

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION I  
1 CONGRESS STREET, SUITE 1100 (CPE)  
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

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

NPDES PERMIT NO.: **MA0102776**

NAME AND ADDRESS OF APPLICANT:

**Town of Erving POTW #3  
16 Public Works Boulevard  
Erving, MA 01344**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Erving POTW #3  
Bridge Street  
Erving, MA 01344**

RECEIVING WATER: **Upland ditch to the Millers River  
(Millers River Watershed - MA35-05)**

CLASSIFICATION: **B - warm water fishery**

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

The above named applicant has applied to the U.S. Environmental Protection Agency to reissue its NPDES permit to discharge into the designated receiving waters. The facility is a municipal wastewater treatment facility which has a design flow of 10,000 gallons per day (GPD) and is engaged in the collection and treatment domestic wastewater. The facility location is shown in Attachment A

**III. Limitations and Conditions**

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

#### **IV. Description of Facility**

Some portions of the November 25, 2002 reapplication and supplemental information submitted to EPA and DEP by the Town of Erving are paraphrased in this document without further reference. All documents used in the preparation of the permit and fact sheet are part of the administrative record and are retained on file by EPA.

The Erving # 3 plant came online in 1984. It serves approximately 80 people in the Village of Farley, located within the Town of Erving. Flow from the separate sanitary collection system first enters a 10,000 gallon septic tank. It then passes into a second 5,000 gallon septic tank. From the second tank, flow goes to a wet well where it is apportioned to one of two underground sand filters. The effluent from the sand filters flows into an effluent disinfection chamber where it is chlorinated (seasonally) with liquid sodium hypochlorite. The design flow of the facility is 10,000 GPD, with an annual average realized flow (Calendar year 2002) of 5,007 GPD, and daily maximum flow of 9,870 GPD.

Final effluent is discharged to an upland ditch, which flows into the Millers River. The ditch originates as the intermittent groundwater overflow from a manmade concrete fire pond. The plant discharge joins the concrete fire pond overflow for approximately 200 feet before reaching the Millers River. The ditch is not considered a “water of the Commonwealth ” or “water of the US”. Water quality standards shall be applied where the discharge enters Millers River.

#### Abbreviated Permit History

June 7, 1984	Permit Issued
June 26, 1990	Permit Reissued
September 29, 1999	Permit Reissued
June 10, 2003	EPA Letter-Application Complete
May 26, 2004	Letter from permittee to EPA regarding origin of upland ditch

#### **V. Permit Basis and Explanation of Effluent Limitation Derivation**

##### ***Waterbody Classification, Usage and current Water Quality***

The Erving POTW # 3 discharge to the Millers River is located in Reach MA 35-05. The Reach is an 8.1 mile segment of the Millers River from the Erving Paper Company in Erving Center and ending at the Millers’ confluence with the Connecticut River.

The Millers River is classified as a Class B waterbody and warm water fishery by the Massachusetts Surface Water Quality Standards, Code of Massachusetts Regulations [314 CMR 4.05(3)(b)] which states that Class B waters have the following designated uses:

*“These waters are designated as habitat for fish, other aquatic life and wildlife, and for primary and secondary contact recreation. Where designated they shall be suitable as a source of public water supply with appropriate treatment. They 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.”*

Warm water fisheries are defined as those waters in which the maximum mean monthly temperature generally exceeds 68 degrees F (20 degrees C) during the summer months and fishery is not capable of a year-round population of cold water stenothermal aquatic life.

The report titled, *Millers River Watershed 2002 Water Quality Assessment Report, Millers River (Segment MA35-05), MA DEP, Division of Watershed Management, Worcester, MA (Draft 4/2003)* provides a summary of current water quality data and information and assesses the status of the state’s designated uses for the Millers River and its watershed. This report notes that elevated levels of PCBs and the presence of mercury in fish have caused the MA Department of Public Health to issue a fish consumption advisory.

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 DEP/Division of Watershed Management has also prepared the *Massachusetts Year 2002 Integrated List of Waters* [‘303(d) list’] which details the quality of waters in Massachusetts, including the Millers River. This report indicates that the river segment receiving the Erving WWTF #2 discharge, MA35-05, is impaired due to priority organics (PCB’s) and metals (mercury), but not nutrients as pollutants of concern and indicates the need for Total Maximum Daily Load (TMDL) development. A TMDL study determines the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and the allocations of that amount to the pollutant's sources. A summary of Discharge Monitoring Report data is presented in fact sheet **Attachment B**. The Erving N0. 3 plant has not been identified as a source of PCBs or mercury.

#### Permit Limitations

The Clean Water Act (CWA) prohibits discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit, unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality based effluent limitations and other requirements, including monitoring and reporting.

This draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and any State regulations. The majority of regulations governing the EPA NPDES permit program are found at 40 CFR Parts 122, 124, 125 and 136.

***Municipal Wastewater Treatment Facility [also referred to as “Publicly Owned Treatment Works” (POTW Discharges) Effluent Limits Regulatory Basis***

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Clean Water Act (CWA) (see 40 CFR 125 Subpart A). EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve federal or state water quality standards.

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that caused, or has reasonable potential to cause, or contributes 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.

Under 301(b)(1)(c) of the CWA, discharges are subject to effluent limitations based on water quality standards and to the conditions of State certifications under Section 401 of the CWA. Receiving stream requirements are established according to numerical and narrative standards adopted under State and/or Federal law for each stream use classification. Furthermore, the permit must conform to the conditions established pursuant to a State certification under Section 401 of the CWA that meet the requirements of 40 CFR §124.53 and §124.55.

The State of Massachusetts prohibits the discharge of *toxic pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife*, see Massachusetts 314 CMR 4.05(5)(e). The draft permit does not allow for the addition of chemicals in amounts which would produce a toxic effect to aquatic life.

The general conditions of the permit are based on 40 CFR §122.41 and consist primarily of management requirements common to all permits. 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(I), and §122.48.

**Treatment Plant Design Flow:**

Limitations for POTWs are based on the design flow as stated at 40 CFR §122.45(b)(I). The plant has a design flow of 10,000 GPD (0.01 MGD).

**Conventional Pollutants, Biochemical Oxygen Demand, and Total Suspended Solids:**

The monthly average and weekly average concentration limits for both BOD and TSS are based on the secondary treatment requirements found at 40 CFR §133.102(a). The limits in the current permit are carried forward in the draft permit.

BOD<sub>5</sub> and TSS Mass Loading Calculations:

The addition of monthly average and weekly average mass limits for both BOD and TSS are based on the requirements found at 40 CFR §122.45(f).

Calculations of maximum allowable loads for average monthly and average weekly BOD<sub>5</sub> and TSS are based on the following equation:

$$\begin{aligned} L &= C \times DF \times 8.34 \quad \text{Where,} \\ L &= \text{Maximum allowable load in lbs/day} \\ C &= \text{Maximum allowable effluent concentration for reporting period in mg/l.} \\ &\quad \text{Reporting periods are average monthly and daily maximum.} \\ DF &= \text{Design flow of facility in MGD.} \\ 8.34 &= \text{Factor to convert effluent concentration in mg/l and flow in MGD to} \\ &\quad \text{lbs/day.} \end{aligned}$$

$$[30] \times 0.01 \times 8.34 = 2.5 \text{ lbs/day} \quad \text{Average Monthly allowable sanitary load}$$

$$[45] \times 0.01 \times 8.34 = 3.75 \text{ lbs/day} \quad \text{Daily Maximum allowable sanitary load}$$

**BOD<sub>5</sub> and TSS Percent Removal:**

40 CFR §133.102 requires that the 30 day average percent removal of both BOD<sub>5</sub> and TSS achieve a minimum of 85%. EPA's experience with municipal septic tank to sand filter systems has shown that there is currently no practical way to measure percent removal with such units. The erratic influent loading and difficulty with access make representative (40 CFR §122.41(j)) influent and effluent sampling impractical. Furthermore, the percent removal requirements were incorporated into the secondary treatment regulations to address excessive infiltration and inflow (I/I) which does not appear to be an issue for this POTW. For the stated reasons, both the current and draft permit do not include requirements for either BOD<sub>5</sub> and TSS percent removal.

**pH:**

The pH of the effluent shall be in the range of 6.5 through 8.3 standard units and not more than 0.5 units outside the receiving stream background range. The pH limits are based on state water quality standards for Class B waters [314 CMR 4.05(3)(b)]. These limits are the same as those found in the current permit.

**Settleable Solids:**

Settleable solids monitoring requirements have been removed from the draft permit, as these are no longer state certification requirements.

**Toxic Pollutants:**

Available Dilution

Water quality based limitations 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, recorded over a 10 year recurrence interval. Additionally, the plant design flow is used to calculate available effluent dilution as required by 40 CFR §122.45(b).

The plant design flow is 0.01 MGD or 0.0155 cubic feet per second (CFS) as stated in Section A.6.a of the permit application. The current permit Fact Sheet lists the 7Q10 flow of the Millers River as 30.2 MGD or 46.8 CFS at the point of discharge. The nearest USGS gage station, No.01166500, is located 75 ft downstream of the bridge at Farley. The previously calculated 7Q10 of 46.8 CFS at Farley appears to need no revision during this permit reassurance. The very large dilution factor (3213) renders such minor adjustments unnecessary. The dilution factor is calculated as follows:

$$\frac{7Q10\ Q + 1}{Plant\ Q} = \frac{46.8\ CFS + 1}{0.0155\ CFS} = 3084$$

**Nitrogen Monitoring: Total Nitrogen, Total Kjeldahl Nitrogen, Total Nitrite, Total Nitrate, and Ammonia Nitrogen:**

It has been determined that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including dissolved oxygen. The State of Connecticut has begun to impose nitrogen limitations on Connecticut discharges to Long Island Sound and its tributaries. EPA agrees that there is a need to determine the loadings of nitrogen from sources in Massachusetts which are tributary to Long Island Sound, and to help determine what limits, if any, should be imposed on discharges in Massachusetts. Therefore, based on Section 308 of the Clean Water Act, EPA has included twice per year requirements for testing for total nitrogen as Kjeldahl nitrogen, nitrate and nitrite, and ammonia in the draft permit. Because of the minimal flow from the treatment plant, the permittee shall be required to conduct only two sampling events for the nitrogen species. The information submitted by the permittee will help to establish a database of nitrogen loadings, which can be used to quantitatively assess the impacts of loading and transport to Long Island Sound. The monitoring data will provide a more sound decision making basis in any future decisions relating to nitrogen loadings to the Sound.

### CHLORINE:

Chlorine compounds produced by the chlorination of wastewater, as well as chlorine, can be extremely toxic to aquatic life. The instream chlorine criteria for the Millers River are defined in the EPA Quality Criteria for Water, as adopted by the DEP into the State Water Quality Standards, and as revised in the Federal Register: December 27, 2002 (Volume 67, Number 249). The criterion states that the average total residual chlorine in the receiving water (Millers River) should not exceed 11 ug/l for chronic toxicity protection and 19 ug/l for acute toxicity protection. The following is a calculation of the chlorine water quality based effluent limitations:

Acute Chlorine WQC = 19 ug/l

Chronic Chlorine WQC = 11 ug/l

Daily Maximum Chlorine Limit =  $(3084) * (19 \text{ ug/l}) = 59 \text{ mg/l}$

Average Monthly Chlorine Limit =  $(3084) * (11 \text{ ug/l}) = 34 \text{ mg/l}$

The actual draft permit monthly average and daily maximum limits are set lower than the calculated water quality based limits to be consistent with *Massachusetts Implementation for the Control of Toxic Pollutants in Surface Waters*. This policy states that receiving waters shall be protected from unnecessary discharges of excess chlorine. In segments with dilution factors greater than 100, the maximum effluent concentration of chlorine shall not exceed 1.0 mg/l TRC. These limits remain the same as those found in the current permit.

The period of applicability for chlorine and coliform limitations has been changed from April 1 - October 15 to April 1 - October 31 to be consistent with other discharges in the Millers River and is a reflection of the increased recreational use of the river.

### **V. Sludge**

In February 1993, the Environmental Protection Agency (EPA) promulgated standards for the use and disposal of sewage sludge. The regulations were promulgated under the authority of Section 405(d) of the Clean Water Act (CWA). Section 405(d) of the CWA requires that sludge conditions be included in all municipal permits. The sludge conditions in the draft permit satisfy this requirement.

The two septic tanks are emptied once each year with the solids being blended with the sludge at the Erving No. 1 POTW in the Village of Millers Falls (NPDES Permit No. MA 0101516).

### **VI. Antibalcksliding**

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. The reduction from two species for WET testing to one does not change the limit. The increase in concentration for chlorine, copper, and C-NOEC are accompanied by a lower flow limit to insure no net increase in the discharge of these parameters to the receiving waters. All other limits are as or more stringent than the current permit limits.

## **VII. Antidegradation**

This draft permit is being reissued with an allowable wasteload identical or more stringent than the current permit with no change in the outfall location. The State of Massachusetts has indicated that there will be no lowering of water quality and no loss of existing water uses and that no additional antidegradation review is warranted.

## **VIII. State Certification Requirements**

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

## **IX. Comment Period 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, MA Office of Ecosystem Protection (CPE), One Congress Street, Suite 1100, Boston, Massachusetts 02113-0011.

Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice, whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston Office.

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

**X. 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:

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July 1, 2004  
Date

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

\* Please address comments to both Doug Corb and Paul Hogan