

**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"),

**The City of Concord, New Hampshire**

is authorized to discharge from the Wastewater Treatment Plant located at

**125 Hall Street  
Concord, New Hampshire 03301**

to receiving waters named

**Merrimack River**

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

This permit shall become effective on April 1, 2005.

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

This permit supersedes the permit issued on September 30, 1998.

This permit consists of **Part I** (12 pages including effluent limitations and monitoring requirements); **Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, December 1995, 8 pages); **Attachment B** (NPDES Permit Requirement for Industrial Pretreatment Annual Report, 2 pages); **Attachment C** (Reassessment of Technically Based Industrial Discharge Limits, 9 pages); **Attachment D** (NPDES Permit Sludge Compliance Guidance, November 1999, 72 pages); and **Part II** (35 pages including General Conditions and Definitions).

Signed this 14<sup>th</sup> day of January, 2005

/s/ SIGNATURE ON FILE

Linda M. Murphy, Director  
Office of Ecosystem Protection  
U.S. Environmental Protection Agency (EPA)  
Region I  
Boston, Massachusetts

**PART I**

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number 001 to the Merrimack River, treated domestic (household/sanitary/septage) and industrial wastewater effluent. Such discharges shall be limited and monitored by the permittee as specified below. Samples taken in compliance with the monitoring requirements specified below shall be taken at a location that provides a representative analysis of the effluent.

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>		
	Average <u>Monthly</u>	Average <u>Weekly</u>	Maximum <u>Daily</u>	Measurement <u>Frequency</u>	Sample <u>Type</u>
Flow; MGD	Report	---	Report	Continuous Recorder <sup>1</sup>	
BOD <sub>5</sub> ; mg/l (lbs/day)	30 (2529)	45 (3793)	50 (4214)	2/Week <sup>2</sup>	24 hour Composite
TSS; mg/l (lbs/day)	30 (2529)	45 (3793)	50 (4214)	2/Week <sup>2</sup>	24 hour Composite
Total Phosphorous; mg/l	---	---	Report	1/Quarter	24 hour Composite
pH Range <sup>3</sup> ; Standard Units	6.5 to 8.0 (See I.F.1.a.)			1/Day	Grab
Total Residual Chlorine <sup>4,6</sup> ; mg/l	0.41	---	0.70	1/Day	Grab
<i>Escherichia coli</i> <sup>4,5</sup> ; Colonies/100 ml	126	---	406	3/Week	Grab
Whole Effluent Toxicity					
LC50 <sup>7,8,9</sup> ; Percent	---	---	100	1/Quarter	24 hour Composite
Hardness <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite
Ammonia Nitrogen as Nitrogen <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite
Total Recoverable Aluminum <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite
Total Recoverable Cadmium <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite
Total Recoverable Chromium <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite
Total Recoverable Copper <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite
Total Recoverable Nickel <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite
Total Recoverable Lead <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite
Total Recoverable Zinc <sup>10</sup> ; mg/l	---	---	Report	1/Quarter	24 hour Composite

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See pages 3 and 4 for explanation of footnotes

**EXPLANATION OF FOOTNOTES TO PART I.A.1 on page 2.**

- (1) The effluent flow shall be continuously measured and recorded using a flow meter and totalizer.
- (2) To monitor the 85 percent removal of BOD<sub>5</sub> and TSS required in Part I.A.4, the influent concentrations of both BOD<sub>5</sub> and TSS shall be monitored twice per month using a 24-Hour Composite sample and the results reported as average monthly values.
- (3) State certification requirement.
- (4) Monitoring for *Escherichia coli* bacteria as described in footnote (5) below shall be conducted concurrently with the daily monitoring for Total Residual Chlorine (TRC) as described in footnote (6) below.
- (5) The average monthly value for *Escherichia coli* shall be determined by calculating the geometric mean and the result reported. *Escherichia coli* shall be tested using test method 1103.1 found in *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using membrane-Thermotolerant *Escherichia coli* Agar (mTec), EPA-821-R-02-020.
- (6) Total Residual Chlorine shall be measured using any one of the following three methods listed in 40 Code of Federal Regulations (CFR) Part 136:
  - a. Amperometric direct.
  - b. DPD-FAS.
  - c. Spectrophotometric, DPD.
- (7) LC50 (lethal concentration 50 percent) is the concentration of wastewater (effluent) causing mortality to 50 percent (%) of the test organisms. The "100 % limit" is defined as a sample which is composed of 100 percent effluent. Therefore, a 100 % limit means that a sample of 100 % effluent (no dilution) shall cause no greater than a 50 % mortality rate in that effluent sample. The limit is considered to be a maximum daily limit.
- (8) The permittee shall conduct 48-hour static acute toxicity tests on effluent samples following the December 1995 Freshwater Acute Toxicity Test Procedure and Protocol (**Attachment A**). The two species for these tests are the Daphnids (*Ceriodaphnia dubia*) and the Fathead Minnow (*Pimephales promelas*). Toxicity test samples shall be collected and tests completed four times per year during the calendar quarters ending March 31<sup>st</sup>, June 30<sup>th</sup>, September 30<sup>th</sup> and December 31<sup>st</sup>. Toxicity test results are to be postmarked by the 15<sup>th</sup> day of the month following the end of the quarter sampled.

If the permittee can not demonstrate consistent compliance with the WET permit limits and has reason to believe the observed mortality is due to pH drift, the permittee shall perform two parallel toxicity tests. In conducting parallel testing, one test will follow the procedures above for static non-renewal testing and the other shall be conducted in a static -renewal or

flow through mode as specified in Section 9.5.9 of EPA's **Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5<sup>th</sup> ed.** Results from the parallel testing shall be submitted with any supporting information to the Agency at the address specified in Attachment A, page A-2.

If EPA-New England determines that pH drift is contributing to the mortality, the Agency will provide the permittee with an alternate protocol to revised Attachment A. The Agency will make such a determination upon review of the results and supporting information submitted by the permittee and may require additional toxicity tests to verify that pH drift is responsible for the observed mortality.

- (9) This permit shall be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements, including chemical specific limits such as for metals, if the results of the toxicity tests indicate the discharge causes an exceedance of any State water quality criterion. Results from these toxicity tests are considered "New Information" and the permit may be modified as provided in 40 CFR Section 122.62(a)(2).
- (10) For each Whole Effluent Toxicity test the permittee shall report on the appropriate Discharge Monitoring Report, (DMR), the concentrations of the Hardness, Ammonia Nitrogen as Nitrogen, Total Recoverable Cadmium, Chromium, Copper, Lead, Aluminum, Nickel, and Zinc found in the 100 percent effluent sample. All these aforementioned chemical parameters shall be determined to at least the Minimum Quantification Level shown in **Attachment A** on page A-7, or as amended. Also the permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)**

2. The discharge shall not cause a violation of the water quality standards of the receiving water.
3. The discharge shall be adequately treated to insure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum or other visible pollutants. It shall be adequately treated to insure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving waters which is not naturally occurring and would render it unsuitable for its designated uses.
4. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both BOD<sub>5</sub> and TSS. The percent removal shall be based on a comparison of average monthly influent versus effluent concentrations.
5. When the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the

10.1 MGD design flow (8.1 MGD), the permittee shall submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the permittee may be required to submit plans for facility improvements.

6. All POTWs must provide adequate notice to both EPA-New England and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) of the following:
  - a. Any new introduction of pollutants into the POTW from an indirect discharger in a primary industry category (see 40 CFR §122 Appendix A as amended) 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 facility; and
    - (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the facility.
7. The permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts.
8. Limitations for Industrial Users:
  - a. Pollutants introduced into POTW's by a non-domestic source (user) shall not Pass Through the POTW or Interfere with the operation or performance of the works.
  - b. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. **Within 90 days of the effective date of this permit**, the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the permittee shall assess how the POTW performs with respect to influent and effluent of

pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form (Attachment C) with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 120 days of notification by EPA-New England and submit the revisions to EPA-New England for approval. The permittee shall carry out the local limits revisions in accordance with EPA's Local Limits Development Guidance (July 2004).

## **B. INDUSTRIAL PRETREATMENT PROGRAM CONDITIONS**

1. The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR §403. At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program ("IPP"):
  - a. Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.
  - b. Issue or renew all necessary industrial user control mechanisms within 120 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.
  - c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement; and
  - d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.
2. The permittee shall provide the EPA and the NHDES-WD with an annual report describing the permittee's pretreatment program activities over its pretreatment reporting year in accordance with 40 CFR §403.12(i). The annual report shall be consistent with the format described in **ATTACHMENT B** of this permit and shall be submitted no later than **June 1** of each year.
3. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR §403.18(c).

4. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR §405 et. seq.
5. The permittee must modify its pretreatment program to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within **180 days of this permit's effective date** proposed changes, IF APPLICABLE, to the permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the permittee must address in its written submission the following areas: (1) Enforcement response plan and (2) revised sewer use ordinances. The permittee will implement these proposed changes pending EPA-New England's approval under 40 CFR Section 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.A.8.b.

### **C. SLUDGE CONDITIONS**

1. The permittee shall comply with all existing federal & 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 (Env-Ws 800) 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. Placement of sludge in a municipal solid waste landfill (See 40 CFR Section 503.4).
  - d. 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 do not apply to facilities which do not dispose of sewage sludge during the life of the permit, but rather treat the sludge (lagoons-reed beds), or are otherwise excluded under 40 CFR Section 503.6.
5. The permittee shall use and comply with the NPDES Permit Sludge Compliance Guidance, November 1999, (Attachment D) 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 for the permittee's chosen sewage sludge use or disposal practices at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year.

less than 290	1/Year
290 to less than 1,500	1/Quarter
1,500 to less than 15,000	6/Year
15,000 plus	1/Month

7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR Section 503.8.
8. The permittee shall submit an annual report containing the information specified in the attached Sludge Compliance Guidance document. Reports are **due annually by February 19<sup>th</sup>**. Reports shall be submitted to both addresses (EPA-New England and NHDES-WD) contained in the reporting section of the permit.



#### D. SPECIAL CONDITIONS

##### WET Test Frequency Adjustment

The permittee may submit a written request to the EPA-New England requesting a reduction in the frequency (to not less than once per year) of required toxicity testing, after completion of a minimum of the most recent four (4) successive toxicity tests of effluent, all of which must be valid tests and demonstrate compliance with the permit limits for whole effluent toxicity. Until written notice is received by certified mail from the EPA-New England indicating that the WET testing requirement has been changed, the permittee is required to continue testing at the frequency specified in the respective permit.

##### pH Limit Adjustment

The permittee may submit a written request to the EPA-New England requesting a change in the permitted pH limit range to be not less restrictive than 6.0 to 9.0 Standard Units found in the applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 CFR Part 133) for this facility. The permittee's written request must include the State's approval letter containing an original signature (no copies). The State's letter shall state that the permittee has demonstrated to the State's satisfaction that as long as discharges to the receiving water from a specific outfall are within a specific numeric pH range the naturally occurring receiving water pH will be unaltered. That letter must specify for each outfall the associated numeric pH limit range. Until written notice is received by certified mail from the EPA-New England indicating the pH limit range has been changed, the permittee is required to meet the permitted pH limit range in the respective permit.

##### Notification Requirements to Public and Private Water Systems Drawing Water From the Merrimack River in the Event of a Bypass or Upset at the Treatment Works

The notification requirement shown below in italics was taken verbatim from the New Hampshire Statutes RSA Title 50 Chapter 485-A:13,I.(c) and interpreted as described below.

*“Any person responsible for a bypass or upset at a wastewater facility shall give immediate notice of the bypass or upset to all public or privately owned water systems drawing water from the same receiving water and located within 20 miles downstream of the point of discharge. The permittee shall maintain a list of persons, and their telephone numbers, who are to be notified immediately by telephone. In addition, written notification, which shall be postmarked within 3 days of the bypass or upset, shall be sent to such persons.”*

For the purpose of this permit, EPA-New England is interpreting the italicized phrase “water systems drawing water from the same receiving water and located within 20 miles downstream of the point of discharge” to mean “located within 20 **river** miles downstream of the point of discharge regardless of whether or not it is on the same receiving water or on the stream to which the receiving water discharges” which for Derry's POTW means any intake structure on the Merrimack River downstream of the POTW.

## E. MONITORING AND REPORTING

Monitoring results shall be summarized for each calendar month and reported on separate Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period.

1. Signed and Dated original DMRs and all other reports required herein or in **Part II**, shall be submitted to the Director at the following address:

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

2. Duplicate signed copies of all reports required in Section 1. immediately above shall be submitted to the State at:

New Hampshire Department of Environmental Services  
Water Division  
Wastewater Engineering Bureau  
29 Hazen Drive, P.O. Box 95  
Concord, New Hampshire 03302-0095

All verbal reports required in **Parts I** and **II** of this permit shall be made to both EPA-New England and to NHDES-WD.

## F. STATE PERMIT CONDITIONS

1. The permittee shall comply with the following conditions which are included as State Certification requirements.
  - a. The pH range of 6.5 to 8.0 Standard Units (S.U.) must be achieved in the final effluent unless the permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring receiving water pH is not significantly altered by the permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside of the range of 6.0 to 9.0 S.U., which is the federal effluent limitation guideline regulation for pH for secondary treatment and is found in 40 CFR §133.102(c).
  - b. Pursuant to State Law NH RSA 485-A:13 and the New Hampshire Code of

Administrative Rules, Env-Ws 706.08(b) and Env-Ws 904.08 the following submissions shall be made to NHDES-WD by a municipality proposing to accept into its POTW (including sewers and interceptors):

- (1) A “Sewer Connection Permit” request form for:
    - (a) Any proposed sewerage, whether public or private;
    - (b) Any proposed wastewater connection or other discharge in excess of 5,000 gallons per day;
    - (c) Any proposed wastewater connection or other discharge to a wastewater treatment facility operating in excess of 80 % design flow capacity; and
    - (d) Any proposed connection or other discharge of industrial wastewater, regardless of quality or quantity.
  - (2) An “Industrial Discharge Permit Request Application” form for any new or increased loadings of industrial waste, as defined in RSA 485-A:2, VI.
- c. The permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:12).
  - d. Any modifications of the Permittee’s Sewer-Use Ordinance, including local limitations on pollutant concentrations, shall be submitted to the NHDES-WD for approval prior to adoption by the permittee.
  - e. Within 90 days of the effective date of this permit, the permittee shall submit to NHDES-WD a copy of its current sewer-use ordinance and current local limits. Submittal shall include adoption dates for the documents and a narrative indicating any anticipated changes.
  - f. Within 120 days of the effective date of this permit, the permittee shall submit to NHDES-WD a current list of all industries discharging industrial waste to the municipal wastewater treatment plant. At a minimum, the list shall indicate the name and address of each industry, along with the following information: telephone number, contact person, facility description, production quantity, products manufactured, industrial processes used, chemicals used in processes, existing level of pretreatment, and type and list of existing discharge permit(s). Submittal shall include a blank or typical permit for each classification and a description of the

classification system.

2. This NPDES Discharge Permit is issued by the EPA-New England under Federal and State law. Upon final issuance by the EPA-New England, the NHDES-WD may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13.

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 the Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation.