

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND
1 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.: **MA0101044**

NAME AND ADDRESS OF APPLICANT:

**Town of Buckland
17 State Street
Shelburne, Massachusetts 01370**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Shelburne Falls Wastewater Treatment Facility
Gardner Falls Road
Buckland, Massachusetts 01370**

RECEIVING WATER: **Deerfield River (DEER)**

CLASSIFICATION: **B -Warm water fishery**

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

The above named applicant has requested that the U.S. Environmental Protection Agency (EPA) reissue its NPDES permit to discharge into the designated receiving waters. The facility is engaged in the collection and treatment of municipal wastewater. The discharge is effluent from the Shelburne Falls Wastewater Treatment facility.

II. Description of Discharge.

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

III. Limitations and Conditions.

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

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

A. Facility Description

The Shelburne Falls Wastewater Treatment Facility (WWTF) treats primarily domestic wastewater from the village of Shelburne Falls, comprised of portions of the towns of Shelburne and Buckland. The facility utilizes the extended aeration activated sludge process to achieve secondary treatment standards prior to discharge into the Deerfield River. The existing treatment facilities consist of unit processes that are intended to remove biodegradable organic material and suspended solids and to disinfect the treated effluent seasonally (April 1st thru October 31st).

B. Publicly-Owned Treatment Works (POTW) Discharges

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. For publicly owned treatment works (POTWs), technology based requirements are effluent limitations based on secondary treatment requirements of Section 301(b)(1)(B) of the Clean Water Act (CWA) as defined in 40 CFR 133.102.

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.

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 a site specific criteria is 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, or attained.

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) may not be discharged at a level that caused, has reasonable potential to cause, or contributes to an excursion above any water quality criterion. 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.

A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA. EPA's anti-backsliding provisions restrict the relaxation of permit limits, standards, and conditions. Therefore effluent limits in the reissued permit must be at least as stringent as those of the previous permit. Effluent limits based on BPJ, water quality, and state certification requirements must all meet the anti-backsliding provisions found under Section 402 (o) and 303 (d) (4) of the CWA, as described in 40 CFR 122.44 (1).

Conventional Pollutants:

BOD and TSS:

Under section 301 (b) (1) (B) of the Clean Water Act (CWA), POTWs must achieve effluent limitations based upon secondary treatment requirements are set forth at 40 CFR Part 133. The regulations describe the secondary treatment requirements for the biochemical oxygen demand (BOD), Total Suspended Solids (TSS), and pH. The "Average Monthly" and "Average Weekly" BOD and TSS limitations are based on the requirements of 40 CFR Section 133.102.

pH and Fecal Coliform:

The numerical limitations for pH and fecal coliform (seasonal) are based on state certification requirements under Section 401 (a) (1) of the CWA, as described in 40 CFR 124.53 and 124.55. The limitation of chlorine residual is based on water quality (criteria as established in EPA's National Recommended Water Criteria: 2002).

Toxic Pollutants:

Total Residual Chlorine:

The need for water quality based effluent limits for total residual chlorine (TRC) was evaluated. Water quality based effluent limitations were developed using the chronic and acute TRC criteria found in EPA's National Recommended Water Criteria: 2002. The criteria state that the average TRC in the receiving water should not exceed 11ug/l for chronic toxicity protection and 19 ug/l for acute toxicity protection. Water quality based effluent limits were calculated by multiplying the chronic and acute criteria by the discharge's dilution factor to obtain average monthly and maximum daily TRC limitations. Refer to **Attachment (B)** for the calculations. The water quality limits developed through this process were less stringent than the 1.0 mg/l maximum daily limit allowed by MADEP's Implementation Policy for the Control of Toxic Pollutants in Surface Waters, so the draft permit contains a maximum daily TRC limit of 1.0 mg/l.

The draft permit also specifies that TRC be tested using either low-level amperometric titration or the DPD spectrophotometric method. These EPA approved methods are listed in Standard

Methods for the Examination of Water and Wastewater, 20th Edition, as Method 4500-C1 E and Method 4500 C1 G, respectively.

Toxicity:

The receiving water has been classified as a Class B waterway by the state. The designated uses for Class B waters are: 1) the protection and propagation of fish, other aquatic life, and wildlife and 2) for primary and secondary contact recreation.

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 require the 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 industrial and domestic sources contribute toxic constituents such as metals, chlorinated solvents, aromatic hydrocarbons, and other to POTWs. The impact of such complex mixtures is often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity (WET) testing. In addition, 40 CFR 122.44 (d) requires whole effluent toxicity limits in NPDES permits when the permittee has a “reasonable potential” to cause toxicity.

Therefore, the draft permit includes acute toxicity limitations and monitoring requirements. (See, e.g., “Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants”, Federal Register, 30,784- July 24, 1985. See also EPA’s Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001). In accordance with MADEP’s Implementation Policy for the Control of Toxic Pollutants in Surface Waters, the LC50 limitation prohibits acute effects (lethality), to more than 50% of the test organisms when exposed to 50 % POTW effluent for 48 hours (LC50 = 50%).

The acute toxicity tests shall be performed using the Ceriodaphnia dubia. These tests will be conducted *two times per year* during the second week of the months of June and September. See the Toxicity Testing Protocol in **Attachment A** of the draft permit for a more complete description of the testing requirements.

The results from these tests will be used to assure that the discharge is free from pollutants in concentrations or combinations which are toxic to aquatic life. Results are to be submitted by the July 31 and October 31.

As a condition of this permit, the toxicity testing requirements may be reduced by a certified letter from the EPA. This permit provision anticipates that the permittee may wish to request a reduction in WET testing. After two consecutive WET tests, demonstrating compliance with the

permit limits for whole effluent toxicity, the permittee may submit a written request to EPA seeking a review of the toxicity test results. The EPA will review the test results and other pertinent information to make a decision.

The permittee is required to continue WET testing in accordance with the requirements 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.

The provision does not diminish the permittee's right to request a permit modification at any time prior to the permit expiration.

C. Sewage Sludge

The Section 405 (d) of the Clean Water Act requires that sludge conditions be included in all NPDES permits. Technical sludge standards required by Section 405 of the Clean Water Act (CWA) were finalized on November 25, 1992 and were published on February 19, 1993. The regulations went into effect on March 21, 1993. The permit contains conditions to implement Section 405 (d) of the CWA and 40 CFR part 503. Section 405 (f) of the CWA requires that these regulations be implemented through permits. This permit is intended to implement Section 405 (d) of the CWA and 40 CFR part 503.

Currently, the permittee landfills its sludge at its own property as a general landfill. The permit specifies that the permittee comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices with the Clean Water Act (CWA) Section 405 (d) technical standards. The permit further specified that the permittee give prior notice to EPA of any change (s) planned in its sludge use or disposal practice.

V. State Certification Requirements

EPA may not issue a permit unless the state agency, 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. EPA has requested permit certification by the state pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

VI. Public Comment Period, Public Hearing, 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 comments period, to the U.S. EPA, Massachusetts Office of Ecosystem Protection, One Congress Street, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for public hearing to consider the draft permit to EPA and MA DEP. 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 the 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 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.

VII. EPA Contact

Additional information concerning the draft permit may be obtained between the hours of 9:00 AM and 5:00 PM, Monday through Friday, excluding holiday from:

H.M. Chikkalingaiah, P.E.
Massachusetts NPDES Permits Unit
U.S. Environmental Protection Agency
New England, 1Congress Street, Suite 1100
Boston, MA. 02114-2023
Telephone: (617) 918-1574

September 11, 2003

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

Attachment A
NPDES Permit No. MA0101044
Shelburne Falls Wastewater Treatment Facility
Buckland, Massachusetts

Description of Discharge: Advanced Treated Municipal Wastewater

Discharge: Outfall 001

Discharge Monitoring Report Data Summary: September 2001 thru August 2002.

Average Effluent Characteristics at point of Discharge:

Average Monthly values

<u>Parameter</u>	<u>Maximum</u>	<u>Minimum</u>
Flow, mgd	0.160	0.121
BOD, mg/l	10.2	3.4
TSS, mg/l	8.2	4.0
SS, ml/l	-----	-----
pH, s.u.	7.3	6.8
Fecal Coliform, cfu/100 ml	38	3.0
Total Residual Chlorine, mg/l	1.0	0.6
BOD % Removal	98.6	
TSS % Removal	98.3	

Attachment B
NPDES Permit No. MA0101044
Buckland, Massachusetts

Treatment Plant Design Flow = 0.25 mgd
Receiving Water = Deerfield River
7 day 10 year low flow (7Q10) = 57 cfs = 36.85 mgd
Dilution factor at outfall: $(0.25 \text{ mgd} + 36.85 \text{ mgd}) / 0.25 \text{ mgd} = \mathbf{148}$

Chlorine Residual:

EPA Suggested Instream Chronic Criteria: 11ug/l

EPA Suggested Instream Acute Criteria: 19ug/l

Monthly Average Limit = 11×148 (dilution factor) = 1628 ug/l = **1.63 mg/l**

Daily maximum Limit = 19×148 (dilution factor) = 2812ug/l = **2.8 mg/l**

Therefore, since the calculated water quality based limits are less stringent than the 1.0 mg/l daily maximum limit allowed by MADEP's Implementation Policy for the Control of Toxic Pollutants in Surface Waters, the allowable limit in the draft permit is a daily maximum of **1.0 mg/l**.