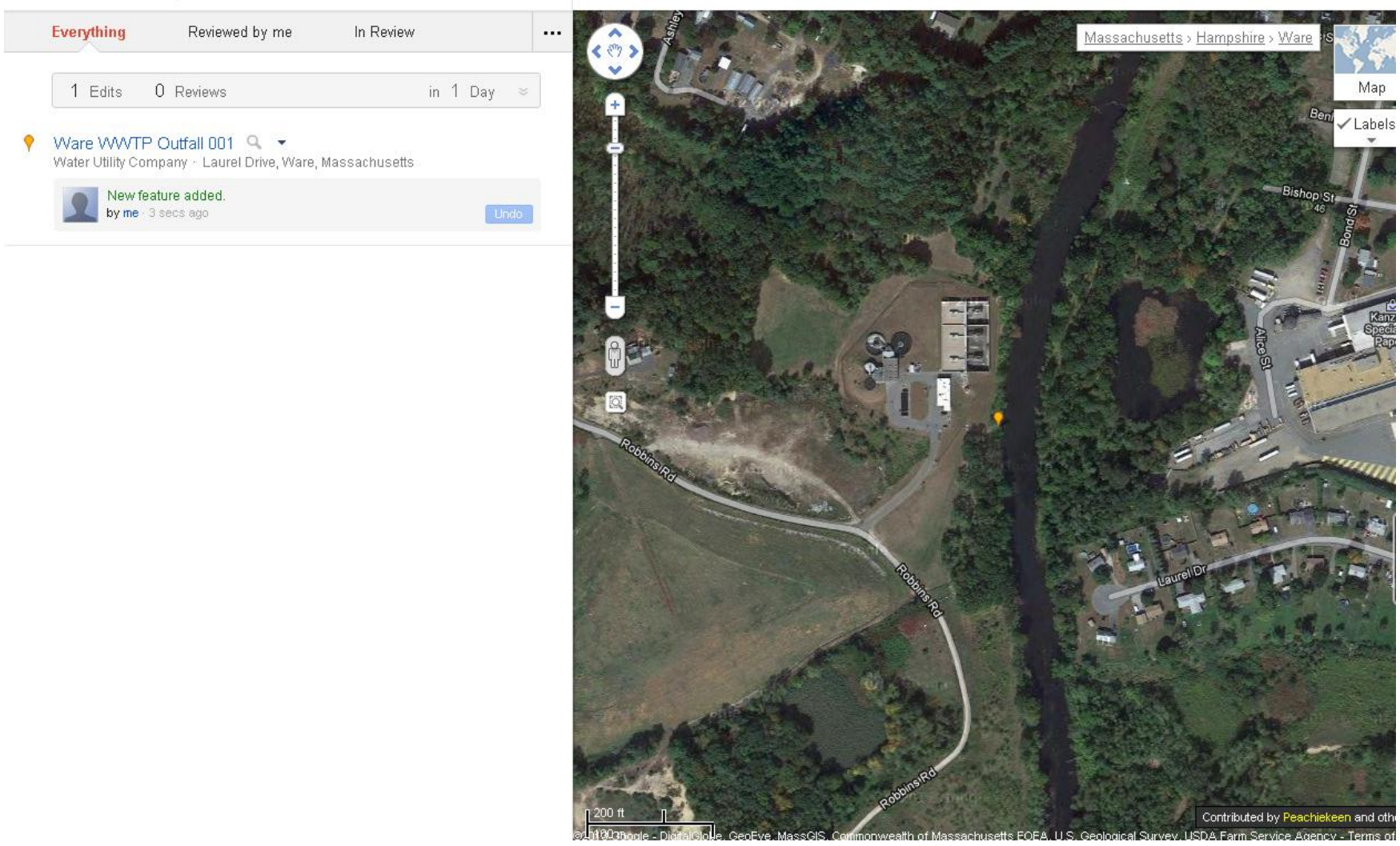


Figure 2 – Outfall Location Map

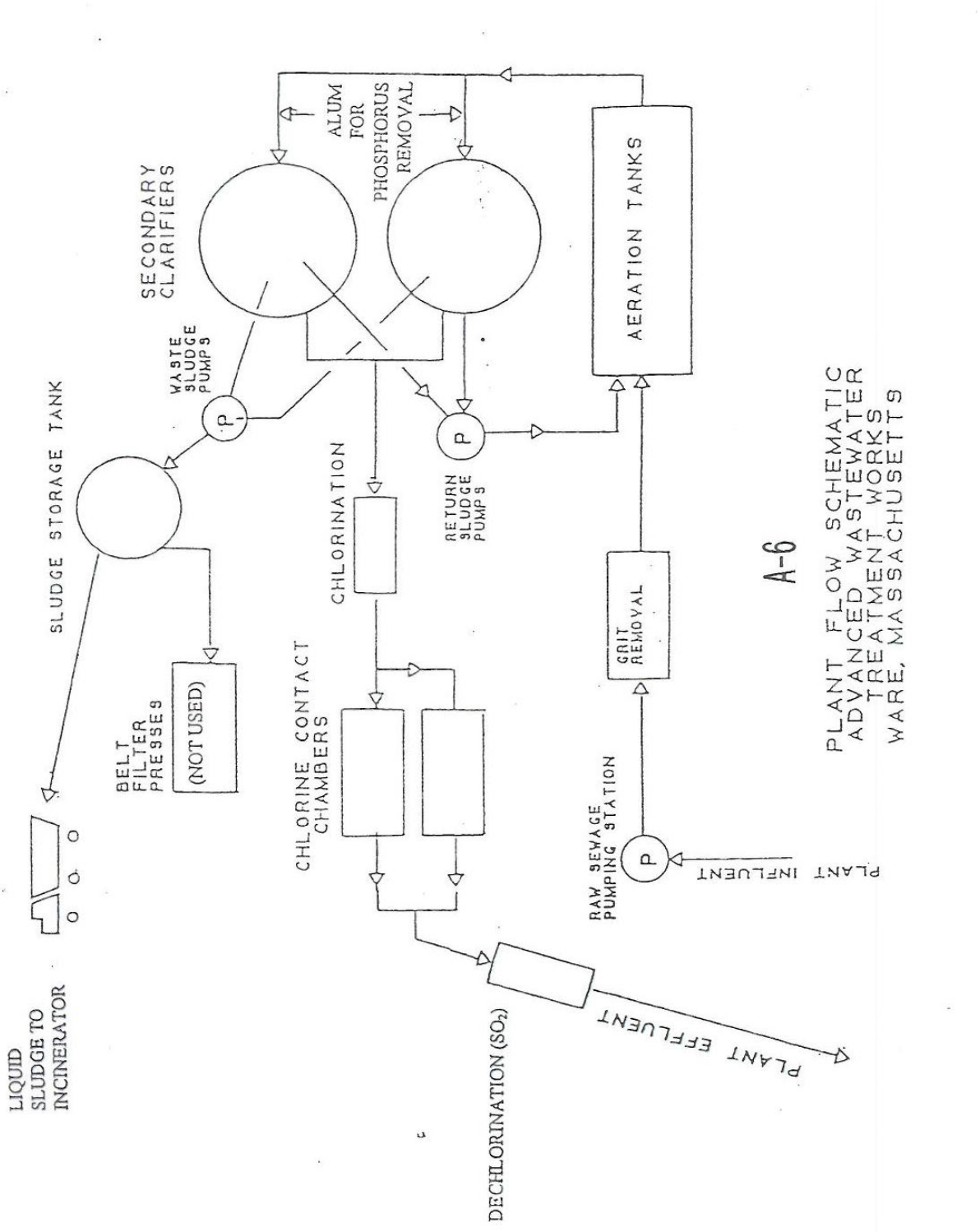


Figure 3 – Facility Schematic

001A

BOD, 5-day, 20 deg. C
Limit Start Date = 7/1/07
Season = 0

Pram	MP Dt	Rec Dt	Q1 208 lb/d MO AVG	Q2 208 lb/d WKLY AVG	C1 25 mg/L MO AVG	C2 25 mg/L WKLY AVG	C3 Req. Mon. mg/L DAILY MX
00310	07/31/2009	8/11/2009	32 lb/d	86 lb/d	6 mg/L	10 mg/L	10 mg/L
00310	08/31/2009	9/12/2009	39 lb/d	90 lb/d	7 mg/L	15 mg/L	15 mg/L
00310	09/30/2009	10/14/2009	18 lb/d	28 lb/d	4 mg/L	6 mg/L	6 mg/L
00310	10/31/2009	11/13/2009	28.7 lb/d	58.1 lb/d	6.6 mg/L	11 mg/L	11 mg/L
00310	11/30/2009	12/8/2009	14.1 lb/d	56.7 lb/d	3 mg/L	10.8 mg/L	18 mg/L
00310	12/31/2009	1/14/2010	34.2 lb/d	53.2 lb/d	6.3 mg/L	8.5 mg/L	11 mg/L
00310	01/31/2010	2/12/2010	30.1 lb/d	71 lb/d	6 mg/L	8.7 mg/L	18 mg/L
00310	02/28/2010	3/11/2010	27.7 lb/d	40.7 lb/d	5.3 mg/L	7.8 mg/L	7.8 mg/L
00310	03/31/2010	4/13/2010	72 lb/d	154 lb/d	10 mg/L	18 mg/L	18 mg/L
00310	04/30/2010	5/13/2010	23 lb/d	38 lb/d	3 mg/L	6 mg/L	6 mg/L
00310	05/31/2010	6/8/2010	14 lb/d	16 lb/d	3 mg/L	3 mg/L	3 mg/L
00310	06/30/2010	7/13/2010	13 lb/d	14 lb/d	3 mg/L	3 mg/L	3 mg/L
00310	07/31/2010	8/11/2010	39 lb/d	65 lb/d	10 mg/L	15 mg/L	15 mg/L
00310	08/31/2010	9/13/2010	23 lb/d	41 lb/d	6 mg/L	10 mg/L	10 mg/L
00310	09/30/2010	10/14/2010	34.4 lb/d	87.9 lb/d	4 mg/L	20 mg/L	20 mg/L
00310	10/31/2010	11/8/2010	210 lb/d	40 lb/d	5 mg/L	9 mg/L	9 mg/L
00310	11/30/2010	12/7/2010	25 lb/d	37 lb/d	6 mg/L	8 mg/L	8 mg/L
00310	12/31/2010	1/11/2011	16 lb/d	30 lb/d	4 mg/L	7 mg/L	7 mg/L
00310	01/31/2011	2/8/2011	28 lb/d	48 lb/d	7 mg/L	12 mg/L	12 mg/L
00310	02/28/2011	3/3/2011	35 lb/d	57 lb/d	8 mg/L	13 mg/L	13 mg/L
00310	03/31/2011	4/11/2011	23 lb/d	45 lb/d	2 mg/L	2 mg/L	2 mg/L
00310	04/30/2011	5/9/2011	39 lb/d	69 lb/d	5 mg/L	9 mg/L	9 mg/L
00310	05/31/2011	6/7/2011	13 lb/d	13 lb/d	2 mg/L	2 mg/L	2 mg/L
00310	06/30/2011	7/7/2011	18 lb/d	48 lb/d	3 mg/L	8 mg/L	8 mg/L
00310	07/31/2011	8/5/2011	19 lb/d	33 lb/d	4 mg/L	7 mg/L	7 mg/L
00310	08/31/2011	9/6/2011	16 lb/d	37 lb/d	3 mg/L	7 mg/L	7 mg/L
00310	09/30/2011	10/7/2011	24 lb/d	40 lb/d	3 mg/L	5 mg/L	5 mg/L
00310	10/31/2011	11/3/2011	13 lb/d	13 lb/d	2 mg/L	2 mg/L	2 mg/L
00310	11/30/2011	12/7/2011	23 lb/d	53 lb/d	3 mg/L	7 mg/L	7 mg/L
00310	12/31/2011	1/4/2012	16 lb/d	25 lb/d	2 mg/L	3 mg/L	3 mg/L
00310	01/31/2012	2/2/2012	23 lb/d	35 lb/d	4 mg/L	6 mg/L	6 mg/L
00310	02/29/2012	3/7/2012	35 lb/d	71 lb/d	7 mg/L	14 mg/L	14 mg/L
00310	03/31/2012	4/4/2012	26 lb/d	45 lb/d	4 mg/L	7 mg/L	7 mg/L
00310	04/30/2012	5/2/2012	13 lb/d	13 lb/d	3 mg/L	3 mg/L	3 mg/L
00310	05/31/2012	6/5/2012	19 lb/d	28 lb/d	4 mg/L	6 mg/L	6 mg/L
00310	06/30/2012	7/3/2012	19 lb/d	38 lb/d	4 mg/L	8 mg/L	2 mg/L

Chlorine, total residual
Limit Start Date = 7/1/07
Season = 0

Pram	MP Dt	Rec Dt	C1 160 ug/L MO AVG	C3 277 ug/L DAILY MX
50060	07/31/2009	8/11/2009	20 ug/L	60 ug/L
50060	08/31/2009	9/11/2009	60 ug/L	90 ug/L
50060	09/30/2009	10/14/2009	45 ug/L	70 ug/L
50060	10/31/2009	11/13/2009	26 ug/L	70 ug/L
50060	04/30/2010	5/13/2010	18 ug/L	90 ug/L
50060	05/31/2010	6/8/2010	36 ug/L	80 ug/L
50060	06/30/2010	7/13/2010	31 ug/L	70 ug/L
50060	07/31/2010	8/11/2010	29 ug/L	50 ug/L
50060	08/31/2010	9/13/2010	28 ug/L	50 ug/L
50060	09/30/2010	10/14/2010	25 ug/L	40 ug/L
50060	10/31/2010	11/8/2010	20 ug/L	30 ug/L
50060	04/30/2011	5/9/2011	24 ug/L	40 ug/L
50060	05/31/2011	6/7/2011	119 ug/L	260 ug/L
50060	06/30/2011	7/7/2011	81 ug/L	120 ug/L
50060	07/31/2011	8/5/2011	42 ug/L	240 ug/L
50060	08/31/2011	9/6/2011	69 ug/L	250 ug/L

50060	**09/30/2011**	**10/7/2011**	70 ug/L	220 ug/L
50060	**10/31/2011**	**11/3/2011**	65 ug/L	240 ug/L
50060	**04/30/2012**	**5/2/2012**	51 ug/L	170 ug/L
50060	**05/31/2012**	**6/5/2012**	56 ug/L	230 ug/L
50060	**06/30/2012**	**7/3/2012**	45 ug/L	280 ug/L

Coliform, fecal general
Limit Start Date = 7/1/07
Season = 0

			C1	**C3**
			200 CFU/100mL	**400 CFU/100mL**
Pram	**MP Dt**	**Rec Dt**	**MO GEO**	**DAILY MX**
74055	**07/31/2009**	**8/11/2009**	41.4 CFU/100mL	1,500 CFU/100mL
74055	**08/31/2009**	**9/11/2009**	14.8 CFU/100mL	30 CFU/100mL
74055	**09/30/2009**	**10/14/2009**	13.6 CFU/100mL	70 CFU/100mL
74055	**10/31/2009**	**11/13/2009**	31.7 CFU/100mL	20 CFU/100mL
74055	**04/30/2010**	**5/13/2010**	30.5 CFU/100mL	80 CFU/100mL
74055	**05/31/2010**	**6/8/2010**	10 CFU/100mL	10 CFU/100mL
74055	**06/30/2010**	**7/13/2010**	9.4 CFU/100mL	10 CFU/100mL
74055	**07/31/2010**	**8/11/2010**	9 CFU/100mL	9 CFU/100mL
74055	**08/31/2010**	**9/13/2010**	9 CFU/100mL	10 CFU/100mL
74055	**09/30/2010**	**10/14/2010**	24.4 CFU/100mL	120 CFU/100mL
74055	**10/31/2010**	**11/8/2010**	9.5 CFU/100mL	10 CFU/100mL
74055	**04/30/2011**	**5/9/2011**	264 CFU/100mL	22,200 CFU/100mL
74055	**05/31/2011**	**6/7/2011**	9 CFU/100mL	9 CFU/100mL
74055	**06/30/2011**	**7/7/2011**	11 CFU/100mL	20 CFU/100mL
74055	**07/31/2011**	**8/5/2011**	24 CFU/100mL	450 CFU/100mL
74055	**08/31/2011**	**9/6/2011**	16 CFU/100mL	140 CFU/100mL
74055	**09/30/2011**	**10/7/2011**	17 CFU/100mL	50 CFU/100mL
74055	**10/31/2011**	**11/3/2011**	10 CFU/100mL	10 CFU/100mL
74055	**04/30/2012**	**5/2/2012**	10 CFU/100mL	10 CFU/100mL
74055	**05/31/2012**	**6/5/2012**	17 CFU/100mL	80 CFU/100mL
74055	**06/30/2012**	**7/3/2012**	10 CFU/100mL	10 CFU/100mL

E. coli, thermotol, MF, MTEC
Limit Start Date = 7/1/07
Season = 0

			C1	**C3**
			Req. Mon. CFU/100mL	**Req. Mon. CFU/100mL**
Pram	**MP Dt**	**Rec Dt**	**MO AVG**	**DAILY MX**
31633	**07/31/2009**	**8/11/2009**	0 CFU/100mL	0 CFU/100mL
31633	**08/31/2009**	**9/11/2009**	0 CFU/100mL	0 CFU/100mL
31633	**09/30/2009**	**10/14/2009**	0 CFU/100mL	0 CFU/100mL
31633	**10/31/2009**	**11/13/2009**	0 CFU/100mL	0 CFU/100mL
31633	**11/30/2009**	**12/8/2009**	NODI Code = 9	NODI Code = 9
31633	**12/31/2009**	**1/14/2010**	NODI Code = 9	NODI Code = 9

Limit Start Date = 1/1/10
Season = 0

			C1	**C3**
			Req. Mon. CFU/100mL	**Req. Mon. CFU/100mL**
Pram	**MP Dt**	**Rec Dt**	**MOAV GEO**	**DAILY MX**
31633	**04/30/2010**	**5/13/2010**	8 CFU/100mL	8 CFU/100mL
31633	**05/31/2010**	**6/8/2010**	8 CFU/100mL	8 CFU/100mL
31633	**06/30/2010**	**7/13/2010**	1 CFU/100mL	1 CFU/100mL
31633	**07/31/2010**	**8/11/2010**	0 CFU/100mL	0 CFU/100mL
31633	**08/31/2010**	**9/13/2010**	4 CFU/100mL	4 CFU/100mL
31633	**09/30/2010**	**10/14/2010**	0 CFU/100mL	0 CFU/100mL
31633	**10/31/2010**	**11/8/2010**	1 CFU/100mL	10 CFU/100mL
31633	**04/30/2011**	**5/9/2011**	4,300 CFU/100mL	4,300 CFU/100mL
31633	**05/31/2011**	**6/7/2011**	1 CFU/100mL	1 CFU/100mL
31633	**06/30/2011**	**7/7/2011**	1 CFU/100mL	1 CFU/100mL
31633	**07/31/2011**	**8/5/2011**	1 CFU/100mL	1 CFU/100mL
31633	**08/31/2011**	**9/6/2011**	1 CFU/100mL	1 CFU/100mL
31633	**09/30/2011**	**10/7/2011**	1 CFU/100mL	1 CFU/100mL
31633	**10/31/2011**	**11/3/2011**	1 CFU/100mL	1 CFU/100mL
31633	**04/30/2012**	**5/2/2012**	0 CFU/100mL	0 CFU/100mL
31633	**05/31/2012**	**6/5/2012**	2 CFU/100mL	2 CFU/100mL

31633	**06/30/2012**	**7/3/2012**	8 CFU/100mL	8 CFU/100mL

Flow, in conduit or thru treatment plant
Limit Start Date = 7/1/07
Season = 0

			Q1 Req. Mon. MGD	**Q2 Req. Mon. MGD**
Pram	**MP Dt**	**Rec Dt**	**MO AVG**	**DAILY MX**
50050	**07/31/2009**	**8/11/2009**	0.63	1.11 MGD
50050	**08/31/2009**	**9/11/2009**	0.72	1.24 MGD
50050	**09/30/2009**	**10/14/2009**	0.55	0.69 MGD
50050	**10/31/2009**	**11/13/2009**	0.52	0.64 MGD
50050	**11/30/2009**	**12/8/2009**	0.56	0.63 MGD
50050	**12/31/2009**	**1/14/2010**	0.65	0.75 MGD
50050	**01/31/2010**	**2/12/2010**	0.6	0.98 MGD
50050	**02/28/2010**	**3/11/2010**	0.63	1 MGD
50050	**03/31/2010**	**4/13/2010**	0.86	1.7 MGD
50050	**04/30/2010**	**5/13/2010**	0.92	1.7 MGD
50050	**05/31/2010**	**6/8/2010**	0.56	0.62 MGD
50050	**06/30/2010**	**7/13/2010**	0.52	0.58 MGD
50050	**07/31/2010**	**8/11/2010**	0.47	0.54 MGD
50050	**08/31/2010**	**9/13/2010**	0.45	0.57 MGD
50050	**09/30/2010**	**10/14/2010**	0.46	0.53 MGD
50050	**10/31/2010**	**11/8/2010**	0.5	0.65 MGD
50050	**11/30/2010**	**12/7/2010**	0.51	0.62 MGD
50050	**12/31/2010**	**1/11/2011**	0.51	0.61 MGD
50050	**01/31/2011**	**2/8/2011**	0.48	0.54 MGD
50050	**02/28/2011**	**3/3/2011**	0.52	0.79 MGD
50050	**03/31/2011**	**4/11/2011**	1.35	2.7 MGD
50050	**04/30/2011**	**5/9/2011**	0.93	1.13 MGD
50050	**05/31/2011**	**6/7/2011**	0.8	0.96 MGD
50050	**06/30/2011**	**7/7/2011**	0.71	0.83 MGD
50050	**07/31/2011**	**8/5/2011**	0.57	0.69 MGD
50050	**08/31/2011**	**9/6/2011**	0.64	1.84 MGD
50050	**09/30/2011**	**10/7/2011**	0.95	2.03 MGD
50050	**10/31/2011**	**11/3/2011**	0.77	0.9 MGD
50050	**11/30/2011**	**12/7/2011**	0.91	1.03 MGD
50050	**12/31/2011**	**1/4/2012**	0.99	1.54 MGD
50050	**01/31/2012**	**2/2/2012**	0.7	0.79 MGD
50050	**02/29/2012**	**3/7/2012**	0.61	0.78 MGD
50050	**03/31/2012**	**4/4/2012**	0.6	0.68 MGD
50050	**04/30/2012**	**5/2/2012**	0.51	0.61 MGD
50050	**05/31/2012**	**6/5/2012**	0.56	0.68 MGD
50050	**06/30/2012**	**7/3/2012**	0.57	0.68 MGD
		AVG	0.660833333	
		MED	0.6	

Flow, total
Limit Start Date = 7/1/07
Season = 0

Pram	MP Dt	Rec Dt	Q1 1 MGD ROLL AVG
82220	07/31/2009	8/11/2009	0.72 MGD
82220	08/31/2009	9/11/2009	0.72 MGD
82220	09/30/2009	10/14/2009	0.69 MGD
82220	10/31/2009	11/13/2009	0.68 MGD
82220	11/30/2009	12/8/2009	0.68 MGD
82220	12/31/2009	1/14/2010	0.66 MGD
82220	01/31/2010	2/12/2010	0.64 MGD
82220	02/28/2010	3/11/2010	0.64 MGD
82220	03/31/2010	4/13/2010	0.65 MGD
82220	04/30/2010	5/13/2010	0.67 MGD
82220	05/31/2010	6/8/2010	0.65 MGD
82220	06/30/2010	7/13/2010	0.69 MGD
82220	07/31/2010	8/11/2010	0.63 MGD
82220	08/31/2010	9/13/2010	0.61 MGD
82220	09/30/2010	10/14/2010	0.6 MGD
82220	10/31/2010	11/8/2010	0.6 MGD
82220	11/30/2010	12/7/2010	0.59 MGD
82220	12/31/2010	1/11/2011	0.57 MGD
82220	01/31/2011	2/8/2011	0.57 MGD
82220	02/28/2011	3/3/2011	0.56 MGD
82220	03/31/2011	4/11/2011	0.61 MGD
82220	04/30/2011	5/9/2011	0.61 MGD
82220	05/31/2011	6/7/2011	0.63 MGD
82220	06/30/2011	7/7/2011	0.64 MGD
82220	07/31/2011	8/5/2011	0.65 MGD
82220	08/31/2011	9/6/2011	0.67 MGD
82220	09/30/2011	10/7/2011	0.71 MGD
82220	10/31/2011	11/3/2011	0.73 MGD
82220	11/30/2011	12/7/2011	0.76 MGD
82220	12/31/2011	1/4/2012	0.8 MGD
82220	01/31/2012	2/2/2012	0.82 MGD
82220	02/29/2012	3/7/2012	0.83 MGD
82220	03/31/2012	4/4/2012	0.77 MGD
82220	04/30/2012	5/2/2012	0.73 MGD
82220	05/31/2012	6/5/2012	0.71 MGD
82220	06/30/2012	7/3/2012	0.7 MGD

Nitrite plus nitrate total 1 det. (as N)
Limit Start Date = 7/1/07
Season = 0

Pram	MP Dt	Rec Dt	C1 Req. Mon. mg/L MO AV MN
00630	07/31/2009	8/11/2009	14
00630	08/31/2009	9/11/2009	9.3
00630	09/30/2009	10/14/2009	13
00630	10/31/2009	11/13/2009	16
00630	11/30/2009	12/8/2009	12
00630	12/31/2009	1/14/2010	15
00630	01/31/2010	2/12/2010	17
00630	02/28/2010	3/11/2010	5.8
00630	03/31/2010	4/13/2010	8.8
00630	04/30/2010	5/13/2010	3
00630	05/31/2010	6/8/2010	2.5
00630	06/30/2010	7/13/2010	15
00630	07/31/2010	8/11/2010	6.8
00630	08/31/2010	9/13/2010	13
00630	09/30/2010	10/14/2010	15
00630	10/31/2010	11/8/2010	18
00630	11/30/2010	12/7/2010	15
00630	12/31/2010	1/11/2011	19
00630	01/31/2011	2/8/2011	13

00630	**02/28/2011**	**3/3/2011**	17
00630	**03/31/2011**	**4/11/2011**	10
00630	**04/30/2011**	**5/9/2011**	12
00630	**05/31/2011**	**6/7/2011**	9.9
00630	**06/30/2011**	**7/7/2011**	6.8
00630	**07/31/2011**	**8/5/2011**	12
00630	**08/31/2011**	**9/6/2011**	8.7
00630	**09/30/2011**	**10/7/2011**	12
00630	**10/31/2011**	**11/3/2011**	10
00630	**11/30/2011**	**12/7/2011**	7
00630	**12/31/2011**	**1/4/2012**	9.9
00630	**01/31/2012**	**2/2/2012**	9.8
00630	**02/29/2012**	**3/7/2012**	10.9
00630	**03/31/2012**	**4/4/2012**	15
00630	**04/30/2012**	**5/2/2012**	16
00630	**05/31/2012**	**6/5/2012**	9.4
00630	**06/30/2012**	**7/3/2012**	7.4
		AVG	11.52777778
		MED	12

Nitrogen, ammonia total (as N)
Limit Start Date = 7/1/07
Season = 2

			C1	**C2**	**C3**
			1 mg/L	**1 mg/L**	**1.5 mg/L**
Pram	**MP Dt**	**Rec Dt**	**MO AVG**	**WKLY AVG**	**DAILY MX**
00610	**07/31/2009**	**8/11/2009**	0.23 mg/L	0.6 mg/L	0.6 mg/L
00610	**08/31/2009**	**9/12/2009**	0.55 mg/L	0.98 mg/L	0.98 mg/L
00610	**09/30/2009**	**10/14/2009**	0.46 mg/L	0.56 mg/L	0.56 mg/L
00610	**10/31/2009**	**11/13/2009**	0.2 mg/L	0.32 mg/L	0.32 mg/L
00610	**06/30/2010**	**7/13/2010**	0.34 mg/L	0.74 mg/L	0.74 mg/L
00610	**07/31/2010**	**8/11/2010**	0.59 mg/L	0.85 mg/L	0.85 mg/L
00610	**08/31/2010**	**9/13/2010**	0.2 mg/L	0.25 mg/L	0.25 mg/L
00610	**09/30/2010**	**10/14/2010**	0.48 mg/L	0.89 mg/L	0.89 mg/L
00610	**10/31/2010**	**11/8/2010**	0.4 mg/L	0.96 mg/L	0.96 mg/L
00610	**06/30/2011**	**7/7/2011**	0.42 mg/L	0.72 mg/L	0.72 mg/L
00610	**07/31/2011**	**8/5/2011**	0.23 mg/L	0.34 mg/L	0.34 mg/L
00610	**08/31/2011**	**9/6/2011**	0.24 mg/L	0.49 mg/L	0.49 mg/L
00610	**09/30/2011**	**10/7/2011**	0.47 mg/L	1.2 mg/L	1.2 mg/L
00610	**10/31/2011**	**11/3/2011**	0.2 mg/L	0.32 mg/L	0.32 mg/L
00610	**06/30/2012**	**7/3/2012**	0.45 mg/L	0.62 mg/L	0.62 mg/L

Nitrogen, Kjeldahl, total (as N)
Limit Start Date = 7/1/07
Season = 0

			C1
			Req. Mon. mg/L
Pram	**MP Dt**	**Rec Dt**	**MO AV MN**
00625	**07/31/2009**	**8/11/2009**	0.28
00625	**08/31/2009**	**9/12/2009**	1.1
00625	**09/30/2009**	**10/14/2009**	0.99
00625	**10/31/2009**	**11/13/2009**	1.3
00625	**11/30/2009**	**12/8/2009**	1.5
00625	**12/31/2009**	**1/14/2010**	1.5
00625	**01/31/2010**	**2/12/2010**	1.6
00625	**02/28/2010**	**3/11/2010**	4.9
00625	**03/31/2010**	**4/13/2010**	1.9
00625	**04/30/2010**	**5/13/2010**	4.2
00625	**05/31/2010**	**6/8/2010**	1.4
00625	**06/30/2010**	**7/13/2010**	1.6
00625	**07/31/2010**	**8/11/2010**	1.6
00625	**08/31/2010**	**9/13/2010**	1.7
00625	**09/30/2010**	**10/14/2010**	1.8
00625	**10/31/2010**	**11/8/2010**	1.4
00625	**11/30/2010**	**12/7/2010**	16
00625	**12/31/2010**	**1/11/2011**	2
00625	**01/31/2011**	**2/8/2011**	2
00625	**02/28/2011**	**3/3/2011**	2.7

00625	**03/31/2011**	**4/11/2011**	4.3
00625	**04/30/2011**	**5/9/2011**	2.3
00625	**05/31/2011**	**6/7/2011**	2.2
00625	**06/30/2011**	**7/7/2011**	1.1
00625	**07/31/2011**	**8/5/2011**	2.1
00625	**08/31/2011**	**9/6/2011**	1.7
00625	**09/30/2011**	**10/7/2011**	0.9
00625	**10/31/2011**	**11/3/2011**	1.2
00625	**11/30/2011**	**12/7/2011**	0.88
00625	**12/31/2011**	**1/4/2012**	0.95
00625	**01/31/2012**	**2/2/2012**	1.3
00625	**02/29/2012**	**3/7/2012**	1.6
00625	**03/31/2012**	**4/4/2012**	2.5
00625	**04/30/2012**	**5/2/2012**	1.4
00625	**05/31/2012**	**6/5/2012**	1.5
00625	**06/30/2012**	**7/3/2012**	1.5
		AVE	2.191666667
		MED	1.6

pH
Limit Start Date = 7/1/07
Season = 0

			C1	**C3**
			6.5 SU	**8.3 SU**
Pram	**MP Dt**	**Rec Dt**	**MINIMUM**	**MAXIMUM**
00400	**07/31/2009**	**8/11/2009**	6.5 SU	6.8 SU
00400	**08/31/2009**	**9/12/2009**	6.5 SU	6.7 SU
00400	**09/30/2009**	**10/14/2009**	6.5 SU	6.7 SU
00400	**10/31/2009**	**11/13/2009**	6.5 SU	6.9 SU
00400	**11/30/2009**	**12/8/2009**	6.5 SU	6.9 SU
00400	**12/31/2009**	**1/14/2010**	6.6 SU	6.8 SU
00400	**01/31/2010**	**2/12/2010**	6.5 SU	6.8 SU
00400	**02/28/2010**	**3/11/2010**	6.5 SU	7 SU
00400	**03/31/2010**	**4/13/2010**	6.5 SU	6.7 SU
00400	**04/30/2010**	**5/13/2010**	6.5 SU	6.8 SU
00400	**05/31/2010**	**6/8/2010**	6.5 SU	7.3 SU
00400	**06/30/2010**	**7/13/2010**	6.5 SU	7.4 SU
00400	**07/31/2010**	**8/11/2010**	6.5 SU	6.9 SU
00400	**08/31/2010**	**9/13/2010**	6.5 SU	6.8 SU
00400	**09/30/2010**	**10/14/2010**	6.5 SU	7 SU
00400	**10/31/2010**	**11/8/2010**	6.5 SU	6.8 SU
00400	**11/30/2010**	**12/7/2010**	6.5 SU	6.8 SU
00400	**12/31/2010**	**1/11/2011**	6.5 SU	7.2 SU
00400	**01/31/2011**	**2/8/2011**	6.7 SU	7 SU
00400	**02/28/2011**	**3/3/2011**	6.8 SU	6.9 SU
00400	**03/31/2011**	**4/11/2011**	6.6 SU	6.9 SU
00400	**04/30/2011**	**5/9/2011**	6.5 SU	7.1 SU
00400	**05/31/2011**	**6/7/2011**	6.9 SU	7.1 SU
00400	**06/30/2011**	**7/7/2011**	6.8 SU	7.4 SU
00400	**07/31/2011**	**8/5/2011**	6.9 SU	7.2 SU
00400	**08/31/2011**	**9/6/2011**	6.8 SU	7.1 SU
00400	**09/30/2011**	**10/7/2011**	6.8 SU	7.1 SU
00400	**10/31/2011**	**11/3/2011**	6.9 SU	7.2 SU
00400	**11/30/2011**	**12/7/2011**	6.9 SU	7.2 SU
00400	**12/31/2011**	**1/4/2012**	6.9 SU	7 SU
00400	**01/31/2012**	**2/2/2012**	6.8 SU	7 SU
00400	**02/29/2012**	**3/7/2012**	6.8 SU	7 SU
00400	**03/31/2012**	**4/4/2012**	6.8 SU	7 SU
00400	**04/30/2012**	**5/2/2012**	6.8 SU	7 SU
00400	**05/31/2012**	**6/5/2012**	6.9 SU	7.1 SU
00400	**06/30/2012**	**7/3/2012**	6.9 SU	7.2 SU

Phosphate, ortho, dissolved (as P)
Limit Start Date = 7/1/07
Season = 0

			Q1	**Q2**	**C1**	**C3**
			Req. Mon. lb/d	**Req. Mon. lb/d**	**Req. Mon. mg/L**	**Req. Mon. mg/L**
Pram	**MP Dt**	**Rec Dt**	**MO AVG**	**DAILY MX**	**MO AVG**	**DAILY MX**

00671	**11/30/2009**	**12/8/2009**	0.42 lb/d	0.66 lb/d	0.09 mg/L	0.14 mg/L
00671	**12/31/2009**	**1/14/2010**	0.49 lb/d	1.19 lb/d	0.09 mg/L	0.19 mg/L
00671	**01/31/2010**	**2/12/2010**	6.13 lb/d	30.99 lb/d	1.22 mg/L	3.8 mg/L
00671	**02/28/2010**	**3/11/2010**	3.3 lb/d	4.3 lb/d	0.63 mg/L	0.8 mg/L
00671	**03/31/2010**	**4/13/2010**	3 lb/d	3.6 lb/d	0.4 mg/L	0.47 mg/L
00671	**11/30/2010**	**12/7/2010**	3.3 lb/d	5.1 lb/d	0.79 mg/L	1.2 mg/L
00671	**12/31/2010**	**1/11/2011**	3.1 lb/d	3.7 lb/d	0.73 mg/L	0.86 mg/L
00671	**01/31/2011**	**2/8/2011**	3.9 lb/d	7.6 lb/d	0.99 mg/L	1.9 mg/L
00671	**02/28/2011**	**3/3/2011**	3.2 lb/d	3.7 lb/d	0.73 mg/L	0.86 mg/L
00671	**03/31/2011**	**4/11/2011**	4.6 lb/d	6.9 lb/d	0.41 mg/L	0.61 mg/L
00671	**11/30/2011**	**12/7/2011**	2.9 lb/d	4.4 lb/d	0.38 mg/L	0.58 mg/L
00671	**12/31/2011**	**1/4/2012**	3 lb/d	4 lb/d	0.37 mg/L	0.49 mg/L
00671	**01/31/2012**	**2/2/2012**	2 lb/d	4 lb/d	0.34 mg/L	0.68 mg/L
00671	**02/29/2012**	**3/7/2012**	1.6 lb/d	1.9 lb/d	0.31 mg/L	0.37 mg/L
00671	**03/31/2012**	**4/4/2012**	2 lb/d	2.7 lb/d	0.4 mg/L	0.53 mg/L

Phosphorus, total (as P)
Limit Start Date = 7/1/07
Season = 0

			C1	**C2**	**C3**
			1 mg/L	**1 mg/L**	**1.5 mg/L**
Pram	**MP Dt**	**Rec Dt**	**MO AVG**	**WKLY AVG**	**DAILY MX**
00665	**07/31/2009**	**8/11/2009**	0.32 mg/L	0.36 mg/L	0.36 mg/L
00665	**08/31/2009**	**9/11/2009**	0.36 mg/L	0.42 mg/L	0.42 mg/L
00665	**09/30/2009**	**10/14/2009**	0.31 mg/L	0.46 mg/L	0.46 mg/L
00665	**10/31/2009**	**11/13/2009**	0.21 mg/L	0.28 mg/L	0.28 mg/L
00665	**04/30/2010**	**5/13/2010**	0.23 mg/L	0.3 mg/L	0.3 mg/L
00665	**05/31/2010**	**6/8/2010**	0.24 mg/L	0.36 mg/L	0.36 mg/L
00665	**06/30/2010**	**7/13/2010**	0.29 mg/L	0.38 mg/L	0.38 mg/L
00665	**07/31/2010**	**8/11/2010**	0.48 mg/L	0.55 mg/L	0.55 mg/L
00665	**08/31/2010**	**9/13/2010**	0.63 mg/L	0.76 mg/L	0.76 mg/L
00665	**09/30/2010**	**10/14/2010**	0.66 mg/L	0.7 mg/L	0.7 mg/L
00665	**10/31/2010**	**11/8/2010**	0.64 mg/L	0.64 mg/L	0.64 mg/L
00665	**04/30/2011**	**5/9/2011**	0.45 mg/L	0.64 mg/L	0.64 mg/L
00665	**05/31/2011**	**6/7/2011**	0.4 mg/L	0.47 mg/L	0.47 mg/L
00665	**06/30/2011**	**7/7/2011**	0.37 mg/L	0.54 mg/L	0.54 mg/L
00665	**07/31/2011**	**8/5/2011**	0.45 mg/L	0.7 mg/L	0.7 mg/L
00665	**08/31/2011**	**9/6/2011**	0.46 mg/L	0.74 mg/L	0.74 mg/L
00665	**09/30/2011**	**10/7/2011**	0.6 mg/L	0.81 mg/L	0.81 mg/L
00665	**10/31/2011**	**11/3/2011**	0.53 mg/L	0.65 mg/L	0.65 mg/L
00665	**04/30/2012**	**5/2/2012**	0.43 mg/L	0.54 mg/L	0.54 mg/L
00665	**05/31/2012**	**6/5/2012**	0.6 mg/L	0.91 mg/L	0.91 mg/L
00665	**06/30/2012**	**7/3/2012**	0.98 mg/L	1.6 mg/L	1.6 mg/L

Season = 1

Pram	MP Dt	Rec Dt	C1 Req. Mon. mg/L MO AVG
00665	11/30/2009	12/8/2009	0.13 mg/L
00665	12/31/2009	1/14/2010	0.2 mg/L
00665	01/31/2010	2/12/2010	1.44 mg/L
00665	02/28/2010	3/11/2010	0.68 mg/L
00665	03/31/2010	4/13/2010	0.46 mg/L
00665	11/30/2010	12/7/2010	0.78 mg/L
00665	12/31/2010	1/11/2011	0.88 mg/L
00665	01/31/2011	2/8/2011	1.23 mg/L
00665	02/28/2011	3/3/2011	1 mg/L
00665	03/31/2011	4/11/2011	0.6 mg/L
00665	11/30/2011	12/7/2011	0.51 mg/L
00665	12/31/2011	1/4/2012	0.6 mg/L
00665	01/31/2012	2/2/2012	0.42 mg/L
00665	02/29/2012	3/7/2012	0.48 mg/L
00665	03/31/2012	4/4/2012	0.67 mg/L

Solids, total suspended
Limit Start Date = 7/1/07
Season = 0

Pram	MP Dt	Rec Dt	Q1 208 lb/d MO AVG	Q2 208 lb/d WKLY AVG	C1 25 mg/L MO AVG	C2 25 mg/L WKLY AVG	C3 Req. Mon. mg/L DAILY MX
00530	07/31/2009	8/11/2009	5 lb/d	11 lb/d	1 mg/L	2 mg/L	2 mg/L
00530	08/31/2009	9/12/2009	1 lb/d	6 lb/d	0 mg/L	1 mg/L	1 mg/L
00530	09/30/2009	10/14/2009	5 lb/d	19 lb/d	1 mg/L	4 mg/L	4 mg/L
00530	10/31/2009	11/13/2009	0 lb/d	0 lb/d	0 mg/L	0 mg/L	0 mg/L
00530	11/30/2009	12/8/2009	3.76 lb/d	NODI Code =	0.8 mg/L	3 mg/L	3 mg/L
00530	11/30/2009	1/13/2010	NODI Code =	14.1 lb/d	NODI Code =	NODI Code =	NODI Code =
00530	12/31/2009	1/14/2010	22.8 lb/d	32.6 lb/d	4.2 mg/L	6 mg/L	6 mg/L
00530	01/31/2010	2/12/2010	10.04 lb/d	47.31 lb/d	2 mg/L	5.8 mg/L	9 mg/L
00530	02/28/2010	3/11/2010	36.6 lb/d	52.3 lb/d	7 mg/L	10 mg/L	10 mg/L
00530	03/31/2010	4/13/2010	43 lb/d	69 lb/d	6 mg/L	8 mg/L	8 mg/L
00530	04/30/2010	5/13/2010	15 lb/d	21 lb/d	2 mg/L	4 mg/L	4 mg/L
00530	05/31/2010	6/8/2010	19 lb/d	31 lb/d	4 mg/L	6 mg/L	6 mg/L
00530	06/30/2010	7/13/2010	13 lb/d	14 lb/d	3 mg/L	3 mg/L	3 mg/L
00530	07/31/2010	8/11/2010	9 lb/d	13 lb/d	2 mg/L	3 mg/L	3 mg/L
00530	08/31/2010	9/13/2010	15 lb/d	24 lb/d	4 mg/L	6 mg/L	6 mg/L
00530	09/30/2010	10/14/2010	11.5 lb/d	17.6 lb/d	3 mg/L	4 mg/L	4 mg/L
00530	10/31/2010	11/8/2010	10 lb/d	13 lb/d	2 mg/L	3 mg/L	3 mg/L
00530	11/30/2010	12/7/2010	17 lb/d	29 lb/d	4 mg/L	6 mg/L	6 mg/L
00530	12/31/2010	1/11/2011	22 lb/d	26 lb/d	5 mg/L	6 mg/L	6 mg/L
00530	01/31/2011	2/8/2011	28 lb/d	64 lb/d	7 mg/L	16 mg/L	16 mg/L
00530	02/28/2011	3/3/2011	30 lb/d	44 lb/d	6 mg/L	10 mg/L	10 mg/L
00530	03/31/2011	4/11/2011	68 lb/d	90 lb/d	6 mg/L	8 mg/L	8 mg/L
00530	04/30/2011	5/9/2011	31 lb/d	62 lb/d	4 mg/L	8 mg/L	8 mg/L
00530	05/31/2011	6/7/2011	27 lb/d	33 lb/d	4 mg/L	5 mg/L	5 mg/L
00530	06/30/2011	7/7/2011	12 lb/d	12 lb/d	2 mg/L	2 mg/L	2 mg/L
00530	07/31/2011	8/5/2011	5 lb/d	10 lb/d	1 mg/L	2 mg/L	2 mg/L
00530	08/31/2011	9/6/2011	16 lb/d	21 lb/d	3 mg/L	4 mg/L	4 mg/L
00530	09/30/2011	10/7/2011	55 lb/d	95 lb/d	7 mg/L	12 mg/L	12 mg/L
00530	10/31/2011	11/3/2011	19 lb/d	32 lb/d	3 mg/L	5 mg/L	5 mg/L
00530	11/30/2011	12/7/2011	23 lb/d	45 lb/d	3 mg/L	6 mg/L	6 mg/L
00530	12/31/2011	1/4/2012	16 lb/d	25 lb/d	2 mg/L	3 mg/L	3 mg/L
00530	01/31/2012	2/2/2012	18 lb/d	23 lb/d	3 mg/L	4 mg/L	4 mg/L
00530	02/29/2012	3/7/2012	25 lb/d	50 lb/d	5 mg/L	10 mg/L	10 mg/L
00530	03/31/2012	4/4/2012	25 lb/d	35 lb/d	5 mg/L	7 mg/L	7 mg/L
00530	04/30/2012	5/2/2012	13 lb/d	17 lb/d	3 mg/L	4 mg/L	4 mg/L
00530	05/31/2012	6/5/2012	14 lb/d	19 lb/d	2 mg/L	4 mg/L	4 mg/L
00530	06/30/2012	7/3/2012	10 lb/d	14 lb/d	2 mg/L	3 mg/L	3 mg/L

Monitoring Location = K

BOD, 5-day, percent removal
Limit Start Date = 7/1/07
Season = 0

			C1

Pram	MP Dt	Rec Dt	85 % MO AV MN
81010	07/31/2009	8/11/2009	96.5 %
81010	08/31/2009	9/11/2009	95.8 %
81010	09/30/2009	10/14/2009	98.5 %
81010	10/31/2009	11/13/2009	97 %
81010	11/30/2009	12/8/2009	96.5 %
81010	12/31/2009	1/14/2010	94.5 %
81010	01/31/2010	2/12/2010	96 %
81010	02/28/2010	3/11/2010	97 %
81010	03/31/2010	4/13/2010	93.6 %
81010	04/30/2010	5/13/2010	98 %
81010	05/31/2010	6/8/2010	98.9 %
81010	06/30/2010	7/13/2010	98.3 %
81010	07/31/2010	8/11/2010	97.3 %
81010	08/31/2010	9/13/2010	98.3 %
81010	09/30/2010	10/14/2010	96.8 %
81010	10/31/2010	11/8/2010	97.4 %
81010	11/30/2010	12/7/2010	97.7 %
81010	12/31/2010	1/11/2011	98.6 %
81010	01/31/2011	2/8/2011	96.8 %
81010	02/28/2011	3/3/2011	96.7 %
81010	03/31/2011	4/11/2011	97.8 %
81010	04/30/2011	5/9/2011	96 %
81010	05/31/2011	6/7/2011	99 %
81010	06/30/2011	7/7/2011	98 %
81010	07/31/2011	8/5/2011	98 %
81010	08/31/2011	9/6/2011	99 %
81010	09/30/2011	10/7/2011	98.4 %
81010	10/31/2011	11/3/2011	99 %
81010	11/30/2011	12/7/2011	98.7 %
81010	12/31/2011	1/4/2012	98.7 %
81010	01/31/2012	2/2/2012	97.4 %
81010	02/29/2012	3/7/2012	95.8 %
81010	03/31/2012	4/4/2012	97.8 %
81010	04/30/2012	5/2/2012	98.5 %
81010	05/31/2012	6/5/2012	98.4 %
81010	06/30/2012	7/3/2012	97.3 %

Solids, suspended percent removal
Limit Start Date = 7/1/07
Season = 0

Pram	MP Dt	Rec Dt	C1 85 % MO AV MN
81011	07/31/2009	8/11/2009	99.4 %
81011	08/31/2009	9/11/2009	99.9 %
81011	09/30/2009	10/14/2009	99.4 %
81011	10/31/2009	11/13/2009	100 %
81011	11/30/2009	12/8/2009	100 %
81011	12/31/2009	1/14/2010	98 %
81011	01/31/2010	2/12/2010	96 %
81011	02/28/2010	3/11/2010	96 %
81011	03/31/2010	4/13/2010	96 %
81011	04/30/2010	5/13/2010	98 %
81011	05/31/2010	6/8/2010	98 %
81011	06/30/2010	7/13/2010	99 %
81011	07/31/2010	8/11/2010	99 %
81011	08/31/2010	9/13/2010	99 %
81011	09/30/2010	10/14/2010	99 %
81011	10/31/2010	11/8/2010	99 %
81011	11/30/2010	12/7/2010	99 %
81011	12/31/2010	1/11/2011	98 %
81011	01/31/2011	2/8/2011	96.5 %
81011	02/28/2011	3/3/2011	97 %
81011	03/31/2011	4/11/2011	94 %
81011	04/30/2011	5/9/2011	98 %
81011	05/31/2011	6/7/2011	99 %

81011	**06/30/2011**	**7/7/2011**	99 %
81011	**07/31/2011**	**8/5/2011**	99.4 %
81011	**08/31/2011**	**9/6/2011**	98.6 %
81011	**09/30/2011**	**10/7/2011**	94.9 %
81011	**10/31/2011**	**11/3/2011**	98.6 %
81011	**11/30/2011**	**12/7/2011**	98.4 %
81011	**12/31/2011**	**1/4/2012**	98.2 %
81011	**01/31/2012**	**2/2/2012**	98.3 %
81011	**02/29/2012**	**3/7/2012**	97.6 %
81011	**03/31/2012**	**4/4/2012**	97.7 %
81011	**04/30/2012**	**5/2/2012**	99.1 %
81011	**05/31/2012**	**6/5/2012**	99.1 %
81011	**06/30/2012**	**7/3/2012**	98.8 %

001B

Monitoring Location = 1

LC50 Static 48Hr Acute Ceriodaphnia

Limit Start Date = 8/1/07

Season = 0

			C1
			100 %
Pram	**MP Dt**	**Rec Dt**	**DAILY MN**
TAA3B	**08/31/2009**	**9/21/2009**	100 %
TAA3B	**11/30/2009**	**1/13/2010**	100 %
TAA3B	**02/28/2010**	**3/11/2010**	100 %
TAA3B	**05/31/2010**	**6/16/2010**	100 %
TAA3B	**08/31/2010**	**8/31/2010**	100 %
TAA3B	**11/30/2010**	**12/9/2010**	100 %
TAA3B	**02/28/2011**	**3/29/2011**	100 %
TAA3B	**05/31/2011**	**6/7/2011**	100 %
TAA3B	**08/31/2011**	**9/6/2011**	100 %
TAA3B	**11/30/2011**	**12/12/2011**	100 %
TAA3B	**02/29/2012**	**3/9/2012**	100 %
TAA3B	**05/31/2012**	**6/12/2012**	100 %

Noel Statre 7Day Chronic Ceriodaphnia

Limit Start Date = 8/1/07

Season = 0

			C1
			7 %
Pram	**MP Dt**	**Rec Dt**	**DAILY MN**
TBP3B	**08/31/2009**	**9/21/2009**	100 %
TBP3B	**11/30/2009**	**1/13/2010**	100 %
TBP3B	**02/28/2010**	**3/11/2010**	7 %
TBP3B	**05/31/2010**	**6/16/2010**	6.25 %
TBP3B	**08/31/2010**	**8/31/2010**	25 %
TBP3B	**11/30/2010**	**12/9/2010**	25 %
TBP3B	**02/28/2011**	**3/29/2011**	6.25 %
TBP3B	**05/31/2011**	**6/7/2011**	25 %
TBP3B	**08/31/2011**	**9/6/2011**	100 %
TBP3B	**11/30/2011**	**12/12/2011**	50 %
TBP3B	**02/29/2012**	**3/9/2012**	50 %
TBP3B	**05/31/2012**	**6/12/2012**	100 %

Appendix B

Aluminum Data from Whole Effluent Toxicity Tests

Date	Effluent (µg/L)	River (µg/L)
11/9/2009	71	94
2/8/2010	243	82
5/10/2010	93	138
8/10/2010	100	90
11/18/2010	99	109
2/7/2011	108	74
5/9/2011	48	47
8/8/2011	77	38
11/14/2011	53	146
2/20/2012	140	70
median	96	86

Reasonable Potential Analysis
no ND, >10 data points, Lognormal distribution

Dilution Factor:	10

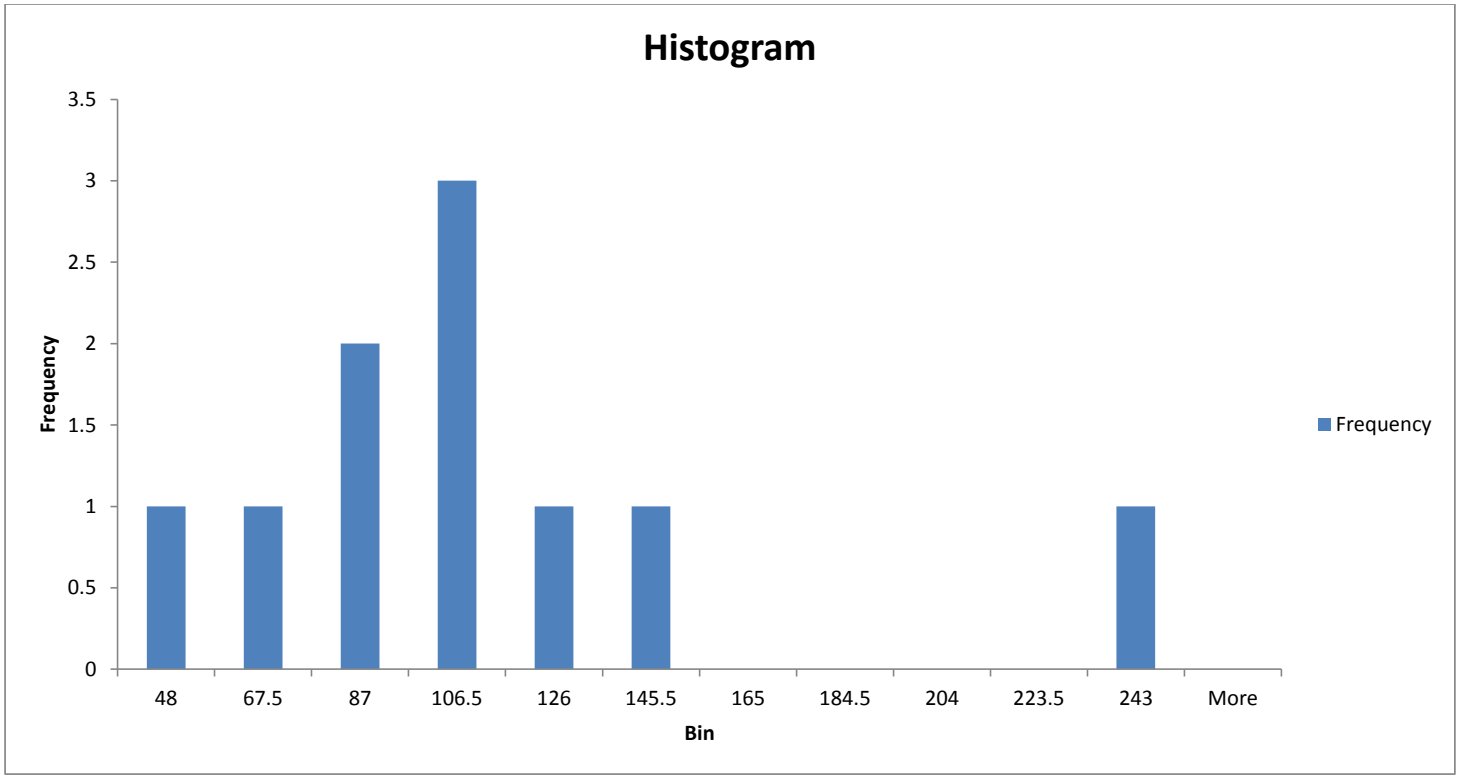
Date	Al (ug/L)	*Yi* lnAl (ug/L)
8/10/2009	71	4.2627
11/9/2009	243	5.4931
2/8/2010	93	4.5326
5/10/2010	100	4.6052
8/10/2010	99	4.5951
11/18/2010	108	4.6821
2/7/2011	48	3.8712
5/9/2011	77	4.3438
8/8/2011	53	3.9703
11/14/2011	140	4.9416

Al - (Lognormal distribution, no ND)

Estimated Daily Maximum Effluent Concentration

k = number of daily samples =	10	
u_y = Avg of Nat. Log of daily Discharge =	4.52977	
s_y = Std Dev. of Nat Log of daily discharge =	0.46944	
σ_y^2 = estimated variance = (SUM[$(y_i - u_y)^2$]) / (k-1) =	0.220377315	
cv(x)= Coefficient of Variation =	0.103635194	
99th Percentile Daily Max Estimate = exp (u_y + 2.326*s_y)		
Estimated Daily Max 99th percentile =	**276.3577**	**ug/L**
Estimated Daily Max including Dilution Factor =		**ug/L**
95th Percentile Daily Max Estimate = exp (u_y + 1.645*s_y)		
Estimated Daily Max =	**200.7389**	**ug/L**
Estimated Daily Max including Dilution Factor =		**ug/L**

Bin	*Frequency*
48	1
67.5	1
87	2
106.5	3
126	1
145.5	1
165	0
184.5	0
204	0
223.5	0
243	1
More	0



Aluminum Reasonable Potential Analysis

Acute					
	Downstream conc = (QeCe + QsCs)/Qr			96.94432585	Water Quality Criterion 750.00
					There is NO reasonable potential
Qr =	16.25	cfs	7Q10 + design flow		
Qs =	14.7	cfs	7Q10		
Cs =	86	ug/l	Background conc		
Qe =	1.55	cfs	design flow		
Ce =	200.74	ug/l	maximum concentration		

Chronic					
	Downstream conc = (QeCe + QsCs)/Qr			96.94443077	Water Quality Criterion 87.00
					There is reasonable potential
Qr =	16.25	cfs	7Q10 + design flow		
Qs =	14.7	cfs	7Q10		
Cs =	86	ug/l	Background conc		
Qe =	1.55	cfs	design flow		
Ce =	200.74	ug/l	95th percentile projection		

Permit Limit Calculation

$$Q_sC_s + Q_dC_d = Q_rC_r$$

Monthly Average
Permit Limit = $[C_r \times (Q_d + Q_s) - Q_sC_s]/Q_d =$ **96.48387 mg/L**

			Units
Where			
C_s=	background concentration	86.00	µg/L
Q_s=	critical streamflow	14.7	cfs
Qd=	critical effluent flow	1.55	cfs
Cr=	water quality criterion	87	µg/L

Appendix C

Copper Data from Whole Effluent Toxicity Tests

Date	Effluent (µg/L)	River (µg/L)
8/10/2009	12	4
11/9/2009	12	2
2/8/2010	20	<1
5/10/2010	9	2
8/10/2010	14	2
11/18/2010	12	3
2/7/2011	12	1
5/9/2011	10	10
8/8/2011	11	1
11/14/2011	7	<1
2/20/2012	6	1
median	12	2

Reasonable Potential Analysis
no ND, >10 data points, Lognormal distribution

Dilution Factor:	10

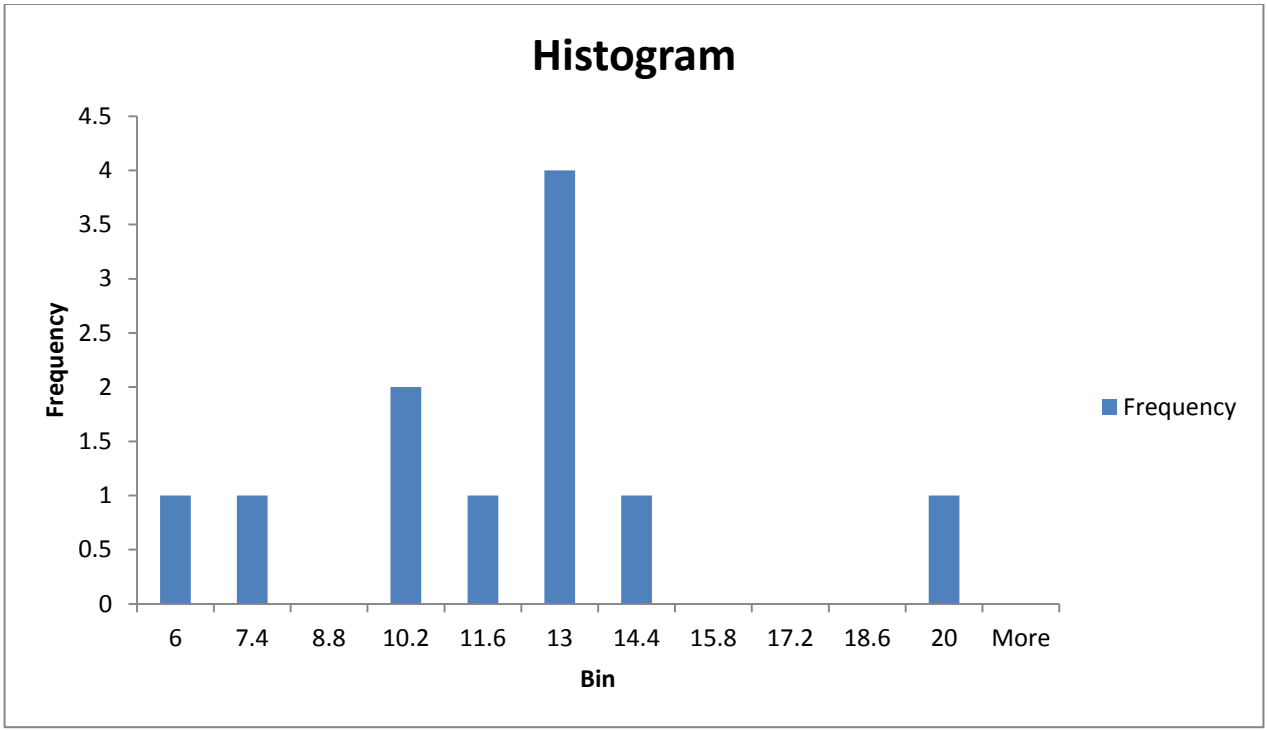
Date	Cu (ug/L)	*Yi* lnCu (ug/L)
8/10/2009	12	2.4849
11/9/2009	12	2.4849
2/8/2010	20	2.9957
5/10/2010	9	2.1972
8/10/2010	14	2.6391
11/18/2010	12	2.4849
2/7/2011	12	2.4849
5/9/2011	10	2.3026
8/8/2011	11	2.3979
11/14/2011	7	1.9459
2/20/2012	6	1.7918

Al - (Lognormal distribution, no ND)

Estimated Daily Maximum Effluent Concentration

k = number of daily samples =	11	
u_y = Avg of Nat. Log of daily Discharge =	2.38271	
s_y = Std Dev. of Nat Log of daily discharge =	0.32625	
σ_y^2 = estimated variance = (SUM[$(y_i - u_y)^2$]) / (k-1) =	0.106435896	
cv(x)= Coefficient of Variation =	0.136921986	
99th Percentile Daily Max Estimate = exp (u_y + 2.326*s_y)		
Estimated Daily Max 99th percentile =	**23.1398**	**ug/L**
Estimated Daily Max including Dilution Factor =		**ug/L**
95th Percentile Daily Max Estimate = exp (u_y + 1.645*s_y)		
Estimated Daily Max =	**18.5298**	**ug/L**
Estimated Daily Max including Dilution Factor =		**ug/L**

Bin	*Frequency*
6	1
7.4	1
8.8	0
10.2	2
11.6	1
13	4
14.4	1
15.8	0
17.2	0
18.6	0
20	1
More	0



Acute					
	Downstream conc = (QeCe + QsCs)/Qr			3.716923077	Water Quality Criterion 3.52
					There is reasonable potential
Qr =	16.25	cfs	7Q10 + design flow		
Qs =	14.7	cfs	7Q10		
Cs =	2	ug/l	Background conc		
Qe =	1.55	cfs	design flow		
Ce =	20.00	ug/l	maximum concentration		

Chronic					
	Downstream conc = (QeCe + QsCs)/Qr			3.576690861	Water Quality Criterion 2.67
					There is reasonable potential
Qr =	16.25	cfs	7Q10 + design flow		
Qs =	14.7	cfs	7Q10		
Cs =	2	ug/l	Background conc		
Qe =	1.55	cfs	design flow		
Ce =	18.53	ug/l	95th percentile projection		

Permit Limit Calculation

$Q_sC_s + Q_dC_d = Q_rC_r$

Maximum Daily
Permit Limit = $[C_r \times (Q_d + Q_s) - Q_sC_s]/Q_d =$ **17.93548 µg/L**

			Units
Where			
C_s=	background concentration	2.00	µg/L
Q_s=	critical streamflow	14.7	cfs
Qd=	critical effluent flow	1.55	cfs
Cr=	acute water quality criterion	3.52	µg/L

$Q_sC_s + Q_dC_d = Q_rC_r$

Monthly Average
Permit Limit = $[C_r \times (Q_d + Q_s) - Q_sC_s]/Q_d =$ **9.024194 µg/L**

			Units
Where			
C_s=	background concentration	2.00	µg/L
Q_s=	critical streamflow	14.7	cfs
Qd=	critical effluent flow	1.55	cfs
Cr=	chronic water quality criterion	2.67	µg/L

RESPONSE TO COMMENTS
REISSUANCE OF NPDES PERMIT NO. MA0100889
WARE WASTEWATER TREATMENT PLANT
WARE, MASSACHUSETTS

From March 8, 2013 through April 7, 2013, the U.S. Environmental Protection Agency (EPA-New England) and the Massachusetts Department of Environmental Protection (MassDEP) solicited public comments on the draft National Pollutant Discharge Elimination System (NPDES) permit to be reissued to the Ware Wastewater Treatment Plant (WWTP) in Ware, MA.

EPA-New England and MassDEP received comments from the Town of Ware (the Town) and the Connecticut River Watershed Council. The following are responses to those comments by EPA-New England and MassDEP, and descriptions of any changes made to the public-noticed permit as a result of those comments.

A copy of the Final Permit and this Response to Comments 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 Robin Johnson, United States Environmental Protection Agency, 5 Post Office Square, Suite 100 (Mail Code: OEP06-1), Boston, Massachusetts 02109-3912; Telephone (617) 918-1045.

1. Changes made to the final permit

a. Page 6 of 19: Footnote 14 was added to note the inclusion of compliance schedules for attaining the aluminum and copper limits, and to refer the reader to the detailed schedules, which have been added to the permit as Item F.1. See Responses A1 and A2 on pages 3 and 6, respectively.
b. Page 8 of 19: The MassDEP web link for the SSO Reporting Form has changed.
c. Page 15 of 19: The due date for the annual pretreatment report was changed from March 1 to November 28.
d. Page 15 of 19: Item F.1. was added to describe the 48-month compliance schedules for attaining the aluminum and copper limits. See Responses A1 and A2 on pages 3 and 6, respectively.

2. COMMENTS FROM THE TOWN OF WARE

COMMENT A1:

Permit Page 2 of 18, Table A.1 *New aluminum limit 96 ug/L*

The ambient water quality criteria used in the evaluation of the aluminum permit limit was based on a survey conducted in 1988 of available aluminum toxicity literature[1]. Since that time it has been shown by several aluminum speciation and toxicity studies that aluminum alone is not sufficient to cause toxicity to aquatic organisms. Rather, it is the type of aluminum species present in the water that is the key factor in determining its toxicity. Aluminum speciation, bioavailability, and toxicity are dependent on diverse water quality parameters such as the buffering capacity, dissolved organic carbon content, and pH of the water[2]. The Ware River, to which the WPCP discharges, is a river with a high buffering capacity (20 mg/L of hardness, according to the fact sheet). Several studies have concluded that aluminum toxicity is only present in poorly buffered streams when the pH becomes acidic resulting in increased speciation of aluminum into bioavailable and toxic forms[2]. It is burdensome for the WPCP to meet such a strict aluminum limit when there is no clear detrimental effect to the receiving water. Use of aluminum salts by the WPCP is an effective tool for enhancing both solids and phosphorus removal.

As indicated in Footnote (L) of the table that includes the Federal Water Quality Standard of 87 ug/L, based on the acute toxicity standard for aluminum:

"There are three major reasons why the use of Water-Effect Ratios might be appropriate.

1. *The value of 87 µg/l is based on a toxicity test with the striped bass in water with pH = 6.5–6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time.*

2. *In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide.*

3. *EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 ug aluminum/L, when either total recoverable or dissolved is measured."*

The Ware River has higher buffering capacity than the 10 mg/L suggested, as indicated in the fact sheet. Additionally, given the nature of the colloidal solids contributed to the waste stream by Kanzaki Specialty Papers, it is possible that a significant amount of the

[1] USEPA, 1988. Ambient water quality criteria for aluminum — 1988. EPA 440/5–86–008. Washington, D.C., U.S. Environmental Protection Agency.
[2] Robert W. Gensemer & Richard C. Playle (1999): The Bioavailability and Toxicity of Aluminum in Aquatic Environments, Critical Reviews in Environmental Science and Technology, 29:4, 315-450.

effluent particulate aluminum could be associated with silica particles, rather than being "primarily aluminum hydroxide," which would indicate a potential reduction in toxicity. A limit on aluminum has major implications for the WPCP. Currently polyaluminum chloride is added as a settling aid to the secondary clarifiers to maintain compliance with effluent TSS limits. Without this tool, Ware will not be able to consistently meet our effluent TSS requirements until the proposed tertiary treatment system is constructed. Past experience has indicated that ferric chloride alone was not sufficient to reduce TSS, particularly the colloidal particles contributed to the waste stream by Kanzaki Specialty Papers.

We propose several potential modifications to the proposed aluminum limit, including:

- Include a monitoring-only limit in this permit renewal, or at least until the new tertiary treatment system can be placed into service and the chemical addition optimized (estimated to be approximately 2 years from permit issuance);
- Provide an opportunity to optimize polyaluminum chloride addition to minimize aluminum in the effluent during this permit cycle before considering a numerical aluminum limit;
- If EPA will not agree to a monitoring-only limit in this permit, we request that a minimum 5-yr implementation schedule for meeting the aluminum limit be provided that includes:
    - Construction of the new tertiary treatment system that will be used to minimize effluent solids (including particulate aluminum);
    - A study to characterize sources in the system and analyze alternatives for meeting the limit, completed within 1 year of completion of construction of the new tertiary treatment system;
    - If indicated, design of the alternative system within 1 year of completing the study;
    - If indicated, installation and utilization of the alternative system within 1 year of design;
    - Compliance with the aluminum limit within 5 years of permit issuance;
    - Regular compliance reports to EPA/MassDEP within 30 days of completion of each of these milestones.
    - If through the optimization and/or implementation schedule study, it is determined that the WPCP does not need to add aluminum-based coagulants, remove the aluminum limit from the permit.

Request a monitor-only aluminum limit. Alternatively, provide for the above implementation schedule, and include a monitor-only limit until the new tertiary treatment system can be placed into service and the chemical addition optimized.

RESPONSE A1:

Water Quality Criteria

The CWA requires NPDES permits to contain effluent limits more stringent than technology-based limits, if necessary to meet water quality standards (See Section 301(b)

(1)(C) of the CWA). Water quality-based limits are required in NPDES permits for pollutants that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard (See 40 CFR 122.44(d)(1)(i)). For water quality standards adopted by a state after May 30, 2000, those standards are used for purposes of the CWA only after EPA has approved the standards (See 40 CFR 131.21(c)). For toxics, including aluminum, the current state water quality criteria were adopted by Massachusetts on January 11, 2007, and were approved by EPA in 2007[3] . The applicable aluminum criteria are the water quality criteria from *National Recommended Water Quality Criteria: 2002, EPA822-R-02-047*. The total recoverable aluminum criteria recommended in this document are a criterion maximum concentration (CMC) of 750 μg/L and a criterion continuous concentration of 87 μg/L, and the criteria are not hardness based, as are the criteria for some other metals. While the commenter correctly notes that footnote L to the recommended aluminum criteria includes several reasons why the use of Water-Effects Ratio might be appropriate, no such analysis has been completed for this receiving water, so no site-specific criteria using this method have been adopted by the state or approved by EPA. Unless and until an alternate site-specific limit is adopted and approved, the water quality-based aluminum permit limits must be based on the existing criteria.

MassDEP is currently studying the possibility of site-specific aluminum criteria or statewide aluminum criteria. The specific information included in the comment related to the chemical characteristics of the Ware River and the discharge may inform the development of a site-specific criterion for this receiving water. If the Town wishes to pursue site-specific criteria or to encourage Massachusetts to develop new statewide aluminum criteria, then we suggest that the Town contact MassDEP on this issue. EPA is happy to provide guidance and assistance should the Commonwealth decide to pursue either of these approaches. If a site-specific criterion is adopted by the state and approved by EPA, this would be considered cause for modification of the permit pursuant to 40 CFR 122.62(a)(3)(i)(A), "New regulations."

Similarly, in the event that subsequent sampling shows that aluminum concentrations in the Ware River and/or the discharge are less than the chronic criteria, this could also represent cause for a modification, pursuant to 40 CFR 122.62(a)(2), "Information." At least four instream samples and twelve effluent samples (one year of data) would be the minimum number of samples necessary to support such a modification request.

Regarding the specific comment that the Ware River is well-buffered, the Ware River in this location has an estimated hardness of 20 mg/l. The U.S. Geological Survey categorizes waters with hardness of 0 mg/l through 60 mg/l as "soft[4]", meaning it is not considered well-buffered. Metals tend to be more toxic in soft water, but as noted above the water quality criterion for aluminum are not hardness based.

[3] Site-specific copper criteria were approved by letter dated March 26, 2007, the remainder of the water quality standards were approved by letter dated September 19, 2007.
[4] http://water.usgs.gov/owq/hardness-alkalinity.html

As discussed above, EPA must include effluent limitations necessary to attain existing water quality standards, so the final permit includes the same aluminum limit that was in the draft permit. The Region's decision to move forward with an effluent limit for aluminum at this time is consistent with the CWA and EPA's regulations, which provide for the reissuance of permits on a regular basis so that permit terms are revisited and reviewed rather than left unexamined and unchanged for long periods of time. *See* 33 USC §§ 1342(a)(3) and (b)(1)(B), and 40 C.F.R. § 122.46(a). This regular and periodic review supports the CWA's goal of restoring and maintaining the chemical, physical and biological integrity of the Nation's waters.

Compliance Schedule

The CWA allows for compliance schedules for water quality-based limits. The compliance schedule must "require compliance as soon as possible" (40 CFR 122.47(a)(1)). Such schedules are authorized by Massachusetts Surface Water Quality Standards (MA SWQS) for "limitations that are based on new, newly interpreted or revised water quality standards…" [see 314CMR 4.03(1)(b)].

The five-year compliance schedule proposed by the commenter appears excessive. The final permit includes a compliance schedule of 48 months for attaining the aluminum limit. EPA believes that this is sufficient time for Town to evaluate sources of aluminum in the treatment system, evaluate alternatives, and implement an alternative to meet the limit.

The compliance schedule also presents a window of opportunity for the Town to pursue site-specific aluminum criteria, if it chooses. As discussed previously, should site-specific aluminum criteria for the Ware River be adopted by the state and approved by EPA, these criteria would be a new regulation pursuant to 40 CFR 122.62 (a)(3) and cause for permit modification.

COMMENT A2: Copper

2. **Permit Page 2 of 18, Table A.1** *New copper limit 9.0 ug/L monthly average; 17.9 ug/L maximum daily*

Based on copper data from Whole Effluent Toxicity tests conducted between 2009 and 2012, it appears that the WPCP is not able to routinely meet the copper limit of 9.0 ug/L. Since removing copper from wastewater is often difficult, and source control is frequently required to meet stringent limits, we would like to discuss several potential modifications to the proposed copper limit, including:

- A monitoring-only limit in this permit renewal;

- Provide an opportunity to optimize solids removal through the new tertiary treatment system and reduce solids in the effluent during this permit before considering a numerical limit;

- Provide a minimum 5-yr implementation schedule for meeting the copper limit that includes:
  - Construction of the new tertiary treatment system that will be used to minimize effluent solids (including particulate copper);
  - A study to characterize sources in the system and analyze alternatives for meeting the limit, completed within 1 year of completion of construction of the new tertiary treatment system;
  - If indicated, design of the alternative system or operational modifications within 1 year of completing the study;
  - If indicated, installation and utilization of the alternative system or operational modifications within 1 year of design;
  - Compliance with the copper limit within 5 years of permit issuance;
  - Regular compliance reports to EPA and MassDEP within 30 days of completion of each of these milestones.

Request a monitor-only copper limit. Alternatively, provide for the above implementation schedule, and include a monitor-only limit until the new tertiary treatment system can be placed into service and a study of the source of copper be conducted.

RESPONSE A2:

The MA SWQS require that effluent limitations for metals be based upon the criteria published in the National Recommended Water Quality Criteria: 2002 (USEPA 2002 [EPA-822-R-02-047]), unless site-specific criteria are established or MassDEP determines that natural background concentrations are higher than the criteria (314 CMR 4.05(5)(e)). Also, see Response A1 for further discussion of this issue.

MassDEP has not established site-specific criteria for copper for the Ware River, nor have they determined that the natural concentrations of copper in the river are greater than the criteria published by EPA. Therefore, because the criteria in the National Recommended Water Quality Criteria: 2002 (USEPA 2002[EPA-822-R-02-047]) have been adopted by the State into their approved water quality standards (see 314 CMR 4.05 (5)(e), they were used to develop the effluent limits for copper in the draft permit to ensure attainment of water quality standards in the receiving water.

However, given the anticipated difficulty of complying with the copper limits, we have added a compliance schedule of 48 months for the copper limit to the Final Permit to give the Town time to evaluate sources of copper in the treatment system and to evaluate alternatives in meeting the limit. Such schedules are authorized by the MA SWQS for "limitations that are based on new, newly interpreted or revised water quality

standards…" [see 314 CMR 4.03(1)(b)]. It is also possible that MassDEP will adopt site-specific copper criteria by this time.

If the Town wishes to pursue site-specific criteria or to encourage Massachusetts to develop new statewide copper criteria, then we suggest that the Town contact MassDEP on this issue. EPA is happy to provide guidance and assistance should the Commonwealth decide to pursue either of these approaches. If a site specific criterion is adopted by the state and approved by EPA, this would be considered cause for modification of the permit pursuant to 40 CFR 122.62(a)(3)(i)(A), new regulations.

3. COMMENTS FROM THE CONNECTICUT RIVER WATERSHED COUNCIL

OPENING COMMENT:

I am submitting comments on the draft National Pollutant Discharge Elimination System (NPDES) permit for the Ware Wastewater Treatment Plant on behalf the Connecticut River Watershed Council (CRWC). The facility discharges into the Ware River, which joins with the Swift and Quaboag Rivers in Palmer to become the Chicopee River, a major tributary to the Connecticut River. The Fact Sheet indicates that the river segment of the Ware River where the facility discharges is listed in the Massachusetts Year 2010 Integrated List of Waters as impaired and requiring a TMDL for fecal coliform. We are interested in improving water quality and habitat in the Connecticut River watershed. Our comments are below.

RESPONSE TO OPENING COMMENT:

The comments are now part of the public record for this permit reissuance. The bacteria limits for the facility have been established at the water quality criteria, and so will ensure that the discharge does not contribute to the impairment.

COMMENT B1:

We are supportive of the stricter effluent limits for total residual chlorine in light of the new 7Q10 calculation and therefore new dilution factor.

RESPONSE B1:

The comments are now part of the public record for this permit reissuance.

COMMENT B2:

We support the addition of effluent limits for total copper and total aluminum because of a reasonable potential for the discharge to cause or contribute to a violation of water quality standards. We agree with the calculation of new limits in Table 2 of the Fact Sheet (page 15), but believe that the equation for the calculation of the new limit should

show that it uses the acute and chronic criteria in the calculation, not the Cr variable, as shown at the top of the new limit columns.

RESPONSE B2:

Thank you for the comment. Please note that the final permit provides the Town with a 48-month compliance schedule to meet both the aluminum and copper limits (see Responses A1 and A2).

EPA acknowledges that the meaning of Cr (downstream concentration of pollutant) in the metals reasonable potential table may be confusing. In the middle column, the projected downstream concentration of the pollutant is calculated to determine whether the discharge has the reasonable potential to cause an exceedance of water quality standards in the receiving water. If the result is greater than the criterion, there is reasonable potential. In the rightmost column, Cr is set to equal the water quality criterion to calculate the maximum concentration of the pollutant that would result in attainment of the criterion. The result of this calculation (Cd) is the effluent limit.

At the end of this Response to Comments document, there is a revised Table 2 with an explanation of the meaning of Cr in each column of the table where it was used.

COMMENT B3:

We support the average monthly effluent limit for total phosphorus of 584 µg/L, which takes into account upstream concentration of total phosphorus, and the increased frequency of testing to twice weekly.

RESPONSE B3:

The comment is now part of the public record for this permit reissuance.

COMMENT B4:

We support the stricter chronic toxicity limit of ≥10%, which has changed because of the updated dilution factor.

RESPONSE B4:

The comment is now part of the public record for this permit reissuance.

COMMENT B5:

Section 8 of the Fact Sheet discusses pretreatment. Kanzaki Specialty Papers is described as the only significant industrial user discharging to the WWTP, and the Fact Sheet describes planned upgrades to the WWTP partially financed by Kanzaki. The Fact Sheet states that the Town of Ware is still required to administer a pretreatment program, but an

article from the Springfield Republican dated August 21, 2012 (attached) seems to indicate the upgrade will eliminate the need for Kanzaki to do any pretreatment. Clarification is needed about Kanzaki's pretreatment plans, since their effluent may contribute to the metals concentrations and toxicity of the effluent. A subsequent article from November 14, 2012 indicates the Town was awarded a $2.5 million MassWorks grant to do the upgrades, which were to start this winter and be completed late in 2013.

RESPONSE B5:

The final permit requires the Town to have an industrial pretreatment program. The goal of any industrial pretreatment program is to ensure that industrial users achieve technology–based limits (National Pretreatment Standards) and to also ensure that industrial pollutants do not pass through the POTW or interfere with its operation or sludge use (See 40 CFR 403.2). Specific levels of pretreatment at the industrial facility necessary to prevent interference and pass through are not specified in the regulations; rather it is a site-specific determination made by the Town, which may take into account removal capabilities at the POTW treatment plant in making its determination. Site specific limits are developed using EPA's 2004 Local Limit Guidance Manual.

The Town of Ware plans to upgrade the Wastewater Treatment Plant (WWTP) in part to better handle the solids it receives from Kanzaki. In addition to the MassWorks grant, the Town has informed EPA that Kanzaki will be contributing $ 1 million to the upgrades. According to the Town, Kanzaki will also add an equalization tank to prevent slugs of wastewater from disrupting Ware WWTP's treatment processes. As mentioned above, the Town will still be required to administer its approved pretreatment program and Kanzaki Paper will be required to meet local limitations developed by the Town.

COMMENT B6:

The Fact Sheet lists the MassDEP contact as someone in the northeast regional office, which does not seem to make sense for the Town of Ware, unless the Wilmington office is newly responsible for NPDES permits statewide.

RESPONSE B6:

MassDEP assigns reviewers for permits based on expertise, availability, and workload rather than office location. These reviewers coordinate with the appropriate MassDEP regional office. MassDEP oversight of the facility and its operation remains the responsibility of the Western Regional Office.

Table 2. Reasonable Potential Analysis for Metals

Metal	Qd	Cd (95th Percentile)	Qs	Cs (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		200.7		86		96.9	750	87	**Y**	N/A	**96**
Cadmium		0		0		0	0.865	0.779	N	N/A	N/A
Chromium		0		0		0	543.01	25.95	N	N/A	N/A
Copper	1.55	23.1	14.7	2	16.25	4.01	3.52	2.67	**Y**	**17.9**	**9.0**
Lead		0		0		0	12.64	0.49	N	N/A	N/A
Nickel		5		0		0.48	135.82	15.10	N	N/A	N/A
Zinc		140		16		27.8	34.62	34.62	N	N/A	N/A

*In this column, the Cr is the projected downstream concentration of the pollutant. If this value exceeds the applicable criterion, there is reasonable potential, and an effluent limit is necessary.
**In this column, Cr, the downstream concentration, is set to the criterion. Under these conditions, water quality standards would be achieved for the pollutant in question.