

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

FACT SHEET

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

NPDES PERMIT NO.: **MA0100889**

NAME AND ADDRESS OF APPLICANT:

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

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Ware Wastewater Treatment Plant
Robbins Road
Ware, MA 01082**

RECEIVING WATER: **Ware River**

CLASSIFICATION: **B (warm water fishery)**

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

The above named applicant has requested that the U.S. Environmental Protection Agency reissue its NPDES permit to discharge into the designated receiving water, the Ware River (Figure 1). The facility is engaged in the collection and treatment of municipal and industrial wastewater.

The Ware Wastewater Treatment Plant is a 1.0 million gallon per day (MGD) advanced wastewater treatment plant. The total population served is approximately 5,000 people. There are two significant industrial users (SIU). Kanzaki Specialty Papers, a manufacturer of pressure/thermal sensitive paper sheet stock discharges about 75,000 gallons per day (gpd) of process wastewater, and Hardwick Landfill, Inc. discharges about 7,000 gpd of landfill leachate. Based on information provided in the permit application and the findings of a recent EPA inspection, the draft permit requires the Town to develop specific loading limits in its industrial pretreatment program. See Section E of the fact sheet for additional information.

II. DESCRIPTION OF DISCHARGE

A quantitative description of the discharge in terms of significant effluent parameters based on recent monitoring data is shown in **Attachment A**.

III. LIMITATIONS AND CONDITIONS

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

IV. PERMIT BASIS AND EXPLANATION OF EFFLUENT DERIVATION

A. PROCESS DESCRIPTION

The Ware Wastewater Treatment Plant (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 is stored in a holding tank at the WWTP and is pumped directly into tankers and transported offsite by Waste Water Services of Wareham, MA for incineration.

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

B. AVAILABLE DILUTION

The available dilution (also referred to as the dilution factor) for the advanced wastewater treatment plant was calculated to be 14.6. This calculation was based on a plant design flow of 1.0 million gallons per day and an estimated 7Q10 low flow of 21.12 cfs. The definition of the 7Q10 low flow is the mean low flow over 7 consecutive days, recurring every ten years. The 7Q10 flow used to calculate the effluent limits in the draft permit has been updated based on data from USGS low-flow frequency statistics for gaging stations. The current data shows no change in the 7Q10 or 30Q10 flows. Therefore, the 7Q10 flow at the USGS gaging station 01173500 on the Ware River at Gibbs Crossing is 22.37 cfs (River Mile 10.8), with a drainage area of 197 square miles. Since the drainage area of the Ware River at the WWTP is 186 square miles (River Mile 11.7), the 7Q10 calculation is 21.1 cfs. The 30Q10, or low flow for 30 days with a 10-year recurrence interval was calculated for November to April to determine if an ammonia limit is necessary during the winter. The 30Q10 is 27.5 cfs for the winter months. (See also: **Attachment B** of this Fact Sheet - Calculations.)

C. OUTFALL 001 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

Secondary treatment technology guidelines (effluent limits), which represent the minimum level of control for Publicly Owned Treatment Works, can be found at 40 CFR Part 133. Since all Clean Water Act statutory deadlines for meeting technology-based guidelines (effluent limits) have expired, the deadline for compliance with technology-based effluent limits for a Publicly Owned Treatment Works is the date of permit issuance (See also: 40 CFR §125.3(a)(1)). Extended compliance deadlines cannot be authorized by a NPDES permit, if the statutory deadlines have passed.

Section 301(b)(1)(C) of the Clean Water Act requires water quality-based limits in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water-quality. Receiving water requirements are established according to numerical and narrative standards adopted under state law. A water quality standard consists of three elements: (1) beneficial designated use(s) for a water body or segment of a water body; (2) a numeric or narrative water quality criteria sufficient to protect the designated use(s); and (3) an anti-degradation requirement to ensure that once a use is attained, it will be maintained.

Pursuant to 40 CFR § 122.44 (d), permittees must achieve water quality standards established under Section 303 of the CWA, including state narrative criteria for water quality. Additionally, under 40 CFR § 122.44 (d)(1)(i), "Limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." When determining whether a discharge causes, or has the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numeric criterion, the permitting authority will use procedures which account for existing controls on point and non-point sources of pollution, and where appropriate, consider the dilution of the effluent in the receiving water.

2. Water Quality Standards; Designated Use; Outfall 001

The Ware River is a part of the Chicopee River Basin. The Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(a) classify the segment of the Ware River which includes the Ware WWTP discharge as a Class B warm water fishery. The Massachusetts Surface Water Quality Standards describes Class B waters as having the following uses: (1) a habitat for fish, other aquatic life, and wildlife, (2) primary and secondary contact recreation, (3) a source of public water supply (i.e., where designated and with appropriate treatment), (4) suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses, and (5) will have consistently good aesthetic value.

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

Sections 305(b) and 303(d) of the CWA requires that states complete a water quality inventory and develop a list of impaired waters. Specifically, Section 303(d) of the CWA requires states to identify those waterbodies that are not expected to meet surface water quality standards after implementation of technology-based controls and, as such, require the development of a total maximum daily load (TMDL). In Massachusetts, these two evaluations have been combined into an Integrated List of Waters. The integrated list format provides the status of all assessed waters in a single multi-part list. The Massachusetts Year 2004 List of Integrated Waters (Section 303(d) List) lists the segment of the Ware River into which the Ware WWTP discharges (MA36-06) as a Category 5 water (waters requiring a TMDL). The pollutant(s) causing the impairment and needing a TMDL are listed as pathogens. The fecal coliform limits in the draft permit are sufficiently stringent to ensure that the discharge from the Ware Wastewater Treatment Plant does not cause or contribute to this impairment.

OUTFALL 001 - CONVENTIONAL POLLUTANTS:

Biochemical Oxygen Demand (BOD)

The draft permit includes year-round average monthly and average weekly BOD₅ concentration and mass limitations based on current state water quality standards and anti-backsliding regulations. The BOD₅ concentration limits in the draft permit are based on water quality considerations and are the same limits included in the current permit. The BOD₅ mass limits have been calculated based on the design flow of the plant and are the same as those in the current permit. (See **Attachment B** of this Fact Sheet - Calculations.)

Total Suspended Solids (nonfilterable) (TSS)

The draft permit includes year-round average monthly and average weekly TSS concentration and mass limitations based on current state water quality standards and anti-backsliding regulations. The TSS concentration limits in the draft permit are based on water quality considerations and are the same limits included in the current permit. The TSS mass limits have been calculated based on the design flow of the plant and are the same as those in the current permit. (See **Attachment B** of this Fact Sheet - Calculations.)

pH - Historically, the Massachusetts Department of Environmental Protection (MassDEP) has required compliance with pH limits at the end-of-pipe with no allowance for dilution. Therefore, the pH limits in the draft permit are based on the Class B water quality criteria, with no allowance for dilution. These limits are State certification requirements for Publicly Owned Treatment Works under section 401(d) of the Clean Water Act, 40 CFR § 124.53 and § 124.55, and are at least as stringent as pH limitations set forth at 40 CFR § 133.102(c).

A change of pH limits in the draft permit would be considered if the applicant demonstrates to the satisfaction of EPA and the MassDEP that the in-stream pH standard will be protected when the discharge is outside the permitted range. The applicant may request in writing that the permit limits be modified by the agencies to incorporate the results of the demonstration, or the limits may be modified by the agencies in response to comments made during the public comment period.

E. Coli Bacteria - The draft permit includes proposed *E. coli* bacteria monitoring requirements which are seasonal and are based on state certification requirements.

Fecal Coliform Bacteria - The draft permit includes fecal coliform bacteria limitations which are seasonal and are based on the Class B water quality criteria with no allowance for dilution.

Total Residual Chlorine (TRC) - 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 discharge chlorine during the winter period. 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 14.6, the residual chlorine limits have been set at 0.277 mg/l daily maximum and 0.16 mg/l monthly average. (See **Attachment B** of this Fact Sheet - Calculations.)

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.

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS (i.e., NUTRIENTS)

Ammonia Nitrogen - 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 current limits were reevaluated to ensure that they are adequate to protect against ammonia toxicity in the receiving water. For the period from April through October, the recommended criteria in the 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-014, December 1999 and 64 FR 71974) at the expected instream temperature and pH were compared to the existing limits to ensure that they were protective of water quality, and for the period from November through March limits were calculated to determine whether the discharge of ammonia during this period had the reasonable potential to cause or contribute to exceedances of the criteria.

For the period from April through October, the expected instream temperature is 20°C and the expected pH is 7. With early life stages present, the recommended chronic criteria is 4.15 mg/l, which is less stringent than the water quality-based limits in the current permit. Therefore, the current permit limits have been retained.

For the period from November through March, the expected instream temperature is 0°C and the expected pH is 7, and with early life stages absent, the recommended chronic criteria is 9.6 mg/l. Consistent with the recommendations in the criteria document, effluent limits were calculated using the 30Q10 flow in the Ware River for November through April. The 30Q10 flow for the Ware River at the WWTP is 27.5 cfs, and the dilution factor is 18.7 for the winter months. At the recommended criteria of 9.6 mg/l, the winter ammonia limit would be set at 180 mg/l, a level well above that present in the discharge from the treatment plant. Therefore, there is no reasonable potential that the effluent will cause or contribute to an exceedance of the water quality criteria, and no effluent limit has been established. (See **Attachment B** for the dilution and criteria calculations.)

Total Nitrogen - It has been determined that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. The State of Connecticut has begun to impose nitrogen limitations on Connecticut River discharges to Long Island Sound and its tributaries. EPA believes there is a need to determine the loadings of nitrogen from sources in Massachusetts which are tributaries to Long Island Sound (including tributaries to the Connecticut River), to determine whether these loadings are impacting the water quality in Long Island Sound, and to help determine what limits, if any, should ultimately be imposed on discharges in Massachusetts. Therefore, EPA has included monthly monitoring requirements for ammonia, nitrite and nitrate, and TKN in the draft permit. The information submitted by the permittee will help to establish a database of nitrogen loadings, which can be used to quantitatively assess the impact of loading and transport of nitrogen to Long Island Sound. The data will provide a more sound basis for future decisions related to nitrogen loadings to the Sound. No numerical limitations for these pollutants are established in the draft permit. This monitoring requirement can be reduced after demonstration of a data base acceptable to determine temporal nitrogen loading to the stream.

Phosphorus - EPA 1986 Quality Criteria of Water (“the Gold Book”) recommends that instream phosphorus concentrations not exceed 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impoundments, and 0.025 mg/l within the lake or reservoir.

The current permit includes a monthly average phosphorus limit of 1.0 mg/l, a weekly average limit of 1.0 mg/l, and a maximum daily limit of 1.5 mg/l which are in effect from April through October. These limitations were reevaluated to determine whether they are adequate to ensure that the discharge will not cause exceedances of the Gold Book criteria of 0.1 mg/l under 7Q10 low flow conditions. Dividing the effluent limitation of 1 mg/l by the 7Q10 dilution factor of 14.6 yields a concentration of 0.07 mg/l, which approximates the instream concentration of total phosphorus expected under 7Q10 conditions.

Therefore, the April through October limits in the current permit have been determined to achieve water quality standards and have been retained in the draft permit.

The draft permit also includes a monthly average phosphorus limit of 1 mg/l for the period from November through March. This limit on total phosphorus is necessary to ensure that phosphorus discharged during the winter period does not accumulate in the sediments downstream of the discharge. The limitation assumes that the vast majority of the phosphorus discharged will be in the dissolved fraction and that dissolved phosphorus will pass through the system given the short detention time of the impoundments and the lack of plant growth during the winter period.

A monitoring requirement for ortho-phosphorus during the winter period is also included in the draft permit. Monitoring for ortho-phosphorus 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 ortho-phosphorus monitoring requirement, the Agencies 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.

OUTFALL 001 - METALS

The Massachusetts Water Quality Standards 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. **Attachment B** shows the calculations for the acute and chronic limits for copper, lead, aluminum, and zinc, if limits were established in the permit. Effluent data for copper, lead, aluminum, and zinc indicate that there is not a reasonable potential to exceed criteria.

The numerical limits for copper have been removed from the draft permit because the effluent concentrations have declined significantly since the permittee implemented a corrosion control program that commenced in July of 2004. For example, the discharge sampling results from March 2005 to February 2006 indicated that 22 µg/l was the highest monthly copper concentration value, and 11 µg/l was the average of the monthly copper concentration values. Since these values are well below the calculated maximum daily limit of 55.3 µg/l, and the calculated average monthly limit of 41.6 µg/l, EPA and the MassDEP found that there is no reasonable potential that this discharge will cause or contribute to an exceedance of the water quality standard for copper. Although copper limitations are not proposed for the draft permit, copper monitoring is provided via quarterly toxicity testing since metals and other chemistry testing are a part of the whole effluent toxicity protocol.

OUTFALL 001 - TOXICS CONTROL

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts State Surface Water Quality Standards include the following narrative statement and requires 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.

National studies conducted by the EPA have demonstrated that domestic sources, as well as industrial sources, contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. Based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, the level of dilution at the discharge location, and

in accordance with EPA national and regional policy and 40 CFR § 122.44(d), the draft permit includes a whole effluent acute toxicity limitation (LC₅₀) and a chronic no observed effluent concentration (C-NOEC) limitation requirement. (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.) The MassDEP's Division of Watershed Management has a current toxics policy which requires toxicity testing for all major dischargers, such as the permittee. In addition, EPA feels that toxicity testing is required to assure that the synergistic effect of the pollutants in the discharge does not cause toxicity, even though the pollutants may be at low concentrations in the effluent. Thus, the draft permit includes a whole effluent toxicity limitation requirement for the 001 outfall, to assure that the permittee does not discharge combinations of toxic compounds into the Ware River in amounts which would affect aquatic or human life.

The proposed draft permit includes a requirement for a 7-day Chronic and a Modified Acute toxicity test using the daphnid, *Ceriodaphnia dubia*. Since there have been periodic acute and chronic toxicity test exceedances in the past, the permit includes a requirement to perform an additional toxicity test on the effluent after each failed test result. The toxicity tests must be performed in accordance with the test procedures and protocols specified in **Attachment B** of the permit, and the tests will be required four times a year. The draft permit includes a requirement to include, if possible, effluent from the significant industrial users (SIU) (i.e., once per year per SIU) in order to evaluate the toxicity risk associated with the flow contribution from these discharges.

OUTFALL 001 - NUMERICAL EFFLUENT LIMITATIONS FOR TOXICANTS

EPA and the MassDEP may use the results of the toxicity tests and chemical analyses conducted by the permittee, required by the permit, as well as national water quality criteria 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.

D. SLUDGE CONDITIONS

Section 405(d) of the CWA requires that EPA develop technical standards regarding the use and disposal of sewage sludge. On February 19, 1993, EPA promulgated technical standards. These standards are to be implemented through permits. The conditions in the permit satisfy this requirement.

E. DEVELOPMENT OF LIMITATIONS FOR INDUSTRIAL USERS

As described earlier in the fact sheet, there are two significant industrial users discharging to the wastewater treatment plant. Kanzaki Specialty Papers, a manufacturer of pressure/thermal sensitive paper sheet stock, continuously discharges about 75,000 gallons per day (gpd) of process wastewater and 4,000 gpd of non-process flow. The company is not subject to local limits or categorical standards. The permit application describes operational problems at the wastewater treatment plant which the permittee attributes to the discharge from this industry. The problem was described in the permittee's recent permit application as the following: "Discharges of white coating with inorganic clay pigment requires high doses of polyaluminum chloride with polymer to be added to facilitate settlement and removal." Based on this information, EPA conducted an inspection of the treatment plant on September 20, 2006, and concluded that the permit should require the permittee to develop a Maximum Allowable Industrial Headworks Loadings (MAIHL) for Total Suspended Solids (TSS) and zinc.

The other SIU, Hardwick Landfill, Inc., discharges an intermittent flow of 7,000 gpd consisting of landfill leachate. The Hardwick Landfill is not subject to local limits, but it is subject to categorical

pretreatment standards under 40 CFR Part 445, Subpart B. The permittee has reported no problems at the treatment plant attributed to this discharge.

The draft permit requires the permittee to perform an evaluation of its local limits and submit the evaluation to EPA for review within 120 days of the effective date of the permit. In addition, the permittee is required to develop and submit to EPA a Maximum Allowable Industrial Headworks Loading (MAIHL) for Total Suspended Solids (TSS) and zinc within 120 days of the effective date of the permit. This requirement is to be treated independently of the above paragraph, which requires an evaluation of current local limitations.

F. INDUSTRIAL PRETREATMENT PROGRAM

The permittee is required to administer a pretreatment program based on the authority granted under 40 C.F.R. § 122.44(j), 40 C.F.R. § 403 and section 307 of the Clean Water Act. In accordance with 40 C.F.R. § 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.

Within 120 days of the effective date of the permit, the permittee must submit an updated Sewer Use Ordinance and Enforcement Response Plan to EPA for review.

Lastly, the permittee must submit an annual pretreatment report on **October 31**, which describes the permittee's pretreatment program activities over its pretreatment reporting period of September 1 - August 31.

V. ESSENTIAL FISH HABITAT DETERMINATION (EFH)

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 which is defined as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b) (1) (A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. The Ware River is not covered by the EFH designation for riverine systems and thus EPA and the MassDEP have determined that a formal EFH consultation with NMFS is not required.

VI. MONITORING AND REPORTING

The permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit. Timely reporting is essential for the regulatory agencies to expeditiously assess compliance with permit conditions.

VII. STATE PERMIT CONDITIONS

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 Commissioner of the Massachusetts Department of Environmental Protection pursuant to M.G.L. Chap. 21, §43.

VIII. 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.

IX. STATE CERTIFICATION REQUIREMENTS

The staff of the 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.

X. PUBLIC COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection, MA Unit (CMP), One Congress Street, Suite-1100, Boston, Massachusetts 02114. 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 will 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. Permits may be appealed to the Environmental Appeals Board in the manner described at 40 CFR § 124.19.

XI. EPA and MassDEP CONTACTS

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

Meridith Decelle
U.S. Environmental Protection Agency
Office of Ecosystem Protection (CMP)
One Congress Street - Suite-1100
Boston, MA 02114
Telephone: (617) 918-1553

Paul Hogan
Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
627 Main Street, 2nd Floor Worcester, MA 01608
Telephone: (508) 767-2796, Fax: (508) 791-4131

Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

ATTACHMENT A
EFFLUENT MONITORING DATA
NPDES Permit No. MA0100889
Ware, MA

<u>Parameter</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
Flow (MGD)	0.735 (0.615 - 0.833)	—	0.987 (0.593 - 2.885)
BOD ₅ (lbs/day)	97.84 (38.81 - 187.4)	(51.74 - 206.43)	—
BOD ₅ (mg/l)	(9 - 20.2)	(10.7 - 27.4)	(12 - 27.4)
TSS (lbs/day)	(43.18 - 214.2)	(49.99 - 380.17)	—
TSS (mg/l)	(8.75 - 24.8)	(10.8 - 44)	(11 - 44)
pH (std units)	(6.4 - 7.1) minimum range	—	(6.9 - 7.8) maximum range
Ammonia - seasonal (mg/l)	0.66 (0.28 - 1.4)	1.0 (0.46 - 1.71)	1.0 (0.46 - 1.71)
Phosphorus (mg/l)			
Summer	0.36 (0.05 - 0.168)	0.52 (0.1 - 1.4)	0.53 (0.1 - 1.4)
Winter	1.62 (0.41 - 3.62)	0.25 (0.06 - 0.7)	—
Fecal coliform (#/100 ml)	35 (1.0 - 142)	—	211 (7.0 - 1080)
Total Residual Chlorine - (µg/l)	75.9 (10 - 110)	—	126.4 (80 - 190)
Total Copper (µg/l) (1/03-2/05)	28.2 (11 - 54.4)	—	28.2 (11 - 54.4)
Total Copper (µg/l) (3/05-2/06)	11.7 (2.2 - 22)	—	11.7 (2.2 - 22)
Total Lead (µg/l)	below detection level	—	—
Total Aluminum (µg/l)	below detection level	—	—
Total Zinc (µg/l)	0.112 (0.06 - 0.27)	—	—

Note: The data listed above is from discharge monitoring reports which the facility submits monthly. Except where noted, values are averages of either the daily maximum, weekly average, or monthly average data submitted from January 2003 to February 2006. The frequency of monitoring varies, as some parameters are measured continuously (i.e., flow), once per day (i.e., pH, total residual chlorine), once per week (i.e., BOD, TSS, fecal, total ammonia-nitrogen, total phosphorus in the summer), once per month (i.e., total copper, total Kjeldahl nitrogen, total nitrite, total nitrate, total phosphorus in the winter) and four times per year (i.e., toxicity which includes metals) - which are reported as the average of those measurements. The highest daily maximum value during the month is reported in the maximum daily column. Values in parentheses represent the range of data reported. Flow is reported as an annual average flow rate.

ATTACHMENT A
EFFLUENT MONITORING DATA

Attachment A (continued);

Whole Effluent Toxicity (WET) Tests (i.e., results are from February 2001 - November 2005):

LC₅₀ (*Ceriodaphnia dubia*) = all test results were ≥ 100 % between February 2001 - November 2005
except for the following test results:

February 2002	≥ 85.2 %
August 2003	≥ 75.8 %
February 2005	≥ 85.4 %

C-NOEC (*Ceriodaphnia dubia*) = all test results were ≥ 7 % between February 2001 - November 2005
except for the following test results:

May 2003	≥ 6.25 %
June 2005	≥ 6.25 %
November 2005	≥ 6.25 %

ATTACHMENT B
 CALCULATIONS FOR DILUTION, BIOCHEMICAL
 OXYGEN DEMAND, TOTAL SUSPENDED SOLIDS, COPPER,
 LEAD, ALUMINUM, ZINC, AND AMMONIA-NITROGEN
 NPDES Permit No. MA0100889
 Ware, MA

Determination of Dilution Factor:

USGS Station 01173500

Ware River at Gibbs Crossing, Ware, MA

	<u>USGS Gage¹</u>	<u>Ware WWTP</u>
Drainage Area (square miles) ¹	197	186
7 day 10 year flow (cfs)	22.37	21.12

Plant Design Flow = 1.0 mgd x (1.0 / 0.646272 cfs / mgd) = 1.55 cfs

Instream 7Q10_(at Ware WWTP discharge) = (186 mi² / 197 mi²) x (22.37 cfs) = 21.12 cfs
 = (21.12 cfs) x (0.646272 mgd / cfs) = 13.65 mgd

Dilution Factor:

= (Instream 7Q10 + Design Flow) / Design Flow

= (13.65 mgd + 1.0 mgd)/(1.0 mgd)

= 14.6 (Medium/High Risk Toxicity - Acute and Chronic testing is required.)

Chronic Toxicity Limitation:

The chronic (C-NOEC) whole effluent toxicity limit is calculated using the instream waste concentration (IWC) of the WWTP effluent. The IWC is the inverse of the available dilution.

IWC = (1 / dilution factor) x 100% = (1 / 14.6) x 100% = 6.8 % (rounded to) = 7 %

Instream Hardness = (28 mg/l + 24 mg/l + 24 mg/l) ÷ 3 = 25.3 mg/l (rounded to) = 25 mg/l

(The instream hardness value above, is based on the following instream hardness values from toxicity test reports: August 7, 2006 = 28 mg/l, August 9, 2006 = 24 mg/l, August 11, 2006 = 24 mg/l.)

Total Residual Chlorine Limits (TRC):

Acute (Maximum Daily) = (acute criteria x dilution factor) = (19 µg/l x 14.6) = 277.4 µg/l = 0.28 mg/l

Chronic (Monthly Average) = (chronic criteria x dilution) = (11 µg/l x 14.6) = 160.6 µg/l = 0.16 mg/l

Continued on page 2.

ATTACHMENT B
CALCULATIONS

Attachment B (continued);

Biochemical Oxygen Demand (BOD) Limit:

Average Monthly Concentration Limit = 25 mg/l

Average Weekly Concentration Limit = 25 mg/l

Average Monthly Mass Limit = (1.0 mgd x 25 mg/l x 8.345) = 208 lbs/day

Average Weekly Mass Limit = (1.0 mgd x 25 mg/l x 8.345) = 208 lbs/day

Total Suspended Solids (TSS) Limits:

Average Monthly Concentration Limit = 25 mg/l

Average Weekly Concentration Limit = 25 mg/l

Average Monthly Mass Limit = (1.0 mgd x 25 mg/l x 8.345) = 208 lbs/day

Average Weekly Mass Limit = (1.0 mgd x 25 mg/l x 8.345) = 208 lbs/day

Copper Limitations: (Copper requirements are not proposed for the draft permit.)

Copper is dependent on the hardness of the receiving water.

Acute Copper Limit = $e^{(0.9422 * \ln 25) + (-1.7)}$ x dilution factor = (3.79 $\mu\text{g/l}$ x 14.6) = 55.3 $\mu\text{g/l}$ = 0.055 mg/l

Chronic Copper Limit = $e^{(0.8545 * \ln 25) + (-1.702)}$ x dilution factor = (2.85 $\mu\text{g/l}$ x 14.6) = 41.6 $\mu\text{g/l}$ = 0.042 mg/l

Lead Limitations: (Lead requirements are not proposed for the draft permit.)

Lead is dependent on the hardness of the receiving water.

Acute Lead Limit = $e^{(1.273 * \ln 25) + (-1.46)}$ x dilution factor = (13.98 $\mu\text{g/l}$ x 14.6) = 204 $\mu\text{g/l}$ = 0.204 mg/l

Chronic Lead Limit = $e^{(1.273 * \ln 25) + (-4.705)}$ x dilution factor = (0.544 $\mu\text{g/l}$ x 14.6) = 7.94 $\mu\text{g/l}$ = 0.008 mg/l

Aluminum Limitations: (Aluminum requirements are not proposed for the draft permit.)

Acute Aluminum Limit = (acute criteria x dilution factor) = (750 $\mu\text{g/l}$ x 14.6) = 10950 $\mu\text{g/l}$ = 10.95 mg/l

Chronic Aluminum Limit = (chronic criteria x dilution factor) = (87 $\mu\text{g/l}$ x 14.6) = 1270 $\mu\text{g/l}$ = 1.27 mg/l

Zinc Limitations: (Zinc requirements are not proposed for the draft permit.)

Zinc is dependent on the hardness of the receiving water.

Acute (Maximum Daily) = $e^{(0.8473 * \ln 25) + (0.884)}$ x dilution factor = (37.0 $\mu\text{g/l}$ x 14.6) = 540 $\mu\text{g/l}$ = 0.54 mg/l

Chronic (Monthly Average) = $e^{(0.8473 * \ln 25) + (0.884)}$ x dilution f. = (37.0 $\mu\text{g/l}$ x 14.6) = 540 $\mu\text{g/l}$ = 0.54 mg/l

Continued on page 3.

ATTACHMENT B
CALCULATIONS

Attachment B (continued);

Ammonia Limitation in the Winter (no reasonable potential to exceed):

Determination of Winter 30Q10:

USGS Station 01173500

Ware River at Gibbs Crossing, Ware, MA

	<u>USGS Gage¹</u>	<u>Ware WWTP</u>
Drainage Area (square miles) ¹	197	186
30 day 10 year flow (cfs)	29.1	27.5

$$\text{Plant Design Flow} = 1.0 \text{ mgd} \times (1 / 0.646272 \text{ cfs} / \text{mgd}) = 1.55 \text{ cfs}$$

$$30\text{Q10 at WWTP} = (186 \text{ mi}^2 / 197 \text{ mi}^2) (29.1 \text{ cfs}) = 27.5 \text{ cfs}$$

$$\begin{aligned} \text{Instream } 30\text{Q10}_{(\text{at Ware WWTP discharge})} &= (186 \text{ mi}^2 / 197 \text{ mi}^2) \times (29.1 \text{ cfs}) = 27.5 \text{ cfs} \\ &= (27.5 \text{ cfs}) \times (0.646272 \text{ mgd} / \text{cfs}) = 17.7 \text{ mgd} \end{aligned}$$

Winter Dilution Factor

$$\begin{aligned} &= (\text{Instream } 7\text{Q10} + \text{Design Flow}) / \text{Design Flow} \\ &= (17.7 \text{ mgd} + 1.0 \text{ mgd}) / (1.0 \text{ mgd}) \\ &= 18.7 \end{aligned}$$

Ammonia Winter Limitation (based on Winter 30Q10):

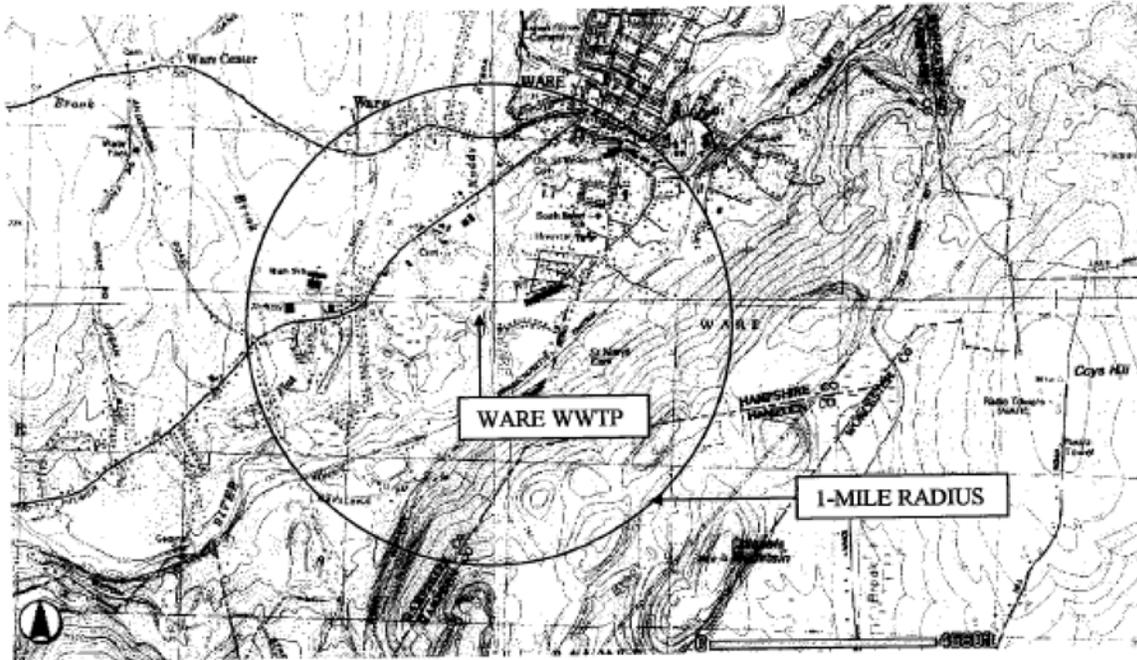
Freshwater chronic criteria (CCC) = 9.6 mg/l
(based on 0° C and pH 7.0 with fish early life stages absent)²

$$\begin{aligned} \text{Average monthly limit} &= (\text{criteria}) \times (\text{winter dilution}) \\ &= (9.6 \text{ mg/l}) \times (18.7) \\ &= 180 \text{ mg/l} \end{aligned}$$

Therefore, based on this proposed limit, no winter ammonia limit is required.

References:

1. Stream Statistical Analysis Model, Applet Map, U.S. Geological Survey, 10 Bearfoot Road, Northborough, MA. 2001.
2. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA -822-R-99-014, December 1999 and 64 FR 71974, December 22, 1999).



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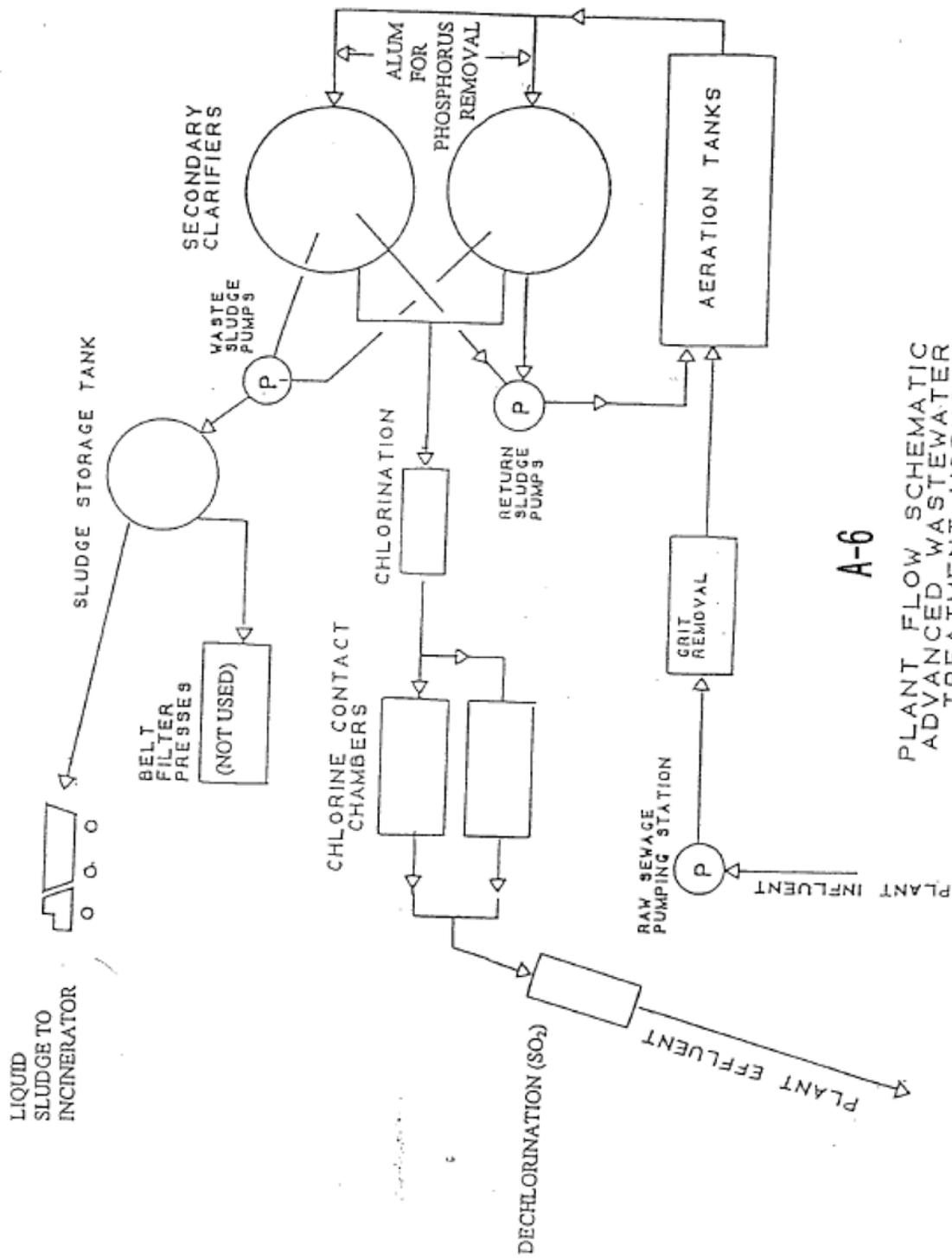
TOPOGRAPHIC MAP

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 1/4 MILE OF THE WARE WASTEWATER TREATMENT PLANT.

Figure 1: Location of the Ware Wastewater Treatment Plant



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PLANT FLOW SCHEMATIC
 ADVANCED WASTEWATER
 TREATMENT WORKS
 WARE, MASSACHUSETTS

Figure 2: Ware Wastewater Treatment Plant Flow Schematic