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 Barre
Board of Sewer Commissioners

is authorized to discharge from the facility located at

Barre Wastewater Treatment Plant
411 Wheelright Road
Barre, MA 01005

to receiving water named

Ware River

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

This permit shall become effective on **(See ** below)**

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

This permit supersedes the permit issued on November 16, 2005.

This permit consists of 16 pages in Part I including effluent limitations and monitoring requirements, 25 pages in Part II including Standard Conditions, Attachment A – Whole Effluent Toxicity Test Protocol, and Attachment B - Summary of Required Reports.

Signed this day of

_____	_____
Stephen S. Perkins, Director	David Ferris, Director
Office of Ecosystem Protection	Massachusetts Wastewater Management Program
Environmental Protection Agency	Department of Environmental Protection
Boston, MA	Commonwealth of Massachusetts

****** This permit will become effective on the date of signature if no comments are received during public notice. If comments are received during public notice, this permit will be made effective no sooner than 30 days after signature

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-A** 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[3] TYPE**
FLOW[2]	*********	*********	0.30 MGD	*********	Report MGD	CONTINUOUS	RECORDER
FLOW	*********	*********	Report MGD	*********	*********	CONTINUOUS	RECORDER
BOD_5[4]	75 lbs/Day	113 lbs/Day	30 mg/l	45 mg/l	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TSS [4]	75 lbs/Day	113 lbs/Day	30 mg/l	45 mg/l	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
AMMONIA-NITROGEN[6] May 1st - October 31st November 1st – April 30th	********* *********	********* *********	46 mg/l Report mg/l	********* *********	Report mg/l Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
pH RANGE[1]	6.5 - 8.3 SU (SEE PERMIT PAGE 5 OF 16, PARAGRAPH I.A.1.b.)					1/DAY	GRAB
ESCHERICHIA COLI [1,7] (April 1st - October 31st)	*********	**********	126 cfu/100 ml	*********	409 cfu/100 ml	1/WEEK	GRAB
DISSOLVED OXYGEN[1] (April 1st-October 31st)	NOT LESS THAN 6.0 mg/l					1/DAY	GRAB
TOTAL PHOSPHORUS April 1st – October 31st November 1st – March 31st	Report lbs/Day Report lbs/Day	********* *********	0.9 mg/l 1.0 mg/l	********* *********	Report mg/l Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]

CONTINUED FROM PREVIOUS PAGE

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-A** 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[3] TYPE**
TOTAL KJELDAHL NITROGEN[4]	Report lbs/Day	********* *********	Report mg/l	********* *********	Report mg/l	1/MONTH	24-HOUR COMPOSITE[5]
NITRATE & NITRITE NITROGEN[4]	Report lbs/Day	********* *********	Report mg/l	********* *********	Report mg/l	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL COPPER[8]	*********	*********	2.5 µg/l	*********	3.2 µg/l	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL ALUMINUM[9]	*********	*********	87 µg/l	*********	Report µg/l	1/MONTH	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [10, 11,12,13] Acute LC_{50} Chronic C-NOEC	 $\geq$ 100% Report						
Total Residual Chlorine	Report maximum daily, µg/l					4/YEAR	24-HOUR COMPOSITE[5]
Total Cadmium	Report maximum daily, µg/l						
Total Lead	Report maximum daily, µg/l						
Total Copper	Report maximum daily, µg/l						
Total Zinc	Report maximum daily, µg/l						
Total Nickel	Report maximum daily, µg/l						
Total Aluminum	Report maximum daily, µg/l						

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. All samples shall be representative of the discharge.

   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. Please see Section I.E.2. for special conditions regarding ammonia.

7. The monthly average limit for *E. coli* is expressed as a geometric mean.

8. The minimum level (ML) for copper is defined as 0.5 µg/l. Total copper analysis shall be performed using EPA Method 200.8 ICP/MS – inductively coupled plasma spectrometry, as this is the only approved method under 40 CFR Part 136 that provides a minimum level of detection (0.5 µg/l) in the range of the permit limits. Compliance/non-compliance will be determined based on the ML. Sampling results of 0.5 µg/l or less shall be reported as zero on the Discharge Monitoring Report.

9. The monthly composite aluminum sample shall be taken on the same day as one of the weekly phosphorus samples.

   In the event that subsequent sampling shows that aluminum concentrations in the Ware River and in the discharge are less than the chronic criteria, the permittee may request a modification of the effluent limit. 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.

10. The permittee shall conduct acute and chronic 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 second week of the months of February, May, August and November. The test results shall be submitted by the last day of the month following the completion of the test. The results are due March 31, June 30, September 30 and December 31, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

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

After submitting **one year** and a **minimum** of four consecutive sets of WET test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the WET testing requirement has been changed.

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

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. Under the NPDES program, as indicated 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 consultation with EPA guidance on the evaluation of the concentration-response relationship.

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** 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**.

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

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

h. The use of chlorine is prohibited.

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 that 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:

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

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/dep/water/approvals/surffms.htm#sso.

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 submitted and implemented 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 the design flow (0.24 MGD) or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year; and
f. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit.

7. Alternate Power Source

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

D. SLUDGE CONDITIONS

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

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

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

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

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

   c. Sewage sludge incineration in a sludge only incinerator

4. The requirements of 40 CFR § 503 do not apply to facilities that dispose of sludge in a municipal solid waste landfill (40 CFR § 503.4). These requirements also do not apply to facilities that 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 § 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

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

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

6. The sludge shall be monitored for pollutant concentrations (all § 503 methods), 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 § 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:

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

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

disposal

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

E. SPECIAL CONDITIONS

1. 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 63 lbs/day.

   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.

2. Developing and Implementing a Maximum Allowable Industrial Headworks Loading for Ammonia - Within 120 days of the effective date of this permit, the permittee shall develop and submit to EPA, a Maximum Allowable Industrial Headworks Loading (MAIHL) for ammonia. The proposed MAIHL should be submitted to EPA for review and approval in accordance with 40 CFR 403.18(c). Upon EPA's approval the MAIHL shall be adopted, immediately, into the Town's Sewer Use Ordinance.

F. MONITORING AND REPORTING

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

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

And

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

c. Submittal of Reports in Hard Copy Form

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 – Central Region
Bureau of Resource Protection
627 Main Street
Worcester, MA 01608

And

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.

G. 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.

Summary of Required Report Submittals*

Required Report	Date Due	Submitted by:	Submitted to:
Whole Effluent Toxicity Test Report (Part I.A.1)	March 31, June 30, September 30, and December 31 of each year	Barre WWTP	Via NetDMR Or Environmental Protection Agency Water Technical Unit 5 Post Office Square, Suite 100 (OES04-4) Boston, MA 02109-3912
			MassDEP Division of Watershed Management Surface Water Discharge Permit Program 627 Main Street, 2nd Floor Worcester, MA 01608
Initial Collection System Operation and Maintenance Plan (Part I.C.5.a.)	Within 6 months of effective date	Barre WWTP	Via NetDMR Or U.S. Environmental Protection Agency Water Technical Unit 5 Post Office Square, Suite 100 (OES04-4) Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205B Lowell Street Wilmington, MA 01887
Full Collection System Operations and Maintenance Plan (Part I.C.5.b.)	Two years from the effective date of the permit	Barre WWTP	Via NetDMR Or U.S. Environmental Protection Agency Water Technical Unit 5 Post Office Square, Suite 100 (OES04-4) Boston, MA 02109-3912

Required Report	Date Due	Submitted by:	Submitted to:
			MassDEP Bureau of Resource Protection Northeast Regional Office 205B Lowell Street Wilmington, MA 01887
Collection System Annual Report (Part I.C.6.)	Annually by March 31	Barre WWTP	Via NetDMR Or U.S. Environmental Protection Agency Water Technical Unit 5 Post Office Square, Suite 100 (OES04-4) Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205B Lowell Street Wilmington, MA 01887
Notification of Sanitary Sewer Overflows (Part I.B.)	Oral Report -Within 24 hours of discovery of event Written Report – Within 5 calendar days of discovery of event	Barre WWTP	U.S. Environmental Protection Agency Water Technical Unit 5 Post Office Square, Suite 100 (OES04-4) Boston, MA 02109-3912
			MassDEP Bureau of Resource Protection Northeast Regional Office 205B Lowell Street Wilmington, MA 01887
Annual Sludge Report (Part I.D.8)	Annually by February 19	Barre WWTP	Via NetDMR or U.S. Environmental Protection Agency Water Technical Unit 5 Post Office Square, Suite 100 (OES04-4) Boston, MA 02109-3912

Required Report	Date Due	Submitted by:	Submitted to:
			MassDEP Bureau of Resource Protection Northeast Regional Office 205B Lowell Street Wilmington, MA 01887
Maximum Allowable Industrial Headworks Loading (MAIHL), Section I.E.2.	120 days after effective date of permit	Barre WWTP	MassDEP Bureau of Resource Protection Northeast Regional Office 205B Lowell Street Wilmington, MA 01887
			U.S. Environmental Protection Agency Water Technical Unit 5 Post Office Square, Suite 100 (OES04-4) Boston, MA 02109-3912

* 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.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION 1
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

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: MA0103152

PUBLIC NOTICE START AND END DATES:

NAME AND MAILING ADDRESS OF APPLICANT:

Board of Sewer Commissioners
Town of Barre
441 Wheelright Road
Barre, MA 01005

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Barre Wastewater Treatment Plant
441 Wheelright Road
Barre, Massachusetts 01005

RECEIVING WATER(S):

Ware River (Segment MA 36-04)
Chicopee River Basin

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

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-A	Treated Effluent	Ware River	42º 22' 35" N 72° 6' 52" 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-A to the Ware River (See Figure 1 – Facility Location Map).

The Town of Barre Wastewater Treatment Plant (WWTP) is a 0.3 million gallon per day (MGD) secondary wastewater treatment facility located in Barre, Massachusetts, serving a population of about 3,000. There are currently two industrial users contributing wastewater to this facility: Waste Management, which contributes landfill leachate, and Chas. Allen, a machine shop (see Section 7, Pretreatment).

The collection system is 100% separate sanitary sewers.

2. Description of Discharge

A quantitative description of the discharge based on recent monitoring data from January 2008 through August 2010 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 (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 Barre Wastewater Treatment Plant's discharge is attaining its uses for aquatic life with other uses not assessed. This river segment does not appear on the Massachusetts Year 2010 Integrated List of Waters [Clean Water Act, Section 303(d) list] as requiring a TMDL. The 2003

assessment noted elevated phosphorus levels and characterized the reach as impounded due to Wheelwright Dam, which is at the downstream end of the segment. The segment downstream (Segment 36-05, from the Wheelwright Dam to the Ware Dam) is listed as impaired and requiring a TMDL for *E. coli*.

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 0.3 MGD (0.46 cfs) and is unchanged since issuance of the current permit.

In reviewing the permit application and developing the draft permit, EPA became aware that the dilution factor used to develop the limits in the current permit may not be protective of water quality standards because the 7Q10 estimate of 13.06 cfs was too high. The gage used to develop the 7Q10 in the current permit (USGS 01173500 Ware River at Gibbs Crossing, MA) is located approximately 14 miles downstream of the Barre WWTP and has a drainage area of 197 square miles, compared to a drainage area of 115 square miles at the Barre WWTP. USGS 01173000 (Ware River at Intake Works near Barre, MA) is approximately 4 miles upstream of Barre WWTP and has a drainage area of 96 square miles. EPA calculated the 7Q10 and 30Q10 (see Appendix C) based on the flow at USGS gage 01173000 plus flow from the 19 square miles between the gage and the Barre outfall. This flow was calculated as follows:

7Q10 at USGS 011723000, Ware River at Intake Works Near Barre, MA = 5.84 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 – 5.8 cfs)/(197 sq. mi. – 96.3 sq. mi.) = 9.96 cfs/100.7 sq. mi. = 0.100 cfs/sq. mi.

Drainage Area at Outfall = 115 square miles

7Q10 = 5.84 cfs + 0.100 cfs/square miles x (115 sq. mi. – 96.3 sq. mi.) = **7.71 cfs**

Barre WWTP design flow = 0.3 MGD x 1.53 cfs/MGD = 0.46 cfs

Dilution Factor = (Facility Flow + 7Q10)/7Q10
Dilution Factor = (7.71 cfs + 0.46 cfs)/0.46 cfs = **17.8**

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 (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 Massachusetts Surface Water Quality Standards, 314 CMR 4.00, include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless 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 upon 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 Town of Barre Wastewater Treatment Plant is a secondary treatment facility. It is designed for an average daily flow of 0.30 MGD. Peak hydraulic capacity is 1.15 MGD. Please see Figure 2 for a facility schematic.

Wastewater is directed to the facility through a separate sanitary sewer collection system with the assistance of pump stations. The facility also receives septage delivered by truck. Septage that enters the facility is accepted through a septage receiving area where it is stored and aerated for a period of time, usually 24 hours, and then gradually pumped to the headworks to be treated.

Flow into the facility enters through an open channel of the headworks, where the influent composite sampler (Isco FR6712) is located and where daily grab samples are taken. There is currently no influent flow meter. Installation of an influent flow meter, while not required by EPA, would help plant operators regulate chemical dosage and process flow rates.

Flow then passes through the Grit King mechanical grit removal system and then through a channel monster grinder and an auger monster to remove large debris and wash the organics off the captured debris. Poly Aluminum Chloride is added to for phosphorus removal. Grit and other solids removed from the system are disposed with sludge at the local landfill.

Following grit and coarse solids removal, the wastewater then travels to a 60,000 gallon tank that has been set up as an anoxic zone for denitrification. Hydrated lime is added to this tank to maintain alkalinity and pH. The tank is constantly mixed. A portion of the return activated sludge is also pumped to this tank to assist with denitrification.

The wastewater then flows to a second 60,000 gallon equalization tank where flow is regulated by level transducers and pumps operated through a supervisory control and data acquisition (SCADA) system to maintain an even flow over a twenty four hour period.

From the equalization tank, wastewater then passes through a parshall flume where measurements are sent back to the SCADA system. Flow then enters the oxidation ditches through the distribution box where flow is equally split between the two ditches.

In the oxidation ditches, wastewater is mixed with return activated sludge. It is aerated to maintain a dissolved oxygen level of approximately 2.0 mg/l. The aerators are automatically operated by the SCADA system, receiving oxygen readings through a Hach LDO system. There are also 2 Flygt mixers in each ditch to keep the mixed liquor well mixed. Handheld dissolved oxygen readings throughout the ditches are taken daily and checked against the LDO system.

The oxidation ditches have a hydraulic retention time of about 25 hours. The discharge from the oxidation ditches passes over discharge weirs and into an outlet box where flow is then split equally between two 30-foot-diameter clarifiers. In the clarifiers, solids settle to the bottom while scum floats on the surface. A skimmer mechanism collects and removes the scum, which is then pumped back to the headworks to be reprocessed. Sludge is collected and the returned to the oxidation ditches and anoxic zone through pumps located in the basement of the plant. Once or twice per week, depending

on the amount of solids in the system, sludge is removed to a waste holding tank and aerated. From this tank waste activated sludge is pumped to the belt filter press and dewatered. Polymer is used to assist in dewatering. Dewatered sludge is disposed at the local municipal landfill along with grit and screenings. Water from the belt filter press is sent to the septage holding tank and then pumped to the headworks for treatment.

Treated wastewater from the clarifiers passes over the weirs into an effluent trough. The effluent flows by gravity to the disinfection process, which consists of two ultraviolet light (UV) disinfection units. Disinfected effluent then flows by gravity, through the effluent flow meter. Effluent samples are taken following the effluent flow meter. Treated effluent then flows by gravity to the Ware River.

6.2 Permitted Outfalls

The outfall regulated in the draft permit is named 001-A.

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 Clean Water Act (CWA), Publicly Owned Treatment Works (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. From January 2008 through August 2010, Barre was in compliance with the BOD and TSS limits.

The limits from the current permit, which are 30 mg/l average monthly and 45 mg/l average weekly, will be carried over to the draft permit. The mass limits calculations for BOD_5 and TSS are below. Monitoring frequency is once per week.

Mass limits:	Flow x Concentration x Conversion Factor = lbs/day
Average monthly limit:	0.3 MGD x 30 mg/l x 8.34(lb)(l)/(mg)(gal) = 75 lbs/day
Average weekly limit:	0.3 MGD x 45 mg/l x 8.34(lb)(l)/(mg)(gal) = 113 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 C.F.R. § 133.102(c). The pH of the effluent shall not be less than 6.5 or greater than 8.3 standard units at any time. No violations of the pH limit occurred from January 2008 through August 2010. Monitoring frequency is once per day.

Escherichia coli

The *Escherichia coli (E. coli)* limits for Outfall 001-A are based on state water quality standards for Class B waters (314 CMR 4.05(b)(4)). The Commonwealth of Massachusetts promulgated *E. coli* criteria in the Surface Water Quality Standards (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 *E. coli* limits 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 proposed *E. coli* monitoring frequency in the draft permit is once per week.

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	939	1,015
Totals	26,211	19,657	17,002

To ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25% reduction over baseline loadings, EPA intends to include a permit condition for all existing treatment facilities in Massachusetts and New Hampshire that discharge to the Connecticut, Housatonic, and Thames River watersheds, requiring the permittees to evaluate alternative methods of operating their treatment plants to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Facilities not currently engaged in optimization

[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.

efforts will also be required to implement optimization measures sufficient to ensure that their nitrogen loads do not increase, 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 annual average total nitrogen from this facility is calculated to be 63 lbs/day. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years. To better monitor the nitrogen removal in this optimization level, the total nitrogen monitoring has been increased to once per month.

As described previously, the treatment plant sometimes discharges high concentrations of ammonia. It also occasionally discharges high concentrations of nitrate plus nitrite, and total nitrogen. Table 1 below shows monitoring data for TKN (ammonia plus organic nitrogen), nitrate plus nitrite, and total nitrogen (the sum of TKN, nitrite and nitrate). As shown in Table 1, the nitrogen compounds in the discharge varies widely, as does the amount of total nitrogen. This indicates that influent concentrations probably vary, as well as the effectiveness of the biological processes that convert ammonia to nitrite nitrate (nitrification) and/or from nitrate to nitrogen gas (de-nitrification).

Table 1. Nitrogen Discharges from Barre WWTP, February 2008 – February 2011.

Date	Nitrate plus Nitrite (mg/l)	TKN (mg/l)	Total Nitrogen (mg/l)
2/29/2008	1.27	17	18.27
5/31/2008	19.	7.3	26.3
8/31/2008	0.8	2.2	3
11/30/2008	0.18	5.6	5.78
2/28/2009	3.6	54	57.6
5/31/2009	110.	2.3	112.3
8/31/2009	0.45	13.37	13.82
11/30/2009	1.8	24	25.8
2/28/2010	1.4	69.3	70.7
5/31/2010	47.	6.07	53.07
8/31/2010	51.	4.3	55.3
11/31/2010	35.5	3.28	38.78
2/28/2011	38	23.29	61.29

The draft permit requires that Barre monitor and report influent total nitrogen once per month. This information will help Barre WWTP and EPA determine the percentage removal of nitrogen occurring in the treatment system and assess the need for operational modifications to optimize nitrogen removal.

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 does not contain a limit for ammonia. Data from Whole Effluent Toxicity test monitoring show that effluent ammonia levels range from 0.21 mg/l to 70 mg/l. The highest readings occur in February of each year (see Table 4). Concentrations approaching 70 mg/l are extremely high for wastewater effluent, may cause treatment plant upsets, appear to be linked to periodic violations of whole effluent toxicity limits, and may pose a safety hazard to treatment plant personnel. EPA performed a reasonable potential analysis to determine whether effluent limits for ammonia are necessary to attain water quality standards.

EPA ammonia criteria recommend using the 30Q10 (the lowest 30-day average daily flow with a 10-year expected recurrence interval) for setting ammonia limits. Because the toxicity of ammonia varies with temperature and pH, separate 30Q10s and criteria are calculated for the winter and summer seasons. The 30Q10, criteria, and reasonable potential calculations are shown in Appendix B. There is reasonable potential for the effluent to cause or contribute to an exceedance of the chronic summer ammonia criterion of 2.72 mg/l. There is no reasonable potential to exceed the winter criteria.

A mass balance calculation was done to determine the summer ammonia effluent limit (see Appendix B). This analysis shows that the monthly average water quality-based ammonia effluent limit required to achieve the 2.72 mg/l chronic criterion is 46 mg/l. This limit has been included in the draft permit. However, the permittee should be aware that lower effluent ammonia concentrations are almost certainly necessary to achieve the annual total nitrogen mass loading limit of 63 lbs/day required by the Long Island TMDL, and to ensure that ammonia does not cause violations of whole effluent toxicity limits. Information supporting these conclusions is summarized in the following paragraphs.

As shown in the calculation below, a total nitrogen limit of 63 lbs/day and design flow of 0.3 MGD limits the concentration of total nitrogen in the effluent to 25 mg/l, lower than the calculated ammonia-only limit of 46 mg/l.

Load (lbs/day) = Design Flow (MGD) x Concentration (mg/l) x 8.34 (conversion factor)

$$\text{Concentration (mg/l)} = \frac{\text{Load (lbs/day)}}{\text{Design flow (MGD)} \times 8.34 \text{ (conversion factor)}}$$

$$\text{Concentration (mg/l)} = \frac{63 \text{ lbs/day}}{0.3 \text{ MGD} \times 8.34} = 25.2 \text{ mg/l}$$

An ammonia discharge of 46 mg/l would also appear to be inconsistent with the whole effluent toxicity (WET) limits in the permit (see page 16). From prior WET tests, it appears that effluent ammonia concentrations approximately 14 mg/l and higher may cause acute toxicity that exceeds WET limits.

The draft permit also contains a requirement for Barre to develop a Maximum Allowable Industrial Headworks Limit for ammonia to address the periodic spikes in ammonia concentration and to prevent an upset to the treatment process (see Section 7 – Pretreatment).

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, result in lower dissolved oxygen levels in the river, and impair the benthic habitat.

The Massachusetts Surface Water Quality Standards (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 nutrients "shall not exceed the site specific limits necessary to control accelerated or cultural eutrophication." The Standards also require that "any existing point source discharges containing nutrients in concentrations which encourage eutrophication or the growth of weeds or algae shall be provided with the highest and best practicable treatment to remove such nutrients" (314 CMR 4.04). MassDEP has established that a monthly average total phosphorus limit of 0.2 mg/l (200 µg/l) represents highest and best practical treatment for POTWs.

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 Barre Wastewater Treatment Plant is within Ecoregion XIV, Eastern Coastal Plain, Northeastern Coastal Zone. Recommended criteria for this Ecoregion[4] includes a total phosphorus criteria of 23.75 µg/l (0.024 mg/l).

[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

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.

The current permit limits the Barre WWTP effluent to 1 mg/l year-round. Since that limit went into effect in February 2009, monthly average phosphorus discharges have ranged from 0.36 mg/l to 2.16 mg/l, with 10 violations over 19 months. Visual observations by EPA staff during low flow periods in 2010 indicated excessive plant growth in the river, including rooted macrophytes, periphyton, and floating scum.

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 Barre treatment plant does not cause or contribute to an exceedance of water quality standards. The limit has been recalculated taking the upstream concentration into account.

The 2003 Chicopee River Watershed Water Quality Assessment (2003 WQA) presented ambient phosphorus concentrations at USGS Gage 01173000, upstream on the Ware River from the Barre WWTP. During low flow conditions that year, the instream phosphorus concentration was 53 µg/l. We would note that more recent data collected by MassDEP have shown higher upstream phosphorus values; however these later data were not used to develop this permit because they have not been validated.

The box on the next page shows the necessary water quality based effluent limitation at an upstream concentration of 53 µg/l under 7Q10 conditions. This analysis shows that an effluent limitation of 888 ug/l (0.888 mg/l) is necessary.

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)	=	8.17 cfs
Q_d	=	Discharge flow	=	0.46 cfs
C_d	=	Discharge concentration	=	?
Q_r	=	Upstream flow	=	7.71 cfs
C_r	=	Upstream concentration	=	53 µg/l

Therefore,

$$C_d = \frac{(8.17 \text{ cfs} \times 100 \text{ µg/l}) - (7.71 \text{ cfs} \times 53 \text{ µg/l})}{0.46 \text{ cfs}}$$

$$= 888 \text{ µg/l} = 0.888 \text{ mg/l} \approx 0.9 \text{ mg/l}$$

To ensure attainment of water quality standards, the draft permit contains a monthly average limit of 0.9 mg/l for the growing season months of April through October and 1 mg/l for the non-growing season months of November through March. The maximum daily effluent concentration must also be reported. The monitoring frequency is once per week. 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.

Copper

Copper is toxic to aquatic life at low concentrations. The current permit includes a monthly average limit of 67 µg/l and a maximum daily limit of 89 µg/l. These limits were calculated using a hardness value of 20 mg/l for the receiving water and a dilution factor of 29. An examination of the DMR data from January 2008 through August 2010 indicates that the monthly average effluent copper ranged from 10 µg/l to 242 µg/l, with violations of both the average monthly and maximum daily limits in February 2008.

An updated permit limit has been calculated to account for the revised dilution factor. The proposed permit limit also accounts for background levels of copper in the Ware River as indicated by upstream samples taken for Whole Effluent Toxicity testing dilution water.

The EPA Quality Criteria for Water, 1986, set forth the method for establishing water quality criteria for copper, a hardness dependent pollutant. In the National Recommended Water Quality Criteria: 2002, EPA updated its national recommended water quality criteria for pollutants. 314 CMR 4.05(5)(e) Toxic Pollutants of the State water quality standards specifies, "[t]he Department shall use the water quality criteria for the protection of aquatic life expressed in terms of the dissolved fraction

of metals when EPA's 304(a) recommended criteria provide for use of the dissolved fraction." It further states that "permit limits will be written in terms of total recoverable metals."

Hardness data used to calculate the copper criteria below are from Barre's Whole Effluent Toxicity (WET) test reports from February 2009 through February 2011. The hardness values used in this calculation are the median hardness values measured in the treatment plant discharge and the upstream receiving water during this period. Hardness data used to calculate the criteria are included in Appendix C.

Hardness Analysis

$$Q_sC_s = Q_dC_d + Q_rC_r$$

Where

C_s	=	Concentration below outfall		
Q_s	=	Streamflow below outfall (effluent + upstream)	=	8.17 cfs
Q_d	=	Discharge flow	=	0.46 cfs
C_d	=	Discharge concentration	=	100 mg/l
Q_r	=	Upstream flow	=	7.71 cfs
C_r	=	Upstream concentration	=	16 mg/l

Therefore,

$$C_r = \frac{(0.46 \text{ cfs} \times 100 \text{ mg/l}) + (7.71 \text{ cfs} \times 16 \text{ mg/l})}{8.17 \text{ cfs}}$$

$$= 21 \text{ mg/l}$$

Using a hardness value of 21 mg/l and a conversion factor (CF) to convert recoverable to dissolved copper, the chronic and acute criteria calculations for the State water quality standards are as follows.

Chronic instream criteria $e^{((0.8545*\ln 21) + (-1.702))} = 2.46$ µg/l (total recoverable)
Acute instream criteria $e^{((0.9422*\ln 21) + (-1.700))} = 3.22$ µg/l (total recoverable)

EPA then evaluated the available instream data to determine the background concentration of copper in the Ware River upstream of the treatment plant discharge. Data from the WET test dilution samples are shown below:

Table 2. Upstream copper data from February 2008 through November 2010.

Date	Upstream Copper Concentration (µg/l)
2/14/08	4
5/15/2008	4
8/14/08	6
11/13/08	4

2/12/2009	2
5/14/2009	4
8/13/2009	2
11/12/2009	5
2/11/2010	6.8
5/13/2010	7
8/12/2010	4.4
11/11/2010	4.7
Average	4.49
Median	4.4

These data show that the copper concentrations in the receiving water upstream of the discharge frequently exceed the chronic 2.46 µg/l and acute 3.22 µg/l water quality criteria.

Because the receiving water upstream of the discharge is not in attainment of water quality criteria, the effluent limitations must be set equal to the applicable criteria to ensure that the discharge does not cause or contribute to an exceedance of the water quality criteria.

The average monthly total copper limit is 2.5 µg/l and the maximum daily limit is 3.2 µg/l. Total copper analysis shall be performed using EPA Method 200.8 ICP/MS – inductively coupled plasma spectrometry, as this is the only approved method under 40 CFR Part 136 that provides a minimum level of detection (0.5 µg/l) in the range of the permit limits. Monitoring frequency has been increased to once per month. If one sample is taken per month, then each sample must meet the average monthly limit. The maximum daily limit only applies if the permittee chooses to sample more than once per month.

Aluminum

Aluminum, in the form of alum or other compounds, is a commonly used chemical additive in wastewater treatment to remove phosphorus. Aluminum compounds are used in the treatment process at the Barre WWTP. The release of aluminum into the environment can result in levels that are highly toxic to aquatic life. The Massachusetts Water Quality Standards establish that for toxic pollutants not otherwise listed in 314 CMR 4.00, the *National Recommended Water Quality Criteria*: *2002* (US EPA 2002 [EPA-822-R-02-047]) are the allowable receiving water concentration of the affected receiving water (see 314 CMR 4.05(5)(e)). The freshwater aluminum aquatic life criteria in the *National Recommended Criteria* are a chronic criterion of 87 µg/l and an acute criterion of 750 µg/l.

The current permit requires monitoring for aluminum as part of the Whole Effluent Toxicity (WET) testing, which is done quarterly. Both upstream and effluent samples are analyzed. A summary of the aluminum monitoring data from 2008-2010 is presented below in Table 3. All Ware River samples that exceed the chronic aluminum criterion (87 µg/l) are highlighted in yellow.

Table 3. Aluminum Levels in Barre WWTP Effluent and the Ware River, February 2008 – November 2010

Date	Effluent (µg/l)	Ware River (µg/l)
2/15/2008	70	185
5/15/2008	55	112
8/15/2008	28	147
11/13/2008	ND(<10)	98
2/12/2009	31	139
5/14/2009	43	117
8/13/2009	64	113
11/12/2009	530	92
2/11/2010	56	81
5/13/2010	440	70
8/12/2010	320	170
11/31/2010	N/A	92

The chronic water quality criterion for aluminum was exceeded in 83% of the Ware River samples. Based on the Ware River data it is clear that the aluminum concentration upstream of the discharge has regularly exceeded the applicable chronic water quality criteria. This means that any addition of aluminum to the receiving water above the chronic criterion, 87 µg/l, would contribute to an exceedance of water quality standards in the Ware River.

The Massachusetts Water Quality Standards state that "[t]he Department 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 or attained" and that " [i]n establishing water quality based effluent limitations the Department shall take into consideration natural background conditions and existing discharges" (314 CMR 4.03(1)(a)).

Accordingly, a monthly average effluent limit of 87 µg/l has been included in the draft permit to ensure that the discharge does not cause or contribute to a violation of Massachusetts Water Quality Standards. Monitoring frequency is once per month.

In the event that subsequent sampling shows that aluminum levels in Ware River and in the discharge are less than the chronic criteria, the permittee may request a modification of the effluent limit. EPA believes that 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.

Whole Effluent Toxicity

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

Based on the potential for toxicity resulting from domestic and industrial contributions, and in accordance with EPA regulation and policy, the draft permit includes revised acute and chronic toxicity limitations and monitoring requirements. (See, e.g., "Policy for the Development of Water

Quality-Based Permit Limitations for Toxic Pollutants", 50 Fed. Reg. 30,784 (July 24, 1985); see also, EPA's Technical Support Document for Water Quality-Based Toxics Control). EPA Region 1 has developed a toxicity control policy that requires wastewater treatment facilities to perform toxicity bioassays on their effluents.

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

The current permit requires acute toxicity testing and that the LC_{50} be at least 100% of the effluent concentration (i.e. undiluted effluent shall not cause mortality among the majority of the test organisms). Examination of the acute toxicity test results in Table 4 indicates that over the past 17 quarters, Barre WWTP exceeded the acute toxicity tests requirements five times (i.e. 29% of the time). A rudimentary analysis of the chemical data submitted with the WET tests appears to show a correlation between the WET results and ammonia, which would indicate that the WET test exceedances are caused by ammonia toxicity. Also, the discharge concentrations of ammonia exceed the acute ammonia criteria, further supporting a conclusion that the measured whole effluent toxicity is caused by ammonia.

If the pretreatment and optimization requirements of the permit do not remedy the WET violations, EPA may require the permittee to conduct a toxicity identification evaluation (TIE) and a toxicity reduction evaluation (TRE).

Table 4. Acute Effluent Toxicity, February 2008 through November 2010.

Date	LC50 (% effluent)	Ammonia (mg/l)
Feb-07	18.3	70
May-07	100	9.9
Aug-07	100	0.22
Nov-07	100	1.1
February-08	70.7	14
May-08	100.	0.21
August-08	100.	0.76
November-08	100.	3.4
February-09	35.4	66
May-09	100.	3.5
August-09	100.	15
November-09	25.5	63
February-10	35.4	48
May-10	100.	0.59
August-10	100.	0.69
November-10	100.	0.37
Feb-11	100.	11

The draft permit contains a revised dilution factor of 17.8. Pursuant to EPA Region 1 and DEP policy, discharges having a dilution ratio between 10:1 and 20:1 require acute and chronic toxicity testing four times per year. The draft permit contains requirements for quarterly acute toxicity tests using the species *Ceriodaphnia dubia*, only. The acute (LC_{50}) whole effluent toxicity endpoint must be >100%. Barre must also report the chronic toxicity endpoint C-NOEC (Chronic No Effect Concentration). 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.

7. Pretreatment

Barre WWTP has not been required to develop and implement and industrial pretreatment program because it does not exceed the threshold design flow of 5 MGD (see 40 CFR 403.8(a)). There are two industrial users that discharge wastewater to the Barre WWTP. Chas. Allen, a machine shop, is a Categorical Industrial User (CIU), meaning that it is already subject to technology-based effluent limits set by EPA for its industrial category. Chas. Allen manufactures metal finishing machines and tests a small number of them in their product laboratory. The discharge from this user is approximately 11,000 gallons per year of rinse water.

The other industrial user is Waste Management, which operates a landfill and discharges 24,000 gallons per day of landfill leachate to Barre WWTP. There are no federal pretreatment standards for landfills, but there are effluent limitation guidelines for direct discharges (see 40 CFR 445) that include effluent limitations for ammonia, indicating that ammonia is a pollutant of concern in landfill discharges. According to Barre WWTP operations staff, discharges from Waste Management have caused at least one upset to the WWTP in the past five years due to high ammonia concentrations.

Barre has a local sewer use ordinance, but has not set local limits for either of its industrial users. To prevent future upsets due to high ammonia levels in the influent from Waste Management, the draft permit requires that, within 120 days of the effective date of the permit, Barre develop a Maximum Allowable Industrial Headworks Loading (MAIHL) limit for ammonia. Barre must submit the MAIHL to EPA, and upon EPA approval, the MAIHL must be immediately adopted into Barre's local sewer use ordinance.

8. 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 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 (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 0.3 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, aluminum, and copper, based on EPA water quality criteria;
- The facility uses ultra-violet disinfection; therefore the effluent is free from chlorine.
- Acute and chronic toxicity testing on *Ceriodaphnia dubia* is required four (4) times per year. Because of recent problems with effluent toxicity, the draft permit requires that Barre set a Maximum Industrial Headworks limit for ammonia.
- 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.

9. 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. The review focused mainly on the small whirled pogonia (*Isotria medeoloides*), an orchid. No other federally listed species occur in Worcester County.

The small whirled pogonia orchid has been identified in Worcester County, Massachusetts, where the Barre WWTP is located, however it is not been identified in the Town of Barre itself. The small

whorled pogonia is found in "forests with somewhat poorly drained soils and/or a seasonally high water table," according to the USFWS website. This species is not aquatic; therefore it is unlikely that it would come into contact with the facility discharge. Furthermore, the primary threats to this species are habitat destruction and herbivory, factors not affected by this permit action.

10. 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 Clean Water Act 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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
Mail Code OEP06-1
Boston, MA 02109-3912
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Kathleen Keohane, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
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Telephone: (508) 767-2856 FAX: (508) 791-4131
kathleen.keohane@state.ma.

_____
Date

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

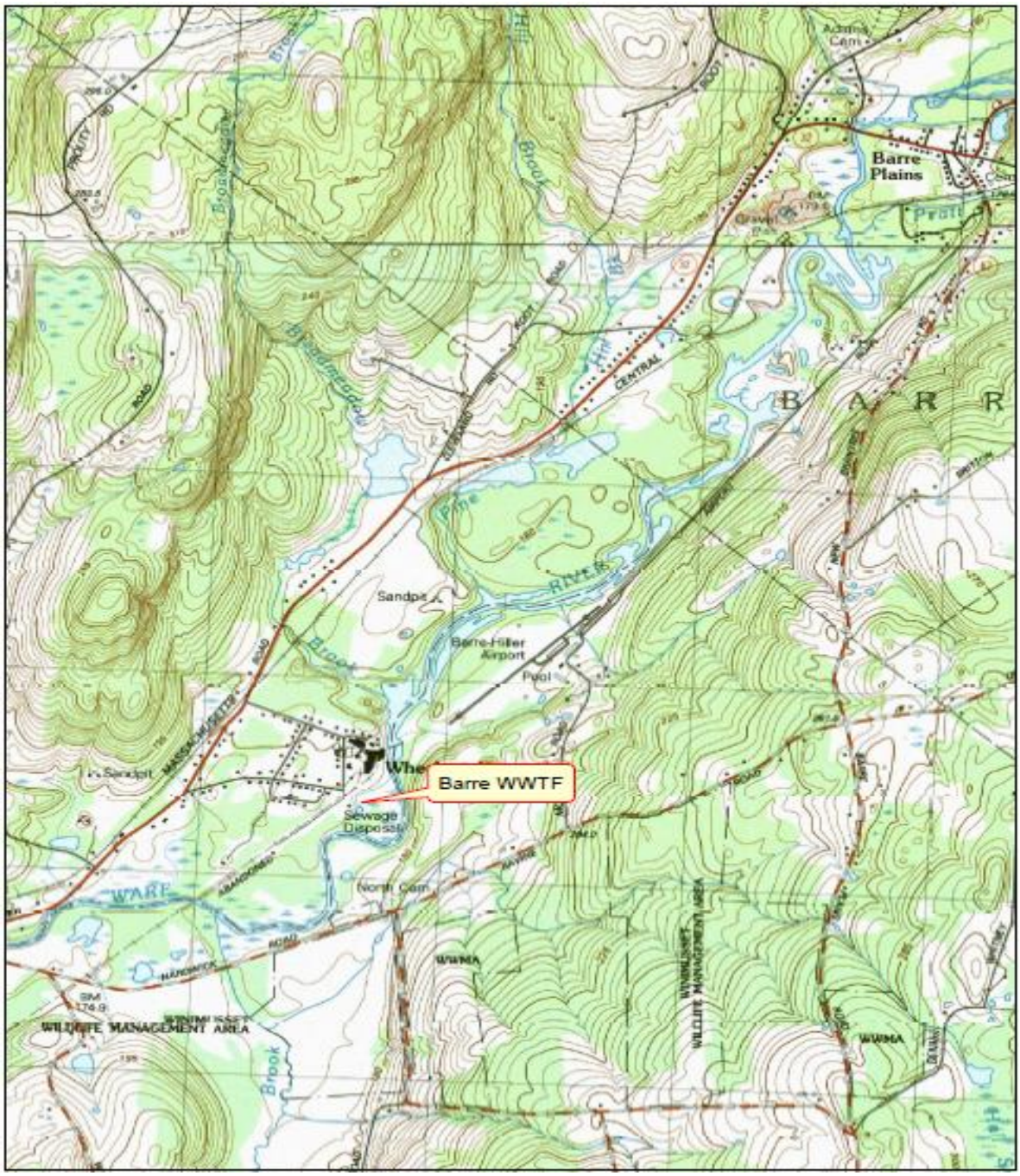

Figure 1 – Facility Location Map

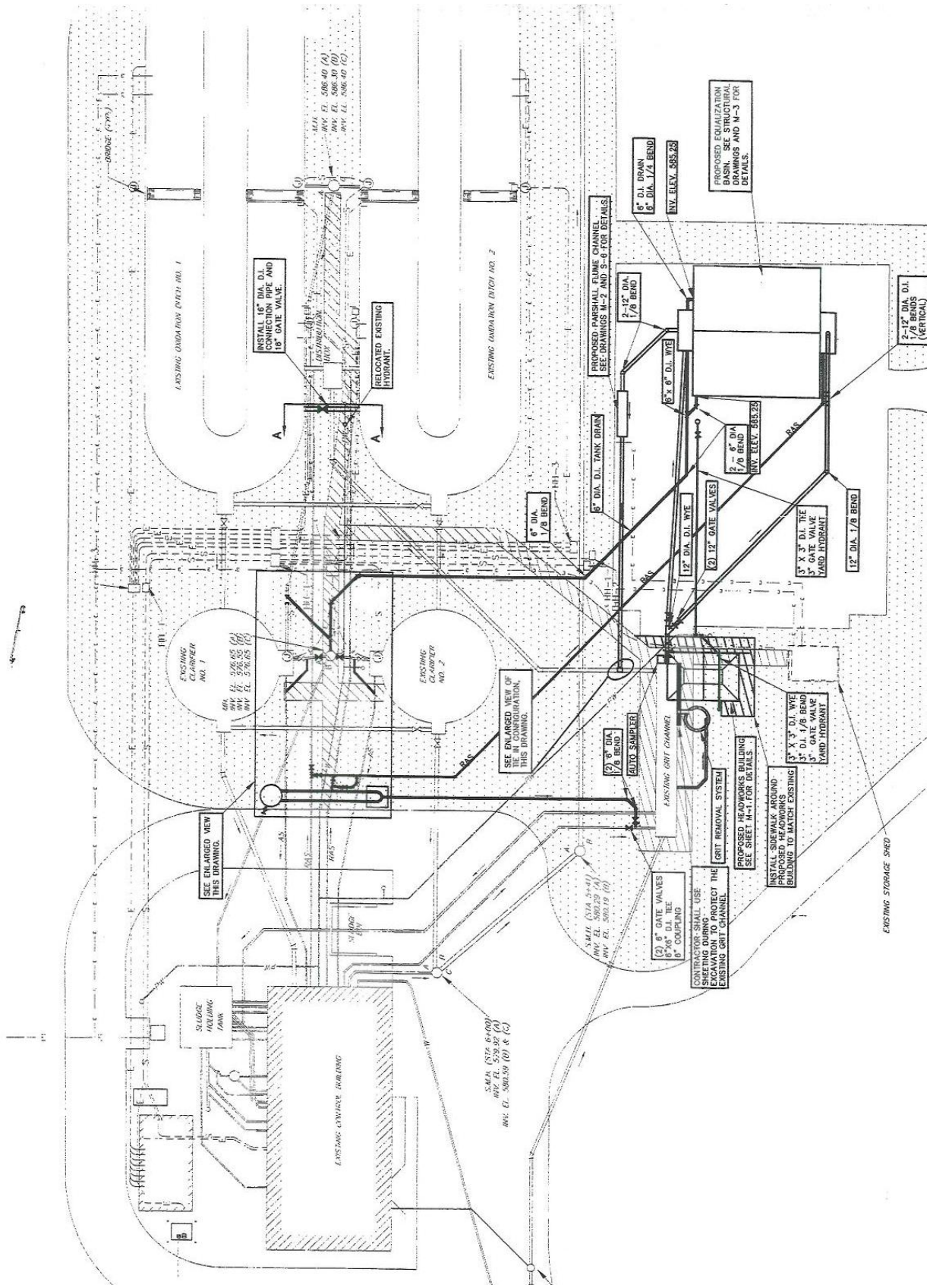

Figure 2 – Facility Schematic

Appendix A
Effluent Characteristics

Month	Flow*	BOD, monthly avg	BOD, weekly avg	BOD, daily max	BOD, avg monthly	pH min	pH max	TSS, avg monthly	TSS, avg weekly
	MGD	mg/l	mg/l	mg/l	lbs/day	s.u.	s.u.	mg/l	mg/l
Jan-08	.19684	15.32	17.41	17.41	24.72	6.85	7.62	7.81	11.42
Feb-08	.20376	13.27	18.1	21.35	37.2	6.84	7.6	9.55	16.16
Mar-08	.2076	10.89	12.07	13.86	26.	6.91	7.38	5.43	6.85
Apr-08	.2045	9.2	10.63	11.64	23.5	6.92	7.31	13.23	19.65
May-08	.2003	6.27	9.31	11.76	11.	6.96	7.3	7.04	11.65
Jun-08	.19976	4.52	7.93	8.93	7.	7.09	7.55	4.86	10.35
Jul-08	.2004	6.27	8.03	8.6	9.	6.97	7.32	6.92	8.25
Aug-08	.2007	7.08	8.18	10.03	10.	6.75	7.14	4.45	6.
Sep-08	.20349	5.48	6.8	10.54	9.	6.73	7.32	5.79	9.
Oct-08	.20435	4.66	5.76	6.54	7.	7.	7.32	4.14	5.65
Nov-08	.2052	10.68	12.18	19.53	16.23	6.95	7.48	9.62	19.3
Dec-08	.21278	12.55	13.44	14.36	28.	6.86	7.55	9.79	11.6
Jan-09	.1914	13.59	17.63	22.96	22.	7.2	7.67	8.31	13.45
Feb-09	.18323	13.86	21.71	22.2	23.	7.33	7.71	7.88	11.87
Mar-09	.18018	10.12	11.38	16.69	22.	7.23	7.64	9.4	14.4
Apr-09	.17946	6.58	8.58	8.46	12.	6.8	7.38	5.89	9.
May-09	.17838	4.25	5.58	5.71	7.	6.5	7.29	5.23	6.25
Jun-09	.17272	4.52	6.51	6.6	7.	6.7	7.54	4.81	5.65
Jul-09	.18131	7.75	12.83	14.54	13.	6.76	7.3	4.01	6.5
Aug-09	.18396	8.29	9.73	12.78	14.	7.03	7.56	3.43	4.2
Sep-09	.18243	7.7	9.43	11.79	12.	7.22	7.6	2.81	4.
Oct-09	.18305	10.06	12.69	15.04	16.	7.23	7.76	6.8	10.7
Nov-09	.206	22.5	29.	35.	35.	7.4	7.9	10.5	18.
Dec-09	.199	25.9	32.	37.	44.	7.3	7.7	8.6	12.
Jan-10	.199	22.9	37.	36.	40.6	7.59	7.93	11.8	15.
Feb-10	.2	29.	36.5	40.	47.	7.4	8.	16.8	18.
Mar-10	.207	19.9	36.5	39.	58.2	6.57	7.58	19.	33.5
Apr-10	.209	7.4	13.3	16.	13.8	6.63	7.23	15.3	18.5
May-10	.21	10.4	15.5	16.	17.4	6.58	7.9	24.	36.
Jun-10	.209	6.8	10.4	16.	10.3	6.98	7.55	7.8	15.
Jul-10	.205	6.2	8.9	9.4	8.3	7.16	7.97	6.9	9.5
Aug-10	.203	5.5	6.6	6.6	7.5	7.31	7.75	8.6	10.
11/2005 Permit Limits	0.3	30	45	Report	75	6.5	8.3	30	45
Minimum	.17272	4.25	5.58	5.71	7.	6.5	7.14	2.81	4.
Average	0.2	10.9	14.7	16.9	20.0	7.0	7.6	8.6	12.7
Maximum	.21278	29.	37.	40.	58.2	7.59	8.	24.	36.
Standard Deviation	0.01	6.57	9.41	10.04	13.48	0.28	0.23	4.73	7.34
# measurements	36	32	32	32	32	32	32	32	32
# exceed 2005 permit limit	0	0	0	N/A	0	0	0	0	0

Appendix A
Effluent Characteristics

Month	TSS, max daily	TSS, avg monthly	Total Kjeldahl Nitrogen, avg monthly	Total Kjeldahl Nitrogen, max daily	Total Kjeldahl Nitrogen, avg monthly	Total Kjeldahl Nitrogen, max daily	Nitrate plus Nitrite, avg monthly	Nitrate plus Nitrite, max daily	Nitrate plus Nitrite, avg monthly
	mg/l	lbs/day	mg/l	mg/l	lbs/day	lbs/day	mg/l	mg/l	lbs/day
Jan-08	12.92	13.							
Feb-08	25.	26.	17.	17.	42.	45.75	3.13	3.42	3.13
Mar-08	11.	13.							
Apr-08	25.2	37.							
May-08	14.9	13.	7.3	7.3	12.2	16.5	19.	19.	31.8
Jun-08	10.5	8.							
Jul-08	9.7	10.							
Aug-08	6.	6.	2.2	2.2	3.5	3.7	.8	.8	.011
Sep-08	14.8	10.							
Oct-08	6.1	6.							
Nov-08	19.3	15.	5.6	5.6	8.59	11.65	.18	.18	.28
Dec-08	17.1	19.							
Jan-09	14.9	14.							
Feb-09	14.4	13.	54.	54.	89.1	124.2	3.6	3.6	5.94
Mar-09	15.	20.							
Apr-09	11.6	11.							
May-09	7.2	8.	2.3	2.3	3.6	4.5	110.	110.	17.2
Jun-09	7.6	8.							
Jul-09	8.1	7.							
Aug-09	5.8	6.	13.37	18.	22.08	32.86	.45	.45	.74
Sep-09	6.	4.							
Oct-09	14.6	11.							
Nov-09	21.	16.	24.	24.	36.	36.	1.8	1.8	2.7
Dec-09	14.	14.							
Jan-10	16.	21.7							
Feb-10	23.	26.7	69.3	74.	137.4	193.4	1.4	2.8	2.5
Mar-10	34.	54.4							
Apr-10	46.	27.9							
May-10	42.	40.	6.07	7.8	13.67	20.92	47.	58.	98.01
Jun-10	16.	12.							
Jul-10	12.	9.3							
Aug-10	12.	11.8	4.3	5.3	23.68	6.9	51.	68.	70.79
11/2005 Permit Limits	Report	75	Report	Report	Report	Report	Report	Report	Report
Minimum	5.8	4.	2.2	2.2	3.5	3.7	.18	.18	.011
Average	16.1	16.0	18.7	19.8	35.6	45.1	21.7	24.4	21.2
Maximum	46.	54.4	69.3	74.	137.4	193.4	110.	110.	98.01
Standard Deviation	9.73	11.17	22.53	23.38	41.72	59.85	34.84	37.35	33.23
# measurements	32	32	11	11	11	11	11	11	11
# exceed 2005 permit limit	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix A
Effluent Characteristics

Month	Nitrate plus Nitrite, max daily	Total Phosphorus, avg monthly	Total Phosphorus, max daily	Copper, average monthly	Copper, max daily	Fecal Coliform, geometric avg	Fecal Coliform, max daily
	lbs/day	mg/l	mg/l	ug/l	ug/l	#/100 ml	#/100 ml
Jan-08		3.4	3.4				
Feb-08	3.42	3.1	3.1	242.	242.		
Mar-08		1.6	1.6				
Apr-08		2.4	2.4			24.	333.
May-08	43.	4.4	4.4	17.	17.	106.	24.69
Jun-08		5.9	5.9			14.11	98.
Jul-08		8.8	8.8			3.56	62.
Aug-08	.014	2.2	2.2	10.	10.	23.	67.3
Sep-08		3.5	3.5			20.7	65.33
Oct-08		.05	.05			9.89	126.
Nov-08	.37	2.53	2.53	18.	18.		
Dec-08		1.49	2.07				
Jan-09		2.14	2.31				
Feb-09	8.28	2.16	3.43	21.	21.		
Mar-09		.66	1.4				
Apr-09		.36	.56			4.78	85.5
May-09	21.6	1.41	2.08	12.	12.	1109.	188.
Jun-09		1.28	207.			240.	155.5
Jul-09		.65	.81			1.9	5.
Aug-09	1.1	1.12	1.93	15.	15.	2.53	57.
Sep-09		2.06	4.11			13.61	46.
Oct-09		1.11	1.94			32.8	220.
Nov-09	2.7	.81	2.	29.	30.		
Dec-09		1.46	3.9				
Jan-10		.9	1.3				
Feb-10	4.	1.11	1.8	19.	19.		
Mar-10		1.09	3.1				
Apr-10		.76	1.4			216.28	3200.
May-10	117.66	1.13	1.6	41.	41.	236.	2130.
Jun-10		.92	1.3			702.56	2055.
Jul-10		.93	1.1			573.64	6200.
Aug-10	94.94	.88	1.2	66.5	81.	642.91	4720.
11/2005 Permit Limits	Report	1	Report	67.0	89.0	200	400
Minimum	.014	.05	.05	10.	10.	1.9	5.
Average	27.0	1.9	8.9	44.6	46.0	209.3	1044.1
Maximum	117.66	8.8	207.	242.	242.	1109.	6200.
Standard Deviation	41.54	1.76	36.19	67.47	68.05	316.91	1814.68
# measurements	11	32	32	11	11	19	19
# exceed 2005 permit limit	N/A	22	N/A	1	1	7	5

Appendix B
Ammonia Calculations

Summer Ammonia Criteria (at 24 C and pH 7.5, salmonids present, early fish life stages present)[5]

Acute: 13.3 mg/l
Chronic: 2.37 mg/l

Winter Ammonia Criteria (at 0 C and pH 7.6, salmonids present, early fish life stages present) [6]

Acute 11.4 mg/l
Chronic 3.98 mg/l

pH Data from Whole Effluent Toxicity Tests (used in determining water quality criteria)

Date	Effluent pH	Ambient pH
2/15/2007	7.9	6
5/10/2007	7.4	6.1
8/9/2007	7.7	6.9
11/8/2007	7.6	7
2/14/2008	7.3	6.2
5/15/2008	7.3	6.8
8/14/2008	7.5	6.5
11/13/2008	7.5	6.5
2/12/2009	7.6	6.3
5/14/2009	7.4	6.5
8/13/2009	7.5	6.6
11/12/2009	8	7.2
2/11/2010	7.7	6.7
5/13/2010	6.9	6.8
8/12/2010	7.8	7.5
11/11/2010	7	7.2
2/10/2011	7	6
May/Aug median	7.45	6.7
Nov/Feb median	7.6	6.5

[5] Pages 86-87 of 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014)

Appendix C

Copper Effluent Data

	67 ug/L	89 ug/L
MP Date	**MO AVG**	**DAILY MX**
2/29/2008	242.	242.
5/31/2008	17.	17.
8/31/2008	10.	10.
11/30/2008	18.	18.
2/28/2009	21.	21.
5/31/2009	12.	12.
8/31/2009	15.	15.
11/30/2009	29.	30.
2/28/2010	19.	19.
5/31/2010	41.	41.
8/31/2010	66.5	81.
11/30/2010		
	44.59090909	**46**

Background (from Whole Effluent Toxicity Tests)

2/12/2009	2
5/14/2009	4
8/13/2009	2
11/12/2009	5
2/11/2010	6.8
5/13/2010	7
8/12/2010	4.4
11/11/2010	4.7
2/10/2010	4.5
average	4.48888889
median	4.5

Hardness (from WET tests)

	Upstream Hardness (mg/l)	Effluent Hardness (mg/l)
2/12/2009	16	100
5/14/2009	20	52
8/13/2009	28	76
11/12/2009	16	52
2/11/2010	16	58
5/13/2010	12	112
8/12/2010	20	158
11/11/2010	28	138
2/10/2011	16	100
median	16	100
average	19.1	94.0

Downstream conc = (QeCe + QsCs)/Qr			20.7295
Qr =	8.17	cfs	7Q10 + design flow
Qs =	7.71	cfs	7Q10
Cs =	16	mg/l	Background conc
Qe =	0.46	cfs	design flow
Ce =	100.00	mg/l	effluent conc

Freshwater Metals Criteria and Limits

Step 1: Input the following values (highlighted in green)

7Q10	7.71	cfs
Design flow	0.46	cfs
Hardness =	21	mg/L

Step 2: The spreadsheet calculates the Total Recoverable Limits

Step 3: Input background metals values (if available)

Metal	m_A	b_A	m_C	b_C	CF acute	CF chronic	Background (ug/l)	Dissolved Criteria	
								Acute Criteria (CMC) (ug/L)	Chronic Criteria (CCC) (ug/L)
Hardness Dependent Metals									
Cadmium	1.0166	-3.9240	0.7409	-4.7190	1.009	0.974	0.000	0.44	0.08
Chromium III	0.8190	3.7256	0.8190	0.6848	0.316	0.860	0.000	158.71	20.64
Copper	0.9422	-1.7000	0.8545	-1.7020	0.960	0.960	4.480	3.09	2.36
Lead	1.2730	-1.4600	1.2730	-4.7050	1.018	1.018	0.000	11.40	0.44
Nickel	0.8460	2.2550	0.8460	0.0584	0.998	0.997	0.000	125.04	13.89
Silver	1.7200	-6.5900	---	---	0.850	---	0.000	0.22	---
Zinc	0.8473	0.8840	0.8473	0.8840	0.978	0.986	0.000	31.23	31.49
Non-Hardness Dependent Metals									
Arsenic					1.000	1.000	0.000	340.00	150.00
Chromium VI					0.982	0.962	0.000	16.00	11.00
Mercury					0.850	0.850	0.000	1.40	0.77
Aluminum					---	---	0.000	---	---

Source: National Recommended Water Quality Criteria 2002
http://www.epa.gov/waterscience/criteria/wqctable/

Step 4: Identifiy the limit (highlighted in blue)

Total Recoverable Criteria		Total Recoverable Limit	
Acute Criteria (CMC) (ug/L)	Chronic Criteria (CCC) (ug/L)	Maximum Daily Limit (ug/L)	Monthly Ave Limit (ug/L)
0.44	0.09	7.8	1.5
502.23	24.01	8920.1	426.4
3.22	2.46	-17.9	-31.4
11.20	0.44	198.9	7.7
125.29	13.93	2225.3	247.4
0.26	---	4.6	
31.93	31.93	567.1	567.1
340.00	150.00	6038.7	2664.1
16.29	11.43	289.4	203.1
1.65	0.91	29.3	16.1
750.00	87.00	13320.7	1545.2

Annual/summer 30Q10 (for calculation of limits from April 1 – October 31)

30Q10 at USGS 011723000 WARE RIVER AT INTAKE WORKS NEAR BARRE, MA = 8.25cfs
Drainage Area = 96.3 square miles

30Q10 at USGS 01173500, Ware River at Gibbs Crossing, MA = 23.1 cfs
Drainage Area = 197 square miles

Flow factor for area between USGS 01173000 and USGS01173500 =

(23.1 cfs – 8.25 cfs)/(197 sq. mi. – 96.3 sq. mi.) = 14.85 cfs/100.7 sq. mi. = 0.147 cfs/sq. mi.

Drainage Area at Outfall = 115 square miles

30Q10 = 8.25 cfs + 0.147 cfs/square miles x (115 sq. mi. – 96.3 sq. mi.) = 11.0 cfs

Barre WWTP design flow = 0.3 MGD x 1.53 cfs/MGD = 0.46 cfs

Dilution Factor = (Facility Flow + 7Q10)/7Q10
Dilution Factor = (11 cfs + 0.46 cfs)/0.46 cfs = **25**

Ammonia Data Used in Reasonable Potential Analysis

Date	Effluent (mg/l)	Background (mg/l)
2/15/2007	70	0.16
5/10/2007	9.9	0.06
8/9/2007	0.22	0.03
11/8/2007	1.1	0.05
2/14/2008	14	0.09
5/15/2008	0.21	0.09
8/14/2008	0.76	0.16
11/13/2008	3.4	0.15
2/12/2009	66	0.55
5/14/2009	3.5	0.13
8/13/2009	15	0.15
11/12/2009	63	0.15
2/11/2010	48	0.26
5/13/2010	0.59	0.1
8/12/2010	0.69	0.052
11/11/2010	0.37	0.053
2/10/2011	11	0.2
median	3.5	0.13
average	18.10	0.14

Effluent Concentration Necessary to Meet Summer Chronic Criterion

$$Q_sC_s = Q_dC_d + Q_rC_r$$

Where

C_s	=	Concentration below outfall	=	2.72 mg/l
Q_s	=	Streamflow below outfall (effluent + upstream)	=	8.17 cfs
Q_d	=	Discharge flow	=	0.46 cfs
C_d	=	Discharge concentration		
Q_r	=	Upstream flow	=	7.71 cfs
C_r	=	Upstream concentration	=	0.13 mg/l

Therefore,

$$C_d = \frac{(8.17 \text{ cfs} \times 2.72 \text{ mg/l}) - (7.71 \text{ cfs} \times 0.13 \text{ mg/l})}{0.46 \text{ cfs}}$$

$$= 46 \text{ mg/l}$$

Winter 301Q10 (for calculation of limits from November 1- March 31)

Winter 30Q10 at USGS 011723000 Ware River at Intake Works near Barre, MA = 51.4 cfs
Drainage Area = 96.3 square miles

Winter 30Q10 at USGS 01173500, Ware River at Gibbs Crossing, MA = 98.4 cfs
Drainage Area = 197 square miles

Flow factor for area between USGS 01173000 and USGS01173500 =

(98.4 cfs – 51.4 cfs)/(197 sq. mi. – 96.3 sq. mi.) = 47 cfs/100.7 sq. mi. = 0.47 cfs/sq. mi.

Drainage Area at Outfall = 115 square miles

30Q10 = 51.4 cfs + 0.47 cfs/square miles x (115 sq. mi. – 96.31 sq. mi.) = 60.2 cfs

Barre WWTP design flow = 0.3 MGD x 1.53 cfs/MGD = 0.46 cfs

Dilution Factor = (Facility Flow + 7Q10)/7Q10
Dilution Factor = (60.2 cfs + 0.46 cfs)/0.46 cfs = **132**

Reasonable Potential Analysis for Winter Ammonia Discharges

$$Q_sC_s = Q_dC_d + Q_rC_r$$

Q_s = receiving water flow = $Q_s + Q_d$	= 0.46 cfs + 60.2 cfs = 60.66 cfs
C_s = receiving water concentration	= ?
Q_d = effluent flow, i.e. facility design flow	= 0.46 cfs
C_d = effluent pollutant concentration	= 70 mg/l (highest data point)
Q_r = 30Q10 flow of receiving water	= 60.2 cfs
C_r = upstream concentration	= 0.13 mg/l

$$C_s = \frac{(0.46 \text{ cfs} \times 70 \text{ mg/l}) + (60.2 \text{ cfs} \times 0.13 \text{ mg/l})}{60.66 \text{ cfs}}$$

$C_s = 0.66$ mg/l < 3.98 (winter chronic criterion) and < 11.4 (winter acute criterion).

There is no reasonable potential for the discharge to cause or contribute to an exceedance of the acute or chronic water quality criterion.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMONWEALTH OF MASSACHUSETTS
1 WINTER STREET
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REISSUANCE TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND UNDER SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATERS ACT, AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT.

DATE OF NOTICE: February 3, 2012

PERMIT NUMBER: **MA0103152**

PUBLIC NOTICE NUMBER: MA-008-12

NAME AND MAILING ADDRESS OF APPLICANT:

Board of Sewer Commissioners
Town of Barre
441 Wheelright Road
Barre, MA 01005

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Barre Wastewater Treatment Plant
441 Wheelright Road
Barre, Massachusetts 01005

RECEIVING WATER(S): Ware River

RECEIVING WATER CLASSIFICATION(S): Class B

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a permit reissuance for the above identified facility. The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq., the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00 and State Surface Water Quality Standards at 314 CMR 4.00. EPA has formally requested that the State certify this draft permit reissuance pursuant to Section 401 of the Clean Water Act and expects that the draft permit reissuance will be certified. However, sludge conditions in the draft permit are not subject to State certification requirements.

INFORMATION ABOUT THE DRAFT PERMIT REISSUANCE:

A fact sheet (describing the type of facility; type and quantities of wastes; a brief summary of the basis for the draft permit reissuance conditions; and significant factual, legal and policy questions considered in preparing this draft permit reissuance) and the draft permit reissuance may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by writing or calling EPA's contact person named below:

Robin Johnson
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 1100 (OEP06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1045

The administrative record containing all documents relating to this draft permit reissuance is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit reissuance is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by **March 3, 2012**, to the U.S. EPA, 5 Post Office Square, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this draft permit reissuance, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

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

DAVID FERRIS, DIRECTOR
MASSACHUSETTS WASTEWATER
MANAGEMENT PROGRAM
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL PROTECTION

STEPHEN S. PERKINS, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
ENVIRONMENTAL PROTECTION
AGENCY – REGION 1