

**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 Northfield  
Board of Sewer Commissioners  
69 Main Street, Northfield, Massachusetts 01360,**

is authorized to discharge from the facility located at

**Town of Northfield Wastewater Treatment Facility  
104 Meadow Street, Northfield, Massachusetts 01360,**

to receiving water named

**Connecticut River (Connecticut River Watershed – MA34-01)**

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

This permit shall become effective \*\*

This permit and the authorization to discharge expire at

This permit supersedes the permit issued on May 13, 2002 and expired September 30, 2005.

This permit consists of 13 pages in Part I including effluent limitations, monitoring requirements, Attachment A (Freshwater Acute WET Protocol) and 25 pages in Part II including General Conditions and Definitions.

Signed this    day of

\_\_\_\_\_  
Director  
Office of Ecosystem Protection  
Environmental Protection Agency  
Boston, MA

\_\_\_\_\_  
Director  
Division of Watershed Management  
Department of Environmental Protection  
Commonwealth of Massachusetts  
Boston, MA

\*\* 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 become effective no sooner than 30 days after signature.

**PART I**

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to the Connecticut River. Such discharge shall be limited and monitored by the permittee as specified below.

<u>EFFLUENT CHARACTERISTIC</u>	<u>EFFLUENT LIMITS</u>						<u>MONITORING REQUIREMENTS</u>	
	Mass Limits			Concentration Limits				
<b>PARAMETER</b>	<b>AVERAGE MONTHLY</b>	<b>AVERAGE WEEKLY</b>	<b>MAXIMUM DAILY</b>	<b>AVERAGE MONTHLY</b>	<b>AVERAGE WEEKLY</b>	<b>MAXIMUM DAILY</b>	<b>MEASUREMENT FREQUENCY</b>	<b>SAMPLE TYPE<sup>3</sup></b>
FLOW <sup>1</sup>	***	***	***	0.275 MGD	***	Report MGD	CONTINUOUS	RECORDER
FLOW <sup>1</sup>	***	***	***	Report MGD	***	Report MGD	CONTINUOUS	RECORDER
BOD <sub>5</sub> <sup>2</sup>	69 lbs/Day 31 kgs/Day	103 lbs/Day 47 kgs/Day	Report	30 mg/l	45 mg/l	Report mg/l	1/WEEK	24-HOUR COMPOSITE <sup>4</sup>
TSS <sup>2</sup>	69 lbs/Day 31 kgs/Day	103 lbs/Day 47 kgs/Day	Report	30 mg/l	45 mg/l	Report mg/l	1/WEEK	24-HOUR COMPOSITE <sup>4</sup>
pH RANGE <sup>5</sup>	6.0 - 8.3 SU SEE PERMIT PAGE 5 OF 12. PARAGRAPH I.A.2.b. Page 6 of 13						1/DAY	GRAB
FECAL COLIFORM <sup>5,6</sup> (April 1- October 31)	***	***	***	200 cfu/100 ml	***	400 cfu/100 ml	1/Week	GRAB
<i>E. coli</i> <sup>5,6</sup> (April 1- October 31)	***	***	***	126 cfu/100 ml	***	409 cfu/100 ml	1/Week	GRAB
CHLORINE, TOTAL RESIDUAL <sup>7</sup> (April 1- October 31)	***	***	***	1.0 mg/l	***	1.0 mg/l	1/DAY (when in use)	GRAB

Part I Continued

PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE <sup>3</sup>
TOTAL NITROGEN <sup>8</sup>	Report lbs/Day	***	Report lbs/Day	Report mg/l	***	Report mg/l	1/QUARTER	24-HOUR COMPOSITE <sup>4</sup>
TOTAL NITRITE + NITRATE	***	***	***	Report mg/l	***	Report mg/l	1/QUARTER	24-HOUR COMPOSITE <sup>4</sup>
TOTAL KJELDAHL NITROGEN	***	***	***	Report mg/l	***	Report mg/l	1/QUARTER	24-HOUR COMPOSITE <sup>4</sup>
TOTAL AMMONIA AS N	***	***	***	Report mg/l	***	Report mg/l	1/QUARTER	24-HOUR COMPOSITE <sup>4</sup>
WET <sup>9, 10, 11</sup>	ACUTE LC <sub>50</sub> ≥ 50%						1/YEAR	24-HOUR COMPOSITE <sup>4</sup>

Footnotes:

1. 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.
2. Sampling required for influent and effluent.
3. 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. All samples shall be 24 hour composites unless specified as a grab sample in 40 CFR §136.

All required effluent samples shall be collected at the point specified herein. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP	
PARAMETER	SAMPLE LOCATION
FLOW	Recorder in the Parshall Flume
BOD <sub>5</sub> and TSS	Between Parshall Flume and Comminutor (Influent) Plant Water Line before strainer (Effluent)
pH RANGE, FECAL COLIFORM, <i>E.-COLI</i> , CHLORINE RESIDUAL, TOTAL AMMONIA AS N, TOTAL KJELDAHL NITROGEN, TOTAL NITRITE, TOTAL NITRATE and WHOLE EFFLUENT TOXICITY	Plant Water Line before strainer  WET Dilution Water-Pauchaug Brook Boat Ramp

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.

4. Required for State Certification.
5. The average monthly limits for fecal coliform and *E.coli* are expressed as geometric means. Fecal coliform sampling and *E. coli* sampling shall be done concurrently.

**The fecal coliform limits and monitoring requirements shall end one year after the**

**effective date of this permit.**

**The *E. coli* limits shall go into effect one year after the effective date of this permit; the monitoring requirements go into effect upon the effective date of the permit.**

A total residual chlorine sample shall be taken at the same time as *E. coli* and fecal coliform samples.

6. Whenever more than two grab samples are taken per day, the monthly DMR shall include an attachment documenting the individual grab sample results for that day, including the date and time of each sample, and a summary of any operational modifications implemented in response to sample results. All test results shall be used in the calculation and reporting of the monthly average and maximum daily data submitted on the DMR (see Part II. Section D.1.d.(2)).
7. See Part I.E, Special Conditions, for requirements to evaluate and implement optimization of nitrogen removal.
8. The permittee shall conduct acute toxicity tests one (1) time per year using a single species, the daphnid, Ceriodaphnia dubia. Toxicity test samples shall be collected during the month of August. The test results shall be submitted by the last day of the month following the completion of the test. The results are due by September 30. The permittee shall sample during the same week of August each year (week 1 begins 1<sup>st</sup> full week). The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.
- 9.

<b>Test Dates</b>	<b>Submit Results By:</b>	<b>Test Species</b>	<b>Acute Limit LC<sub>50</sub></b>
<b>August</b>	<b>September 30</b>	<u>Ceriodaphnia dubia</u>	≥ 50%

10. The LC<sub>50</sub> is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 50% limit means that a sample of 50% effluent shall cause no more than a 50% mortality rate.

11. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachment A, Section IV, DILUTION WATER** in order to obtain permission to use an alternate dilution water. In lieu of individual approvals for alternate dilution water required in **Attachment A**, EPA-New England has developed a Self-Implementing Alternative Dilution Water Guidance document (called "Guidance Document") which may be used to obtain automatic approval of alternate dilution water, including the appropriate species for use with that water. If this Guidance document is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment A**. The "Guidance Document" has been sent to all permittees with their annual set of DMRs and Revised Updated Instructions for Completing EPA's Pre-Printed NPDES Discharge Monitoring Report (DMR) Form 3320-1 and is not intended as a direct attachment to this permit. Any modification or revocation to this "Guidance Document" will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

Part I.A.2.

- 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 6.0 nor greater than 8.3 at any time.
- c. The discharge shall not cause objectionable discoloration of the receiving waters.
- d. The effluent shall contain neither visible oil sheen, foam, nor 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. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control.

- h. If the average annual flow in any calendar year exceeds 80% of the facility's design flow, the permittee shall submit a report to MassDEP by March 31 of the following calendar year describing plans for further flow increases and discuss how the permittee will remain in compliance with the effluent limitations in the permit.

3. All POTWs Must Provide Adequate Notice To The Director Of The Following:

- a. Any new introduction of pollutants into that POTW from an indirect discharger in a primary industry category discharging process water; 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.

4. Prohibitions Concerning Interference and Pass Through:

- a. 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.

5. 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.

6. 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 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 in accordance with Section D.1.e. (1) of the General Requirements of this permit (Twenty-four hour reporting). [Note: SSO Reporting Form (which includes MassDEP Regional Office telephone numbers) for submittal of written report to MassDEP is available 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:

#### 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.

#### 2. Preventative Maintenance Program

The permittee shall maintain an ongoing preventative 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.

#### 3. Infiltration/Inflow Control Plan:

The permittee shall implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The updated plan shall be submitted to EPA and MassDEP **within six (6) months of the effective date of this permit** (see page 1 of this permit for the effective date) and shall describe the permittee's program for preventing infiltration/inflow related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive infiltration/inflow.

The plan shall include:

- An ongoing program to identify and remove sources of infiltration and inflow. The program shall include the necessary funding level and the source(s) of funding.
- An inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts. Priority should be given to removal of public and private inflow sources that are upstream from, and potentially contribute to, known areas of sewer system backups and/or overflows.
- Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of infiltration and inflow to the system.
- An educational public outreach program for all aspects of I/I control, particularly private inflow.

Reporting Requirements:

A summary report of all actions taken to minimize I/I during the previous calendar year shall be submitted to EPA and the MassDEP annually, **by** March 31. The summary report shall, at a minimum, include:

- A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year.
- Expenditures for any infiltration/inflow related maintenance activities and corrective actions taken during the previous year.
- A map with areas identified for I/I-related investigation/action in the coming year.
- A calculation of the annual average I/I, the maximum month I/I for the reporting year.
- A report of any infiltration/inflow related corrective actions taken as a result of unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to the Unauthorized Discharges section of this permit.

#### 4. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the permittee shall continue to provide an alternative power source with which to sufficiently operate its treatment works (as defined at 40 CFR §403.3(o))

**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 and with the CWA Section 405(d) technical standards.
2. The permittee shall comply with the more stringent of either the state or federal (40 CFR part 503), requirements.
3. The requirements and technical standards of 40 CFR Part 503 apply to facilities which perform one or more of the following 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 40 CFR part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions also do not apply to facilities which do not 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 permittee shall use and comply with the attached compliance guidance document to determine appropriate conditions. Appropriate conditions contain the following elements:
  - General requirements
  - Pollutant limitations
  - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
  - Management practices
  - Record keeping
  - Monitoring
  - Reporting

Depending upon the quality of material produced by a facility, all conditions may not apply to the facility.

6. The permittee shall monitor the pollutant concentrations, pathogen reduction and vector attraction reduction 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 1500	1 /quarter
1500 to less than 15000	6 /year
15000 +	1 /month

7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR 503.8.

8. The permittee shall submit an annual report containing the information specified in the guidance by **February 19**. Reports shall be submitted to the address contained in the reporting section of the permit. Sludge monitoring is not required by the permittee when the permittee is not responsible for the ultimate sludge disposal. The permittee must be assured that any third party contractor is in compliance with appropriate regulatory requirements. In such case, the permittee is required only to submit an annual report by February 19 containing the following information:

- Name and address of contractor responsible for sludge disposal
- Quantity of sludge in dry metric tons removed from the facility by the sludge contractor

**E. SPECIAL CONDITION**

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 in order to maintain the existing mass discharge loading of total nitrogen. The annual average total nitrogen load from this facility (2004 – 2005) is estimated to be 34 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.

**F. MONITORING AND REPORTING**

1. Reporting

Monitoring results obtained during each calendar month shall be summarized and reported on Discharge Monitoring Report Form(s) postmarked no later than the **15th day of the following month.**

Signed and dated originals of these, and all other reports required herein, shall be submitted to the Director and the State at the following addresses:

Environmental Protection Agency  
Water Technical Unit (SEW)  
P.O. Box 8127  
Boston, Massachusetts 02114

The State Agency is:

Massachusetts Department of Environmental Protection  
Western Regional Office - Bureau of Resource Protection  
436 Dwight Street  
Springfield, Massachusetts 01103

Signed and dated Discharge Monitoring Report Forms and toxicity test reports required by this permit shall also be submitted to the State at:

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

**G. STATE PERMIT CONDITIONS**

This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chap. 21, §43.

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 an 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.