

**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),

**City of Leominster
Department of Public Works**

is authorized to discharge from the facility located at:

**Leominster Water Pollution Control Facility
436 Mechanic Street
Leominster, MA 01453**

to receiving water named:

North Nashua River (MA-81)

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

The Town of Lunenburg is a co-permittee for Part I.D., Operation and Maintenance and Part I.E., Unauthorized Discharges from the Sewer System, which include conditions regarding the operation and maintenance of the collection systems, owned and operated by the Town. The responsible Town Department is:

**Town of Lunenburg
Department of Public Works
520 Chase Road
Lunenburg, MA 01462**

This permit shall become effective on December 1, 2006.

This permit and the authorization to discharge expire at midnight, November 30, 2011.

This permit supersedes the permit issued on July 28, 2000.

This permit consists of 13 pages in Part I including effluent limitations, monitoring requirements, Attachments A, B, C & D and 35 pages in Part II including General Conditions and Definitions.

Signed this 28th day of September, 2006

/s/ SIGNATURE ON FILE

Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

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

PART I

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number **001**, treated effluent to the North Nashua 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				
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE³
FLOW ¹	***	***	***	Report MGD	***	Report MGD	CONTINUOUS	RECORDER
FLOW ²	***	***	***	9.3 MGD	***	Report MGD	CONTINUOUS	RECORDER
BOD ₅ ⁴ (November 1 to April 30)	2327 lbs/Day 1057kgs/Day	3490 lbs/Day 1586 kgs/Day	Report	30 mg/l	45 mg/l	Report mg/l	2/WEEK	24-HOUR COMPOSITE ⁵
CBOD ₅ ⁴ (May 1 to October 31)	1163 lbs/Day 529 kgs/Day	1163 lbs/Day 529 kgs/Day	Report	15 mg/l	15 mg/l	Report mg/l	2/WEEK	24-HOUR COMPOSITE ⁵
TSS ⁴ (November 1 to April 30)	2327 lbs/Day 1057kgs/Day	3490 lbs/Day 1586 kgs/Day	Report	30 mg/l	45 mg/l	Report mg/l	2/WEEK	24-HOUR COMPOSITE ⁵
TSS ⁴ (May 1 to October 31)	1551 lbs/Day 705kgs/Day	1551 lbs/Day 705kgs/Day	Report	20 mg/l	20 mg/l	Report mg/l	2/WEEK	24-HOUR COMPOSITE ⁵
pH RANGE ⁶	6.0 - 8.3 SU SEE PERMIT PAGE 5 OF 12, PARAGRAPH I.A.1.b.						1/DAY	GRAB
DISSOLVED OXYGEN	***	***	***	6.0 mg/l minimum			2/DAY	GRAB
FECAL COLIFORM ^{6,7}	***	***	***	200 cfu/100 ml	***	400 cfu/100 ml	2/WEEK	GRAB
TOTAL RESIDUAL CHLORINE ^{7,8}	***	***	***	0.026 mg/l	***	0.047 mg/l	2/DAY	GRAB
TOTAL PHOSPHORUS (April 1- October 31)	***	***	***	0.2 mg/l	***	Report mg/l	2/WEEK	24-HOUR COMPOSITE ⁵

Part I.A.1. continued								
<u>EFFLUENT CHARACTERISTIC</u>	<u>EFFLUENT LIMITS</u>						<u>MONITORING REQUIREMENTS</u>	
	Mass Limits			Concentration Limits				
TOTAL PHOSPHORUS (November 1- March 31) ⁹	***	***	***	1.0 mg/l	***	Report mg/l	1/WEEK	24-HOUR COMPOSITE ⁵
ORTHO PHOSPHORUS, DISSOLVED ¹⁰ (November 1- March 31)	***	***	***	Report mg/l	***	Report mg/l	1/Week	24-HOUR COMPOSITE ⁵
TOTAL AMMONIA, as N (May 1- May 31)	***	***	***	Report mg/l	***	Report mg/l	2/MONTH	24-HOUR COMPOSITE ⁵
TOTAL AMMONIA, as N (June 1- October 31)	101 lbs/Day	***	154 lbs/Day	1.3 mg/l	***	2.0 mg/l	2/WEEK	24-HOUR COMPOSITE ⁵
TOTAL AMMONIA, as N (November 1-April 30)	***	***	***	Report mg/l	***	Report mg/l	1/MONTH	24-HOUR COMPOSITE ⁵
TOTAL COPPER	***	***	***	12.4 ug/l	***	17.5 ug/l	1/MONTH	24-HOUR COMPOSITE ⁵
WHOLE EFFLUENT TOXICITY ^{10,11,13,14}	Acute LC ₅₀ ≥ 100%						4/YEAR	24-HOUR COMPOSITE ⁵
WHOLE EFFLUENT TOXICITY ^{10,12,13,14}	Chronic NOEC >41.6%						4/YEAR	24-HOUR COMPOSITE ⁵

Footnotes:

1. The monthly average and maximum daily flows for each month shall be reported.
2. This is an annual average limit, which shall be reported as a rolling average. The first value will be calculated using the monthly average flow for the first full month ending after the effective date of the permit and the eleven previous monthly average flows. Each subsequent month's DMR will report the annual average flow that is calculated from that month and the previous 11 months.
3. Effluent samples shall be taken after appropriate treatment and prior to discharge to Outfall 001. All sampling shall be representative of the effluent that is discharged through Outfall 001 to the North Nashua River. A routine sampling program shall be developed in which samples are taken at the same location, same time and same day(s) of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report that is submitted to EPA. In addition, all samples shall be analyzed using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136.
4. Sampling required for influent and effluent.
5. A 24-hour composite sample will consist of at least twenty four (24) grab samples, flow proportional, taken for a consecutive 24 hour period (e.g. 0700 Monday - 0700 Tuesday).
6. Required for State Certification.
7. Fecal coliform bacteria and total residual chlorine limits and monitoring requirements are in effect year round. The average monthly limit is expressed as a geometric mean. Samples for fecal coliform bacteria shall be taken at the same time as a total residual chlorine sample.
8. Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.
9. The permittee shall comply with the 1.0 mg/l monthly average total phosphorus limit within one year of the issuance date of the permit. The maximum daily concentration and loading values reports for dissolved ortho phosphorus shall be the same values from the same day that the maximum daily total phosphorus concentration and loading values were measured.
10. The permittee shall conduct chronic (and modified acute) toxicity tests four (4) times per year using a single species, the daphid, Ceriodaphnia dubia. The chronic test may be used to calculate the acute LC₅₀ at the 48 hour exposure interval. Toxicity test samples shall be collected during the second week of the months of March, June, September and December. The test results shall be submitted by the last day of the month following the completion of the test. The results are due by April 30, July 31, October 31 and January 31, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit

11. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.
12. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing where the test results exhibit a linear-dose relationship. However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect. The “41.6 or greater” limit is defined as a sample which is composed of 41.6% (or greater) effluent, the remainder being dilution water. This is a maximum daily limit.
13. 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 B 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 B**, 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 an 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 B**. 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 B**.
14. The permittee must continue to run the required sets of controls including chemistry (e.g. site water controls and lab water controls) when utilizing alternative dilution water as detailed in **Attachment B**.

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 6.5 nor greater than 8.3 during the summer months (May 1 – October 31) and shall not be less than 6.0 or greater than 8.3 SU during the winter months (November 1 – April 30).
- c. The discharge shall not cause objectionable discoloration of the receiving waters.
- d. The effluent shall contain neither a 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 above its required frequency must also be

reported.

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 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. If, within 30 days after notice of an interference or pass through violation has been sent by EPA to the POTW, and to persons or groups who have requested such notice, the POTW fails to commence appropriate enforcement action to correct the violation, EPA may take appropriate enforcement action.

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. INDUSTRIAL PRETREATMENT PROGRAM

1. 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.

2. 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 (120 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 D) 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 and submit the revisions to EPA for approval. The Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004).
3. 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 90 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.
 - d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.
4. The permittee shall provide the EPA (and State) with an annual report describing the permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in **Attachment C** of this permit and shall be submitted **no later than November 1 of each year**.

5. 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).
6. 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.
7. The permittee must modify its pretreatment program, if necessary, 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; (2) revised sewer use ordinances; and (3) slug control evaluations. The permittee will implement these proposed changes pending EPA Region I's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.B.3.b.

C. CONDITIONS FOR COMBINATION MANHOLES

1. **Combination Manhole Identification**
Within 90 days of the effective date of the permit, the permittee must submit a report listing the combination manholes in the system including the location and a description of the current control in the structure. The report shall also include a map showing the location of each combination manhole, the sanitary and storm water collection systems in the vicinity of the combination manholes, water resource areas (i.e. rivers, lakes, wetlands, etc) and the location of potential discharge in the event of an overflow.
2. **Combination Manhole Monitoring Requirements**
All discharges of sanitary sewage to the storm water system are prohibited (see Section E. Unauthorized Discharges). In the event of a discharge to the storm system, the permittee shall notify EPA.

Following storms, the permittee must definitively determine if a combination manhole leaks or fails to separately retain storm water and sewage. In the event of a leak or failure, the permittee shall notify EPA and the MassDEP. Each notification shall be made by telephone within 24 hours and in writing within 5 days of the incident. A notification should contain the following information for a dry weather discharge or a failed combination manhole:
 - a. estimated period of discharge;
 - b. estimated volume of discharge; and
 - c. estimated data on rainfall intensity and cumulative precipitation, which may be obtained from the National Weather Service.
3. **Inspection and Maintenance of Combination Manholes**
The permittee shall inspect all combination manholes following every storm event or monthly at a minimum. The permittee must definitively determine if there has been overflows from one system to the other (e.g. displacement of covers, block test, chalk test). A summary inspection report shall be submitted to EPA annually by April 1st. Reports

should ascertain whether or not storm water and sewage have been kept separate at each combination manhole during the past year.

The permittee shall repair and maintain all combination manholes as necessary. The permittee must propose and adhere to a repair or maintenance schedule each time any such action becomes necessary. EPA shall also be notified at the time of any maintenance or repairs of combination manholes.

D. 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 and co-permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The 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:

- a. 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.
- b. 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.
- c. Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of infiltration and inflow to the system.
- d. An educational public outreach program for all aspects of I/I control, particularly

private inflow.

4. 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 the anniversary date of the effective date** of this permit. The summary report shall, at a minimum, include:

- a. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year.
- b. Expenditures for any infiltration/inflow related maintenance activities and corrective actions taken during the previous year.
- c. A map with areas identified for I/I-related investigation/action in the coming year.
- d. A calculation of the annual average I/I, the maximum month I/I for the reporting year.
- e. 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.

5. 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 §122.2)

E. UNAUTHORIZED DISCHARGES

The permittee and co-permittee are 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).

F. 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
- a. 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
- | | | |
|------|-------------------------|------------|
| i) | less than 290 | 1/ year |
| ii) | 290 to less than 1500 | 1 /quarter |
| iii) | 1500 to less than 15000 | 6 /year |
| iv) | 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:
- i. Name and address of contractor responsible for sludge disposal
 - ii. Quantity of sludge in dry metric tons removed from the facility by the sludge contractor

G. MONITORING AND REPORTING

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
Central Regional Office
Bureau of Resource Protection
627 Main Street,
Worcester, Massachusetts 01608

IPP Reports should be sent to:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
Industrial Wastewater Program
1 Winter Street
Boston, MA 02108

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

H. 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.

**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: MA0100617

NAME AND ADDRESS OF APPLICANT:

**City of Leominster
Department of Public Works
109 Graham Street
Leominster, MA 01453**

The Town of Lunenburg is a co-permittee for specific activities required by the permit. See Section VI of this fact sheet and Sections I.D., and I E., of the draft permit. The responsible municipal department is:

**Town of Lunenburg
Department of Public Works
520 Chase Road
Lunenburg, MA 01462**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Leominster Water Pollution Control Facility
436 Mechanic Street
Leominster, MA 01453**

RECEIVING WATERS: North Nashua River in the Nashua River Watershed - MA81-04

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 28, 2005. A re-application was received on March 12, 2005. This draft permit, will expire five (5) years from the effective date.

II. TYPE OF FACILITY AND DISCHARGE LOCATION

The facility is an advanced wastewater treatment plant with a design flow of 9.3 million gallon per day (mgd) and discharges to the North Nashua River (See Figure 1). The collection system is 96% separate sanitary sewer and 4% combined storm and sanitary sewer. Although a portion of the system has combined sewers, there are no combined sewer overflows (CSOs) since the City has reduced I/I and replaced sewers (increasing capacity, in some cases). Therefore, the capacity now exists to convey combined flows to the treatment facility. The facility serves a population of 42,250 in Leominster and approximately 900 in Lunenburg.

The facility's discharge outfalls are listed below:

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

III. DESCRIPTION OF DISCHARGE

Quantitative descriptions of the discharge in terms of significant effluent parameters, based on discharge monitoring reports (DMRs) submitted for 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 an advanced activated sludge facility with year-round sodium hypochlorite disinfection, which discharges to the North Nashua River (See Figure 1). The facility has a design flow of 9.3 mgd. In addition to the sanitary flow, there are four non-categorical significant industrial dischargers representing about 2.5% of the average daily plant flow.

The following is a brief description of the treatment process (See Figure 2); raw wastewater enters the aerated grit chamber and then flows into the two primary settling tanks, where floating and settleable solids are removed. The primary effluent then flows into the three aeration tanks, followed by three secondary settling tanks. The secondary effluent is disinfected with sodium hypochlorite, dechlorinated, and the final effluent is discharged over aeration steps into the North Nashua River.

Sludge is co-settled in primary clarifiers and then pumped to water tight trucks for delivery to the East Fitchburg WWTF, where it is dewatered and incinerated.

B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

Under Section 301(b)(1)(B) 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.

1. Water Quality Standards; Designated Use; Outfall 001

The North 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 (MA81-04), North Nashua River, Leominster WWTF, Leominster to confluence with Nashua River, Lancaster, is listed on the Massachusetts 2002 Integrated List of Waters (303d) as impaired and requiring the development of a TMDL. The listed impairments for this segment are pathogens; taste, odor and color; and turbidity. These same impairments are listed for the river segment immediately upstream of this segment. The specific cause(s) of these impairments are unknown.

The MassDEP 1998 Water Quality Assessment Report for the Nashua River, which is the basis for the 303(d) list, notes that the facility is under a MassDEP enforcement order to correct sewer surcharges and infiltration/inflow problems.

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 9.3 million gallons per day or 14.4 cubic feet per second (cfs). The 7Q10 flow used to calculate the effluent limits in the current permit was 34.9 cfs, resulting in a dilution factor of 3.42. The dilution factor in the draft permit has been reduced based on a new analysis.

The nearest USGS streamflow gaging station is Gage 01094500, North Nashua River, located just downstream of the Leominster POTW discharge, which has a 7Q10 flow of 32.4 cfs and a contributing drainage area of 110 square miles. The drainage area upstream of the Leominster discharge is 100 square miles. Therefore, the 7Q10 flow at the point of discharge can be calculated as follows;

$$7Q10 = (32.4 \text{ cfs}) * \frac{100}{110} = 29.5 \text{ cfs}$$

The dilution factor can then be calculated as follows:

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

(Note: The daily average design effluent flow is not added to the river flow in the numerator because the gage is located downstream and therefore is already accounted for.)

$$\frac{29.5 \text{ cfs}}{14.4 \text{ cfs}} = 2.04$$

Therefore, the dilution factor is 2.04

Flow - The flow limit is based on the annual average design flow of the treatment plant, which is 9.3 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 2). The maximum, minimum and total flow for each operating date shall also be reported.

OUTFALL 001 - CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD₅)/ Carbonaceous Biochemical Oxygen Demand (CBOD₅) - The draft permit carries forward the BOD₅ and CBOD₅ limits in the current permit. The water quality based limits are from a wasteload allocation developed by the MassDEP and published in The Nashua River Water Quality Management Plan 1981 (MassDEP 1981). The limits in the draft permit are seasonal. During the period of November 1 to April 30, the average monthly and average weekly limits are based on 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 a monthly average BOD₅ concentration of 30 mg/l and a weekly average concentration of 45 mg/l. The draft permit requires the permittee to report the maximum daily BOD value each month, but does not establish an effluent limit. For the period of May 1 to October 31, CBOD₅ is limited, rather than BOD₅, to account for ammonia conversion. The CBOD₅ average monthly limit is 15 mg/l and the average weekly limit is 15 mg/l; the maximum daily discharge is not limited, but must be reported each month. The mass limitations for BOD and CBOD are based on a 9.3 MGD design flow. The monitoring frequency continues to be two times per week.

Total Suspended Solids (TSS) - The draft permit carries forward the TSS limits in the current permit. The water quality based limits are from a wasteload allocation developed by the MassDEP and published in The Nashua River Water Quality Management Plan 1981 (MassDEP 1981). The limits in the draft permit are seasonal. During the period November 1 to April 30, the average monthly and average weekly limits are based on 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 a monthly average TSS concentrations of 30 mg/l, weekly average concentrations of 45 mg/l. The draft permit requires the permittee to report the maximum TSS value each month, but does not establish an effluent limit. For the period of May 1 to October 31, the average monthly limit is 20 mg/l and the average weekly limit is 20 mg/l. The permittee shall report the maximum daily TSS value monthly; however, a limit has not been set. The mass limitations for TSS are based on a 9.3 MGD design flow. The monitoring frequency continues to be two times per week.

BOD₅ and TSS Mass Loading Calculations:

Calculations of maximum allowable loads for average monthly and average weekly BOD₅, CBOD₅, 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.

(Concentration limit) [45] X 8.34 (Constant) X 9.3 (design flow) = 3490 lb/day

(Concentration limit) [45] X 3.79 (Constant) X 9.3 (design flow) = 1586 kg/day

(Concentration limit) [30] X 8.34 (Constant) X 9.3 (design flow) = 2327 lb/day

(Concentration limit) [30] X 3.79 (Constant) X 9.3 (design flow) = 1057 kg/day

(Concentration limit) [15] X 8.34 (Constant) X 9.3 (design flow) = 1163 lb/day

(Concentration limit) [15] X 3.79 (Constant) X 9.3 (design flow) = 529 kg/day

(Concentration limit) [20] X 8.34 (Constant) X 9.3 (design flow) = 1551 lb/day

(Concentration limit) [20] X 3.79 (Constant) X 9.3 (design flow) = 705 kg/day

Eighty-Five Percent (85%) BOD₅ and TSS Removal Requirement - The provisions of 40 CFR "133.102(a)(3) and (b)(3) requires that the 30 day average percent removal for BOD₅/CBOD₅ 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). During the summer months (May 1 through October 31), the pH of the effluent shall not be less than 6.5 or greater than 8.3 standard units at any time. During the winter months (November 1 through April 30), the pH of the effluent shall not be less than 6.0 or greater than 8.3 standard units at any time.

The lower effluent pH limit of 6.0 SU for the winter months was formally approved in a permit modification which became effective November 19, 2003. The cause of the depressed pH is the nitrification of ammonia; in order to achieve the seasonal ammonia limit in effect from June to October lime is added to raise the influent alkalinity to support nitrification. During the winter months lime is not added to the system and the effluent pH can drop below the previous effluent limit of 6.5 SU. This is caused by nitrification, which is an approved process, continuing throughout the year. MassDEP reviewed this information at the time of the permit modification and determined that the lower effluent pH will not have an adverse effect to the receiving water during the winter months.

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 (3)(b)(4). The proposed limits in the draft permit are 200 colony forming units (cfu)/100 ml for the average monthly geometric mean limit and 400 colony forming units (cfu)/100 ml for the maximum daily limit. These limits are the same as the previous

permit and the monitoring frequency continues to be two times per week. This limit is year round due to downstream water supply withdrawals.

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

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS

Total Residual Chlorine - Chlorine is a toxic chemical. DMRs show chlorine residual levels below the minimum detection level for the past 24 months. The draft permit includes Total Residual Chlorine (TRC) limitations which are based on state water quality standards [Title 314 CMR 4.05(5)(e)]. Chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life.

The acute and chronic water quality criteria for chlorine defined in the 2002 EPA National Recommended Water Quality Criteria for freshwater are 19 ug/l and 11 ug/l, respectively. Given the dilution factor of 2, total residual chlorine limits have been calculated as 38 ug/l maximum daily and 22 ug/l average monthly. Sampling is continued at twice (2) per day. Twice per week, when Fecal Coliform Bacteria samples are collected, TRC samples must be collected concurrently.

Total Residual Chlorine Limitations:

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

$(19 \text{ ug/l} \times 2) = 38 \text{ ug/l} = 0.038 \text{ mg/l}$

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

$(11 \text{ ug/l} \times 2) = 22 \text{ ug/l} = 0.022 \text{ mg/l}$

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). MassDEP 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 impoundments, and 0.025 mg/l within a 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. Leominster is within Ecoregion XIV, Eastern Coastal Plains. The recommended 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.

Data collected for the 1998 Nashua River Water Quality Assessment Report shows that the average instream concentration of total phosphorus in the North Nashua River downstream of the Leominster discharge averages 0.1 mg/l. This value exceeds the ecoregion criteria of 0.024 mg/l. This value is also a significant increase over the average upstream value of 0.03 mg/l. Streamflows during the sampling events had a wide range 37 cfs to 999 cfs. A quick analysis of the limited dataset shows correlation between the mean monthly streamflow and the instream total phosphorus concentrations. During the low flow period of July through September, the instream total phosphorus concentrations were significantly higher. A maximum instream concentration of 0.18 mg/l was sampled in August.

MassDEP has included the segment of the Nashua River immediately downstream of the confluence with North Nashua River, on the 303(d) list for nutrients and noxious aquatic plants. MassDEP has recently completed modeling which will serve as the basis for the Total Maximum Daily Load Study of the Nashua and North Nashua Rivers. The preliminary model results indicate the proposed seasonal total phosphorus limit of 0.2 mg/l to be appropriate (E. Hartmann, MassDEP, personal communication, December 2005). The State plans on presenting the results of the model at public meetings to be held in early 2006. The TMDL document will be written following these meetings and then submitted to EPA for approval.

Furthermore, the State has also documented the eutrophication of the Pepperell Impoundment, located downstream of the Leominster WPCF. The Impoundment is the downstream point of accumulation for any biomass produced upstream as the result of Leominster phosphorus inputs.

Discharge Monitoring Reports (DMRs) submitted by the permittee over the last 24 months report average monthly total phosphorus values between 0.34 mg/l and 0.86 mg/l with a maximum daily value of 1.19 mg/l. The calculated instream contribution at the current monthly average limit of 1 mg/l (1 mg/l divided by the dilution factor of 2) would be 0.5 mg/l, which is higher than both the ecoregion criteria and the "Gold Book" criteria.

Based on the downstream impairments (e.g. 303(d) listing of the North Nashua River segment MA81-05, and the documented eutrophication of the Pepperell Impoundment), the ambient total phosphorus levels, and the current nutrient criteria, EPA determined that a more stringent total phosphorus limit is necessary. A 0.2 mg/l monthly average limit based on highest and best practical treatment was evaluated; the expected instream concentration at a discharge concentration of 0.2 mg/l and a dilution factor of 2 would be

0.1 mg/l, which is the “Gold Book” recommendation for flowing waters, although not the more stringent “Ecoregion” recommendations. EPA has determined that a seasonal limit (April 1 to October 31) of at least 0.2 mg/l is necessary to achieve water quality standards. EPA has also included a winter limit of 1 mg/l to ensure that particulate phosphorus is not discharged in significant quantities during this period. Particulate phosphorus discharged during the winter months could settle in the downstream impoundments and be available to support plant growth during the growing season.

Ammonia - The draft permit includes seasonal effluent limitations for ammonia nitrogen. During the month of April, the average monthly limit for ammonia nitrogen is 10 mg/l and the maximum daily discharge during each month must be reported. For the month of May, the average monthly effluent limit is reduced to 5 mg/l and the maximum daily discharge during each month must be reported. For the summer months, defined as June 1 through October 31, the draft permit includes an average monthly limit of 1 mg/l, an average weekly limit of 1 mg/l and a maximum daily limit of 1.5 mg/l. A report-only requirement for average monthly is in effect November 1 through March 31. These limits are carried forward from the existing permit and are based on the 1981 waste load allocation. Monitoring frequency April 1 through October 31 continues to be twice per week. During the period of November 1 through March 31, the frequency is once per month.

Copper - Certain metals, like copper, can be toxic to aquatic life. The current permit includes monthly average and daily maximum copper limits of 13.1 ug/l and 17.8 ug/l, respectively. These limits were calculated using the 1998 Water Quality criteria for copper calculated at a hardness of 35 mg/l as CaCO₃ and a dilution factor of 3.42.

Analytical data submitted with toxicity test results and past Discharge Monitoring Reports (DMRs: see Table 1) indicates that the facility has not consistently achieved the limitations in the previous permit.

The limits for copper were re-calculated based on the National Recommended Water Quality Criteria published in the Federal Register on December 27, 2002, with a dilution factor of 2. A hardness of 35 mg/l was used based on the previous permit and data in the Nashua River Basin 1998 Water Quality Assessment Report.

The calculations are shown below:

Water Quality Criteria for hardness-dependent metals:

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

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:

$$m_a = 0.9422 \qquad b_a = -1.700 \quad CF = 0.960 \quad h = 35$$

Acute criteria (dissolved) = $\exp \{0.9422 [\ln (35)] + -1.700\} * (0.960) = 5.0 \text{ ug/l}$

Dilution factor = 2

Effluent limitation for dissolved copper = $2 * 5.0 \text{ ug/l} = 10.0 \text{ ug/l}$

Effluent limitation for total recoverable copper = $10.0/0.96 = 10.4 \text{ ug/l}^*$

The maximum daily water quality based limitation for total recoverable copper is 10.4 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:

$$m_c = 0.8545 \qquad b_c = -1.702 \quad CF = 0.960 \quad h = 35$$

Chronic criteria (dissolved) = $\exp \{0.8545 [\ln (35)] + -1.702\} * (0.960) = 3.65 \text{ ug/l}$

Dilution factor = 2

Effluent limitation for dissolved copper = $2 * 3.65 \text{ ug/l} = 7.3 \text{ ug/l}$

Effluent limitation for total recoverable copper = $7.3/0.96 = 7.6 \text{ ug/l}^*$

The monthly average water quality based limitation for total recoverable copper is 7.6 ug/l.

Therefore, a monthly average limit of 7.6 ug/l and a maximum daily limit of 10.4 ug/l have been proposed in the draft permit. These limits are more stringent than the limits in the current permit due to the revised dilution factor.

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 chronic and acute toxicity limitations (C-NOEC = 50% and LC50 = 100%). (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 requirements for 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/MassDEP policy for facilities with less than 10:1 dilution (See MassDEP'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 ($1/\text{Dilution Factor} = 1/2$) which is 50%.

VI. INFLOW/INFILTRATION REQUIREMENTS

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 City's sewer system has historically received large quantities of (I/I) which have caused sanitary sewer overflows. These overflows are exacerbated by combined manholes (approximately 25-50 remain) in the collection system. A combined manhole serves as an access point for both the sanitary sewer and the storm sewer. Because of the close proximity of the two sewers, overflows from the sanitary sewer may be directly conveyed to the storm sewer, which then discharges, untreated to a receiving water. Unauthorized discharges from the sanitary sewers are violations of this permit and the resulting discharge of untreated sewage to receiving waters either directly or through storm drains are violations of this permit and/or the City's municipal separate storm sewer system (MS4) permit.

The City has been issued a series of Administrative Consent Orders (ACOs) by MassDEP, requiring the elimination of sanitary sewer overflows through the reduction of I/I, the increase of sanitary sewer capacity, and the elimination of combined manholes. The most recent ACO, first issued on June 14, 2002, and amended on January 9, 2003 and April 3, 2003, required the permittee to eliminate all sanitary sewer overflows and the combined sanitary and stormwater manholes tributary to these SSOs. Specific tasks required by the ACO and completed by the permittee, according to Mass DEP, are listed below:

- Sewer moratorium on areas tributary to the overflows;
- Sewer Bank established;
- Credited by MassDEP with removing 2.3 mgd of infiltration and inflow (a sewer bank credit of 590,000 gallons);
- Completed a mathematical model of the sewer system;
- Submitted updated Facility Plan;
- Completed installation of a relief sewer on Bascom Road;
- Currently installing a relief sewer on Industrial Road.

The draft permit includes specific requirements for the City of Leominster with regard to the combination manholes including regular monitoring, inspection and maintenance, and reporting.

The draft permit also includes requirements for the permittee and the Town of Lunenburg (the “co-permittee”) to control infiltration and inflow (I/I) into the collections systems it owns and operates.

The permittee and co-permittee shall each develop an I/I removal program commensurate with the severity of the I/I in the collection system. In sections of the collection system that have minimal I/I, the control program will logically be scaled down. 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 of 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 conditions require proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, the co-permittee has a ‘duty to mitigate’ as stated in 40 CFR §122.41 (d). This requires the co-permittee to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment. EPA and MassDEP maintain that an I/I removal program is an integral component of ensuring permit compliance under both of these provisions.

VII. SLUDGE INFORMATION AND REQUIREMENTS

The draft permit requires that the permittee comply with all existing federal and state laws that apply to sewage sludge use and disposal practices and with the Clean Water Act Section 405(d) technical standards (see 40 CFR Section 503). Sludge from the Leominster WWTF is currently sent to an off-site facility for incineration; because the final disposal or use of the permittees sludge is done by others, the permittee is not subject to the requirements of 40 CFR Section 503. However, if the ultimate sludge disposal method changes, the permittee is responsible for complying with the applicable state and federal requirements.

VIII. 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 program 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 an annual report describing the permittee's pretreatment program activities for the twelve (12) month period ending 60 days before the due date in accordance with 403.12(i). The annual report shall be submitted **no later than November 1 of each year**.

IX. ANTI-BACKSLIDING

Anti-backsliding, as described in Section 402 (o) of the Clean Water Act and 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.

X. ANTIDegradation

The Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. All existing uses of the North 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. There is no change in outfall location. The public is invited to participate in the anti-degradation finding through the permit public notice procedure.

XI. ESSENTIAL FISH HABITAT

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 is believed to be present during one or more life stage within the EFH Area, which encompasses the existing discharge site. No "habitat area of particular concern" as defined under §600.815(a)(9) of the Magnuson-Stevens Act, has been designated for this site. Although EFH has been designated for this general location, EPA has concluded that this activity is not likely to affect EFH or its associated species for the following reasons:

- This is a reissuance of an existing permit with the same or stricter effluent limits;
- The quantity of the discharge from the WWTF is 9.3 MGD monthly average and receives advanced secondary treatment using rapid mix, flocculation and activated sludge processes;
- Limits specifically protective of aquatic organisms have been established for chlorine and copper based on EPA water quality criteria;
- Acute and chronic toxicity testing on *Ceriodaphnia dubia* is required four (4) times per year and the recent toxicity results are in compliance with permit limits;
- The permit prohibits any violation of state water quality standards.

Accordingly, EPA has determined that a formal consultation with NMFS is not required.

XII. MONITORING AND REPORTING

The permittee is obliged to monitor and report sampling results to EPA and the MassDEP 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.

XIII. 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.

XIV. 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.

XV. 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.

XVI. 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.

XVII. 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
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November 7, 2011
Date

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