

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
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

NPDES PERMIT NO: **MA0100013**

NAME AND ADDRESS OF APPLICANT:

**Board of Selectmen
Town of Ayer
Brook Street
Ayer, MA 01432**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Ayer Wastewater Treatment Facility
Brook Street
Ayer, MA 01432**

RECEIVING WATER: **Nashua River (Nashua River Watershed - MA81-05)**
CLASSIFICATION: **Class B - Warm Water**

I. **PROPOSED ACTION**

The above named applicant has applied to the U.S. Environmental Protection Agency for the re-issuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving water. The current permit was signed on July 28, 2000 and became effective sixty (60) days later. The permit expired September 30, 2005. A re-application was received on March 26, 2005. This draft permit, after it becomes effective, will expire five (5) years from the effective date of issuance.

II. **TYPE OF FACILITY AND DISCHARGE LOCATION**

The facility is a 1.79 million gallon per day (mgd) advanced wastewater treatment facility, which discharges to the Nashua River in the Nashua River Watershed (See Figure 1). Under an agreement with MassDevelopment, the town sends a weekly average flow of 0.1 mgd to the Devens WWTF for treatment. Sludge generated at the Ayer WWTF is hauled to the Fitchburg Easterly plant for incineration.

The facility's discharge outfalls are listed below:

<u>Outfall</u>	<u>Description of Discharge</u>	<u>Receiving Water</u>
001	Treated Effluent	Nashua River

III. DESCRIPTION OF DISCHARGE

Quantitative descriptions of the discharge in terms of significant effluent parameters based on recent discharge monitoring reports (DMRs), July 2003 through June 2005, and the March 2005 application, are shown in Tables 1 and 2 of this fact sheet, respectively.

IV. LIMITATIONS AND CONDITIONS

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

V. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. PROCESS DESCRIPTION

The facility is a 1.79 million gallon per day (mgd) advanced wastewater treatment facility which is designed for BOD and TSS removal of approximately 90%, total phosphorus removal to 1.0 mg/l, ammonia removal between 1-2 mg/l, ultraviolet light for disinfection and post-aeration prior to discharge to the Nashua River (See Figure 1). Construction of the upgraded facility, which was required by a DEP enforcement order, was completed in March 2005.

The following is a brief description of the upgraded plant's treatment process; influent flows enter the facility via a new cyclone grit removal system and then passes through the previously existing influent chamber. Septage is added to the influent at this point. The total influent flows to the new clari-thickener then to the new anaerobic basins, and then the aeration basins. Alum is added following the aeration basins. Wastewater then flows to the sedimentation tanks and then to the filter feed pump house and the tertiary filters. The final effluent is then disinfected using ultraviolet light (UV). The facility has maintained the ability to use chlorine for disinfection in the case of bypass.

Sludge is hauled to the Fitchburg Easterly facility for incineration and final disposal.

B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

Under Section 301(b)(1) of the Clean Water Act ("CWA"), publicly owned treatment works ("POTWs") must have achieved effluent limitations based upon Secondary Treatment by July 1, 1977. The secondary treatment requirements are set forth at 40 C.F.R. Part 133.102. In addition, Section 301(b)(1)(C) of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water.

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

pollution, and where appropriate, consider the dilution of the effluent in the receiving water.

2. Water Quality Standards; Designated Use; Outfall 001

The Nashua River in the vicinity of the discharges is classified as a Class B-warm water fishery in the Massachusetts Surface Water Quality Standards (314 CMR 4.00). Class B waters are designated as a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. The waters should have consistently good aesthetic value.

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

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such require the development of total maximum daily loads (TMDL). The segment of the river (MA81-05), Nashua River, confluence with North Nashua River, Lancaster to confluence with Squannacook River, Shirley/Groton/Ayer, is listed as impaired and requiring the development of a TMDL on the Massachusetts 2002 Integrated List of Waters (303d). The listed impairments for this segment are cause unknown; unknown toxicity; metals; nutrients; pathogens; taste, odor and color; and turbidity.

The MA DEP 1998 Water Quality Assessment Report for the Nashua River, which is the basis for the 303(d) list, indicated that the aquatic life and primary and secondary contact recreation designated uses were not in support status. Since the time of the assessment, the Ayer WWTF has been required to implement an industrial pretreatment program and, as previously discussed, upgraded their treatment system including the addition of phosphorus and nitrogen removal technologies.

Available Dilution

Water quality based limits are established with the use of a calculated available dilution. Title 314 CMR 4.03(3)(a) requires that effluent dilution be calculated based on the receiving water 7Q10. The 7Q10 is the lowest observed mean river flow for 7 consecutive days, occurring over a 10-year recurrence interval. Additionally, the facility design flow is used to calculate available effluent dilution. The facility design flow is 1.79 million gallons per day or 2.77 cubic feet per second (cfs).

The nearest United States Geological Survey (USGS) streamflow gage to the discharge point is located downstream in East Pepperell. The East Pepperell gage (01096500) has a drainage area of 435 square miles (mi²). The EPA's DFLOW tool calculates the 7Q10 for the period record to be 43.4 cfs. The drainage area at the point of discharge is 326 mi², therefore, the estimated 7Q10 at the point of discharge is 32.5 cfs.

$$\begin{aligned} 43.4 \text{ cfs}/435 \text{ mi}^2 &= x/326 \\ x &= 32.5 \end{aligned}$$

Using the updated 7Q10 flow of 32.5 cfs, the dilution factor for the Ayer WWTF discharge to the Nashua River is 13.

$$\frac{\text{River flow (7Q10)} + \text{Daily average design effluent flow}}{\text{River Flow (7Q10)}} = \text{Dilution}$$

$$\frac{32.5 \text{ cfs} + 2.77 \text{ cfs}}{2.77 \text{ cfs}} = 13$$

The 30Q10 flow was also calculated using the DFLOW tool. The 30Q10 at the East Pepperell Gage is 78.8 cfs. Again, using the proportional equation, the relative flow at the Ayer WWTF point of discharge can be determined. The 30Q10 flow at the point of discharge is 59 cfs.

$$\begin{aligned} 78.8 \text{ cfs}/435 \text{ mi}^2 &= x/326 \\ x &= 59 \end{aligned}$$

Using the 30Q10 flow of 59 cfs, the dilution factor for the Ayer WWTF discharge to the Nashua River is.

$$\frac{\text{River flow (7Q10)} + \text{Daily average design effluent flow}}{\text{River Flow (7Q10)}} = \text{Dilution}$$

$$\frac{59 \text{ cfs} + 2.77 \text{ cfs}}{2.77 \text{ cfs}} = 22.3$$

Flow - The flow limit is based on the annual average design flow of the treatment plant, which is 1.79 mgd. Flow is to be measured continuously. The permittee shall report the annual average monthly flow using the annual rolling average method (See Permit Footnote 1). The maximum, minimum and total flow for each operating date shall also be reported.

OUTFALL 001 - CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD₅) - Publicly Owned Treatment Works (POTWs) are subject to the secondary treatment requirements set forth at 40 CFR 133.102 (a)(1), (2) and 40 CFR 122.45 (f). The secondary treatment limitations are monthly average BOD₅ concentration of 30 mg/l, weekly average concentration of 45 mg/l. The maximum daily concentration shall be reported. The mass limitations for BOD₅ are based on the 1.79 MGD design flow.

Total Suspended Solids (TSS) - Publicly Owned Treatment Works (POTWs) are subject to the secondary treatment requirements set forth at 40 CFR 133.102 (b)(1), (2) and 40 CFR 122.45 (f). The secondary treatment limitations are monthly average TSS concentration of 30 mg/l, weekly average concentration of 45 mg/l. The maximum daily concentration shall be reported. The mass limitations for TSS are based on the 1.79 MGD design flow.

BOD₅ and TSS Mass Loading Calculations:

Calculations of maximum allowable loads for average monthly BOD₅ and TSS are based on the following equation:

$$L = C \times DF \times 8.34 \text{ or } L = C \times DF \times 3.79 \text{ where:}$$

L = Maximum allowable load in lbs/day.

C = Maximum allowable effluent concentration for reporting period in mg/l.

Reporting periods are average monthly and weekly and daily maximum.

DF = Design flow of facility in MGD.

8.34 = Factor to convert effluent concentration in mg/l and design flow in MGD to lbs/day.

3.79 = Factor to convert effluent concentration in mg/l and design flow in MGD to kgs/day.

$$(\text{Concentration limit}) [45] \times 8.34 (\text{Constant}) \times 1.79 (\text{design flow}) = 672 \text{ lbs/day}$$

$$(\text{Concentration limit}) [45] \times 3.79 (\text{Constant}) \times 1.79 (\text{design flow}) = 305 \text{ kgs/day}$$

$$(\text{Concentration limit}) [30] \times 8.34 (\text{Constant}) \times 1.79 (\text{design flow}) = 448 \text{ lbs/day}$$

$$(\text{Concentration limit}) [30] \times 3.79 (\text{Constant}) \times 1.79 (\text{design flow}) = 204 \text{ kgs/day}$$

Eighty-Five Percent (85%) BOD₅ and TSS Removal Requirement - the provisions of 40 CFR §133.102(a)(3) requires that the 30 day average percent removal for BOD and TSS be not less than 85%. These limits are maintained in the draft permit.

pH - The draft permit includes pH limitations which 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). Class B waters shall be in a range of 6.5 through 8.3 standard units and not more than 0.5 standard units outside of the normally occurring range (314 CMR 4.0 (4)(a)3). There shall be no change from background conditions that would impair any use assigned to this class. The monitoring frequency is once (1) per day.

Dissolved Oxygen - The draft permit includes a limitation of not less than 6.0 mg/l for dissolved oxygen (DO). This is consistent with the previous permit and the anti-backsliding provisions of the CWA §402 (o).

Fecal Coliform Bacteria - The draft permit includes fecal coliform bacteria limitations which are in accordance with the Massachusetts Surface Water Quality Standards 314 CMR 4.05 (4)(b). The proposed limits in the draft permit are 200 colony forming units (cfu)/100 ml for the average monthly limit and 400 colony forming units (cfu)/100 ml for the maximum daily limit. Fecal Coliform Bacteria limits are in place year-round due to water supply intakes downstream on the Merrimack River. .

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS

Total Residual Chlorine - The upgraded Ayer WWTF uses UV for disinfection, however, the upgrade design also allows for the use of chlorine in the event of a bypass of the UV disinfection. Chlorine is a toxic chemical. DMRs show a maximum daily total residual chlorine levels between 0.036 mg/l and 0.293 mg/l, which meets the previous permit limits.

The draft permit continues to include Total Residual Chlorine (TRC) limitations which are based on state water quality standards [Title 314 CMR 4.05(5)(e)]. However, sampling shall be conducted only when chlorine is added to the discharge.

The water quality standards for chlorine defined in the 2002 EPA National Recommended Water Quality Criteria for freshwater are 19 ug/l acute and 11 ug/l chronic in the receiving water. Given the dilution of 13, TRC limits have been calculated as 0.25 mg/l maximum daily and 0.14 mg/l average monthly. TRC shall be collected once per day if it is in use.

Total Residual Chlorine Limitations:

(acute criteria * dilution factor) = Acute (Maximum Daily)

$(19 \text{ ug/l} \times 13) = 247 \text{ ug/l} = 0.25 \text{ mg/l}$

(chronic criteria * dilution factor) = Chronic (Monthly Average)

$(11 \text{ ug/l} \times 13) = 143 \text{ ug/l} = 0.14 \text{ mg/l}$

Total Phosphorus - 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). MADEP has established that a monthly average total phosphorus limit of 0.2 mg/l represents highest and best practical treatment for POTWs.

EPA has produced several guidance documents which contain recommended total phosphorus criteria for receiving waters. The 1986 Quality Criteria of Water (“the Gold Book”) recommends in-stream phosphorus concentrations of 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impounds, and 0.025 mg/l within the lake or reservoir.

More recently, EPA has 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 published criteria represent conditions in waters in each specific ecoregion which

are minimally impacted by human activities, and thus representative of waters without cultural eutrophication. Ayer is within Ecoregion XIV, Eastern Coastal Plains. The total phosphorus criteria for this Ecoregion XIV is 24 ug/l (0.024 mg/l) and can be founded in the Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV, published in December 2000.

In the early Fall 2003, EPA and DEP conducted a visual assessment of the algae and macrophyte growth in the Nashua River. The river, both upstream and downstream of the Ayer discharge, was blanketed with macrophytes. This is consistent with the data in the 1998 Assessment Report, which notes that aquatic macrophytes were well-established in the vicinity and that duckweed was observed on the surface. The assessment team also noted that the river was turbid with sewage odors.

Additionally, segment 81-06 of the Nashua River, which is located immediately downstream of the segment to which the Ayer WWTF discharges, is listed as an impaired water requiring a TMDL study for organic enrichment/low dissolved oxygen. Pepperell Pond, a 296 acre pond in the segment is described as hypereutrophic in the 1998 Assessment Report. The MassDEP is currently developing a TMDL for the Nashua River. However, given the extent of macrophytes found in 2003 and the hypereutrophic status of Pepperell Pond, EPA has set a total phosphorus limit of 0.2 mg/l which is the highest and best practicable technology limit. A limit of 0.2 mg/l would contribute 0.015 mg/l of total phosphorus at 7Q10 conditions ($0.2 \text{ mg/l} / 13 = 0.015 \text{ mg/l}$). This concentration is less than either the ecoregional criteria or the Gold Book criteria, however, it assumes a background concentration of zero (0).

Total Ammonia, as N - Ammonia is a toxic pollutant which may be harmful to aquatic organisms and it can cause the receiving water dissolved oxygen levels to drop. EPA is required to limit any pollutant that is or may be discharged at a level that caused, or has reasonable potential to cause, or contribute to an excursion above any water quality criterion [40 CFR 122.44 (d)(1)(vi)]. The water quality standards for ammonia are referenced in the National Recommended Water Quality Criteria: 2002 and are defined in the 1999 Update of Ambient Water Quality for Ammonia.

Based on a review of ammonia data included in Whole Effluent Toxicity reports, there is no reasonable potential for an exceedance of either the summer or winter criteria, therefore, limits have not included in the draft permit. Ammonia levels shall continue to be reported as part of the WET testing.

Reasonable Potential - Summer

7Q10 Dilution Factor = 13

pH = 6.8

Temperature = 22°C

Freshwater Chronic Criteria (CCC) based on a summer temperature of 22° C and a pH of 6.8 = 3.89 mg/l

Average monthly limit = (criteria) * (7Q10 Dilution Factor) = (3.89 mg/l) * (13) = 50.57 mg/l

Reasonable Potential - Winter

30Q10 Dilution Factor = 22

pH = 6.9

Temperature = 0°C

Freshwater Chronic Criteria (CCC) based on an average winter temperature of 0° C and an average pH of 6.9 = 6.12 mg/l

Average monthly limit = (criteria) * (30Q10 Dilution Factor) = (6.12) * (22) = 134.64

Copper - Certain metals like copper can be toxic to aquatic life. The previous permit included effluent limitations for copper. Recent DMR data submitted by the applicant reports total copper values ranging between 20 and 90 ug/l average monthly and 20 and 160 ug/l maximum daily (Results for October 2004 were <0.2 ug/l, however, those results are outliers from the rest of the dataset). The upper range of these values exceed the acute and chronic limits in the current permit. An acute limit of 64 ug/l and a chronic limit of 47 ug/l have been established in the draft permit. The limits for copper are based on the National Recommended Water Quality Criteria published in the Federal Register on December 27, 2002, with a dilution factor of 13. A hardness of 33 mg/l CaCO₃ was used based on data reported in the 2005 application. These values are more stringent than the existing permit as the result of the hardness reported in the application.

Water Quality Criteria for hardness-dependent metals:

Acute criteria (dissolved) = $\exp\{m_a [\ln(\text{hardness})] + b_a\}$ (CF)

m_a = pollutant specific coefficient

b_a = pollutant specific coefficient

h = hardness

\ln = natural logarithm

CF = pollutant specific conversion factor used to convert total recoverable to dissolved metal

Calculation of acute limit for copper:

$m_a = 0.9422$ $b_a = -1.700$ $CF = 0.960$ $h = 33$

Acute criteria (dissolved) = $\exp\{0.9422 [\ln(33)] + -1.700\} * (0.960) = 4.73$ ug/l

Dilution factor = 13

Effluent limitation for dissolved copper = $13 * 4.73$ ug/l = 61.49 ug/l

Effluent limitation for total recoverable copper = $61.49/0.96 = 64$ ug/l*

The maximum daily water quality based limitation for total recoverable copper is 88.7 ug/l

Chronic criteria (dissolved) = $\exp\{m_c [\ln(\text{hardness})] + b_c\}$ (CF)

m_c = pollutant specific coefficient

b_c = pollutant specific coefficient

h = hardness

\ln = natural logarithm

CF = pollutant specific conversion factor used to convert total recoverable to dissolved metal

Calculation of chronic limit for copper:

$m_c = 0.8545$ $b_c = -1.702$ $CF = 0.960$ $h = 33$

Chronic criteria (dissolved) = $\exp\{0.8545 [\ln(33)] + -1.702\} * (0.960) = 3.47$ ug/l

Dilution factor = 13

Effluent limitation for dissolved copper = $13 * 3.47$ ug/l = 45.11 ug/l

Effluent limitation for total recoverable copper = $45.11/0.96 = 47 \text{ ug/l}^*$

The monthly average water quality based limitation for total recoverable copper is 47 ug/l.

OUTFALL 001 - WHOLE EFFLUENT TOXICITY (WET)

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 include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) of the CWA be used as guidance for interpretation of the following narrative criteria: All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. Based on the potential for toxicity from domestic sources, the state narrative water quality criterion, the limited dilution at the discharge location, and in accordance with EPA national and regional policy and 40 C.F.R. § 122.44(d), the draft permit includes a whole effluent acute toxicity limitation (LC50=50%). (See also "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 49 Fed. Reg. 9016 March 9, 1984, and EPA's "Technical Support Document for Water Quality-Based Toxics Control", September, 1991.)

The draft permit carries forward the requirement for the permittee to conduct quarterly Chronic and Acute toxicity tests using the species Ceriodaphnia dubia, only. 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 second week of the following months, March, June, September and December.

The LC₅₀ limit of $\geq 100\%$ is established by EPA/MADEP policy for facilities with less than 20:1 dilution (See MADEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters, February 23, 1990). The C-NOEC is established at the receiving water concentration (1/Dilution Factor = 1/13) which is 7.7%.

As a condition of this permit, the testing requirements may be reduced if certain conditions are met. The permit provision anticipates that the permittee may wish to request a reduction in the WET testing. After four consecutive WET tests, demonstrating compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to the EPA seeking a review of toxicity test results. The EPA will review the test results and pertinent information to make a determination. The permittee is required to continue testing at the frequency and species specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA indicating a change in the permit conditions.

VI. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

The permit standard conditions for "Proper Operation and Maintenance" are found at 40 CFR 122.41(e). These require proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, the permittee has a 'duty to mitigate' as stated in 40 CFR 122.41(d). This requires the permittee to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely

effecting human health or the environment. EPA and MassDEP maintain that these programs are an integral component of ensuring permit compliance under both these provisions.

VII. PRETREATMENT

The facility accepts industrial wastewater from four (4) non-categorical SIUs.

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

Upon reissuance of this NPDES permit, the permittee is required to review its pretreatment and modify it as necessary to ensure that it is consistent with current Federal Regulations. Those activities that the permittee must address include, but are not limited to, the following: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; (3) develop an enforcement response plan; (4) implement a slug control evaluation program; (5) track significant noncompliance for industrial users; and (6) establish a definition of and track significant industrial users.

These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices.

Lastly, the permittee must continue to submit, annually, **by November 30**, a pretreatment report detailing the activities of the program for the twelve month period .

VIII. INFLOW/INFILTRATION REQUIREMENTS

The draft permit includes requirements for the permittee to control infiltration and inflow (I/I). Infiltration/inflow is extraneous water entering the wastewater collection system through a variety of sources. The permittee shall develop an I/I removal program for its separate sewers commensurate with the severity of the I/I in the collection system. Where portions of the collection system have little I/I, the control program will logically be scaled down.

Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes, or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems.

Significant I/I in a collection system may displace sanitary flow reducing the capacity and the efficiency of the treatment works and may cause bypasses to secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSO) in separate systems, and combined sewer overflows in combined systems.

The permit standard conditions for 'Proper Operation and Maintenance' are found at 40 CFR §122.41(e). These require proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, the permittee has a 'duty to mitigate' as stated in 40 CFR §122.41 (d). This requires the permittee to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of

adversely effecting human health or the environment. EPA and MassDEP maintain that an I/I removal program is an integral component to insuring permit compliance under both of these provisions.

The MassDEP has stated that inclusion of the I/I conditions in the draft permit shall be a standard State Certification requirement under Section 401 of the Clean Water Act and 40 CFR §124.55(b).

IX. SLUDGE INFORMATION AND REQUIREMENTS

Section 405(d) of the Clean Water Act requires that sludge conditions be included in all POTW permits. Sludge from the Ayer WWTF is currently sent to an off-site facility for incineration. If the ultimate sludge disposal method changes, the permittee must notify EPA and MassDEP and the requirements pertaining to sludge monitoring and other conditions would change accordingly (See Attached Sludge Guidance document).

X. ANTI-BACKSLIDING

Anti-backsliding as defined at 40 CFR §122.44(l)(1) requires reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation. Anti-backsliding does not apply when changes to limits are based on new information not available at the time of the previous permit reissuance (40 CFR §122.44 (l)(2)(i)(B)(1)) or when limits are changed as a result of material and substantial additions or alterations to the permitted facility which occurred after permit issuance which justify the application of less stringent limitations, as defined 40 CFR § 122.44 (l)(2)(i)(A).

XI. ANTIDegradation

The Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. All existing uses of the Nashua River must be protected. This draft permit is being reissued with allowable discharge limits as, or more, stringent than the current permit with the same parameter coverage with the exception of the dissolved oxygen limit which was changed to 5.0 mg/l in accordance with MA SWQS. There is no change in outfall location. The public is invited to participate in the anti-degradation finding through the permit public notice procedure.

XII. ESSENTIAL FISH HABITAT DETERMINATION (EFH)

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.(1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat," 16 U.S.C. § 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," 16 U.S.C. § 1802(10). "Adverse impact" means any impact which reduces the quality and/or quantity of EFH, 50 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. Id.

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

Only Atlantic Salmon are believed to be present during one or more lifestage with the EFH Area, which encompasses the existing discharge site. No "habitat areas of particular concern" as defined under §600.815(a)(9) of the Magnuson-Stevens Act, have been designated for this site.

EPA and MA DEP have determined that a formal EFH consultation with NMFS for this discharge is not required. The proposed discharge permit is developed to meet State Surface Water Quality Standards and will not adversely impact EFH.

XIII. UNAUTHORIZED DISCHARGES

The permittee is not authorized to discharge wastewater from any pump station emergency overflow. Overflows must be reported in accordance with reporting requirements found in Section D.1.e. of Part II of the permit (24-hour reporting). If a discharge does occur, the permittee must notify the EPA, the MA DEP, and others, as appropriate (i.e. local Public Health Department), both orally and in writing as specified in the draft permit.

XIV. MONITORING AND REPORTING

The permittee is obliged to monitor and report sampling results to EPA and the MA DEP within the time specified in the permit. The effluent monitoring requirements have been established to yield data representative of the discharge by the authority under Section 308(a) of the CWA in accordance with 40 CFR 122.441(j), 122.44, and 122.48.

The remaining general conditions of the permit are based primarily on the NPDES regulations 40 CFR 122 through 125 and consist primarily of management requirements common to all permits.

XV. STATE PERMIT CONDITIONS

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

XVI. 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.

XVII. 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.

XVIII. PUBLIC COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection, MA Unit, One Congress Street, Suite-1100, Boston, Massachusetts 02114.

Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests 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.

XIX. EPA CONTACT

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:

Michele Cobban Barden
Office of Ecosystem Protection
U.S. Environmental Protection Agency
One Congress Street, Suite-1100 (CPE)
Boston, MA 02114-2023
Telephone: (617) 918-1539
Barden.Michele@epa.gov

November 10, 2005
Date

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