

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

**Town of Douglas Water & Sewer Department
P.O. Box 624
Douglas, MA 01516**

is authorized to discharge from the facility located at

**Douglas Wastewater Treatment Facility
Charles Street
East Douglas, MA 01516**

to receiving water named **Mumford River**

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

This permit will become effective 60 days from the date of signature.

This permit and the authorization to discharge will expire at midnight, on September 30, 2005.

This permit supersedes the permit issued on September 29, 1995.

This permit consists of 14 pages in Part I including effluent limitations, monitoring requirements, Attachment A, Advanced WWTF Outfalls ; Attachment B, Freshwater Acute Toxicity Test Protocol and Procedures; and 35 pages in Part II including General Conditions and Definitions.

Signed this 31st day of January, 2003

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. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.a. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number 006. Such discharge will be limited and monitored by the permittee as specified below **prior** to the completion of the wastewater treatment plant upgrade of the Douglas WWTP. Samples will be collected prior to discharging into the Mumford River, and at a location that provides a representative analysis of the effluent.

<u>Effluent Characteristic</u>	<u>Units</u>	<u>Discharge Limitation</u>			<u>Monitoring Requirement</u>	
		<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow	MGD	0.18	—	Report	Continuous* ¹	Recorder
BOD ₅	mg/l	30	45	Report	1/Week* ²	24-Hour Composite* ³
BOD ₅	lbs/day	45	68	Report	1/Week* ²	24-Hour Composite* ³
TSS	mg/l	30	45	Report	1/Week* ²	24-Hour Composite* ³
TSS	lbs/day	45	68	Report	1/Week* ²	24-Hour Composite* ³
pH	st. units	(See Condition I.A.1.d. on Page 7)			1/Day	Grab
Fecal Coliform Bacteria* ⁴ (April 1 - Oct. 31)	cfu /100 ml	200	—	400	1/Week	Grab
Total Residual Chlorine* ⁵ (April 1 - Oct. 31)	mg/l	0.6	—	1.0	2/Day	Grab
Ammonia-Nitrogen	mg/l	Report	—	—	1/Month	24-Hour Composite* ³
Total Kjeldahl Nitrogen	mg/l	Report	—	—	1/Month	24-Hour Composite* ³
Total Nitrate	mg/l	Report	—	—	1/Month	24-Hour Composite* ³
Total Nitrite	mg/l	Report	—	—	1/Month	24-Hour Composite* ³
Phosphorus, Total (May 1 - Oct. 31)	mg/l	1.0	—	Report	1/Week	24-Hour Composite* ³
Phosphorus, Total (November 1 - April 30)	mg/l	Report	—	Report	1/Month	24-Hour Composite* ³
LC ₅₀ * ^{6,*8}	%	—	—	100	4/Year* ⁷	24-Hour Composite* ³

Footnotes:

- *1. For flow, report maximum and minimum daily rates and total flow for each operating date. The flow limit is an annual average. The annual average flow will be reported each month and will be calculated using the monthly average flow from the reporting month and the monthly average flows from the preceding 11 months.
- *2. Sampling is required for influent and effluent.
- *3. A 24-hour composite sample will consist of at least twenty four (24) grab samples taken during one working day (e.g., 7 am. Monday - 7 am. Tuesday).
- *4. Fecal coliform monitoring will be conducted seasonally. This is a State certification requirement. The monthly average limit is expressed as a geometric mean. Fecal coliform samples will be collected at the same time as chlorine residual samples.
- *5. Total residual chlorine monitoring will be conducted seasonally. The permittee is not authorized to discharge chlorine from November 1st through March 31st.
- *6. The LC₅₀ 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) will cause no more than a 50% mortality rate.
- *7. The permittee will conduct acute toxicity tests four times per year, and will test the daphnid, Ceriodaphnia dubia only. Toxicity test samples will be collected on the second week of January, April, July, and October. The test results will be submitted by the last day of the month following the completion of the test. The results are due February 28th, May 31st, August 31st, and November 30th, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment B** of this permit.

<u>Test Dates:</u> Second Week in	<u>Submit Results</u> <u>By:</u>	<u>Test Species:</u>	<u>Acute Limit:</u> LC ₅₀
January	February 28 th	<u>Ceriodaphnia dubia</u>	≥ 100 %
April	May 31 st	(Daphnid)	
July	August 31 st		
October	November 30 th	See Attachment B	

After submitting four consecutive sets of whole effluent toxicity (WET) test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the WET testing requirements. The permittee is required to continue testing in accordance with the permit until notice is received by certified mail from the EPA that the WET testing requirements have been changed.

- *8. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee will 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 will 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 permittee 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**.

Continued on Page 5.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- 1.b. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number 006. Such discharge will be limited and monitored by the permittee as specified below **after** the completion of the wastewater treatment plant upgrade.*¹¹ Samples will be collected prior to discharging into the Mumford River, and at a location that provides a representative analysis of the effluent.

<u>Effluent Characteristic</u>	<u>Units</u>	<u>Discharge Limitation</u>			<u>Monitoring Requirement</u>	
		<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow	MGD	0.6	—	Report	Continuous* ¹	Recorder
BOD ₅ (May 1 - October 31)	mg/l	10	15	Report	1/Week* ²	24-Hour Composite* ³
BOD ₅ (May 1 - October 31)	lbs/day	45	68	—	1/Week* ²	24-Hour Composite* ³
BOD ₅ (November 1 - April 30)	mg/l	20	30	Report	1/Week* ²	24-Hour Composite* ³
BOD ₅ (November 1 - April 30)	lbs/day	90	136	—	1/Week* ²	24-Hour Composite* ³
TSS (May 1 - October 31)	mg/l	10	15	Report	1/Week* ²	24-Hour Composite* ³
TSS (May 1 - October 31)	lbs/day	45	68	—	1/Week* ²	24-Hour Composite* ³
TSS (November 1 - April 30)	mg/l	20	30	Report	1/Week* ²	24-Hour Composite* ³
TSS (November 1 - April 30)	lbs/day	90	136	—	1/Week* ²	24-Hour Composite* ³
pH	st. units	(See Condition I.A.1.d. on Page 7)			1/Day	Grab
Fecal Coliform Bacteria* ⁴ (April 1 - Oct. 31)	cfu /100 ml	200	—	400	1/Week	Grab
Total Residual Chlorine* ⁵ (April 1 - Oct. 31)	mg/l	0.2	—	0.3	2/Day	Grab
Ammonia-Nitrogen (May 1 - October 31)	mg/l	5	—	—	1/Week	24-Hour Composite* ³
Ammonia-Nitrogen* ⁶ (Nov 1 - April 30)	mg/l	Report	—	—	1/Month	24-Hour Composite* ³
Total Kjeldahl Nitrogen	mg/l	Report	—	—	1/Month	24-Hour Composite* ³
Total Nitrate	mg/l	Report	—	—	1/Month	24-Hour Composite* ³
Total Nitrite	mg/l	Report	—	—	1/Month	24-Hour Composite* ³
Phosphorus, Total (May 1 - Oct. 31)	lbs/day	1.2	—	Report	1/Week	24-Hour Composite* ³
Phosphorus, Total (November 1 - April 30)	mg/l	Report	—	Report	1/Month	24-Hour Composite* ³
LC ₅₀ * ^{7,*10}	%	—	—	100	4/Year* ⁹	24-Hour Composite* ³
Chronic NOEC* ^{8,*10}	%	—	—	5.9	4/Year* ⁹	24-Hour Composite* ³

Footnotes:

- *1. For flow, report maximum and minimum daily rates and total flow for each operating date. The flow limit is an annual average. The annual average flow will be reported each month and will be calculated using the monthly average flow from the reporting month and the monthly average flows from the preceding 11 months.
- *2. Sampling is required for influent and effluent.
- *3. A 24-hour composite sample will consist of at least twenty four (24) grab samples taken during one working day (e.g., 7 am. Monday - 7 am. Tuesday).
- *4. Fecal coliform monitoring will be conducted seasonally. This is a State certification requirement. The monthly average limit is expressed as a geometric mean. Fecal coliform samples will be collected at the same time as chlorine residual samples.
- *5. Total residual chlorine monitoring will be conducted seasonally. The permittee is not authorized to discharge chlorine from November 1st through March 31st. If the permittee notifies EPA and MADEP, and provides a written certification that the ultraviolet irradiation disinfection system has been installed, is operating reliably, and the use of chlorine for disinfection has been discontinued, the agencies will waive the total residual chlorine limitations and monitoring requirements.
- *6. During November 1 - April 30, the permittee will optimize treatment efficiency in order to minimize the lowering of water quality associated with the increase in plant flow. The treatment optimization will include all reasonable efforts to maintain nitrification.
- *7. The LC₅₀ 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) will cause no more than a 50% mortality rate.
- *8. 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-response 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 "5.9 % or greater" limit is defined as a sample which is composed of 5.9 % (or greater) effluent, the remainder being dilution water. This is a maximum daily limit derived as a percentage of the inverse of the dilution factor of 17.
- *9. The permittee will conduct chronic (and modified acute) toxicity tests four times per year, and will test the daphnid, Ceriodaphnia dubia and the fathead minnow, Pimephales promelas. The chronic test may be used to calculate the acute LC₅₀ at the 48 hour exposure interval. Toxicity test samples will be collected on the second week of January, April, July, and October. The test results will be submitted by the last day of the month following the completion of the test. The results are due February 28th, May 31st, August 31st, and November 30th, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment B** of this permit.

Test Dates: Second Week in	Submit Results By:	Test Species:	Acute Limit: LC ₅₀	Chronic Limit: C-NOEC
January	February 28 th	<u>Ceriodaphnia dubia</u>	≥ 100 %	≥ 5.9 %
April	May 31 st	(Daphnid)		
July	August 31 st	<u>Pimephales promelas</u>	≥ 100 %	≥ 5.9 %
October	November 30 th	(Fathead minnow) See Attachment B		

After submitting four consecutive sets of whole effluent toxicity (WET) test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the WET testing requirements. The permittee is required to continue testing in accordance with the permit until notice is received by certified mail from the EPA that the WET testing requirements have been changed.

- *10. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee will 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 will 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 permittee 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**.
- *11. The permit limitations in Part I.A.1.b. will take effect sixty (60) days after the completion of the wastewater treatment plant upgrade. During this sixty (60) day period, the permittee will make every effort to meet the permit limits, and will continue to conduct all sampling and submit all monitoring results required by this permit.

Part I.A.1. (Continued)

- c. The discharge will not cause a violation of the water quality standards of the receiving waters.
- d. The pH of the effluent will not be less than 6.5 nor greater than 8.3 at any time, unless these values are exceeded due to natural causes or as a result of the approved treatment processes.
- e. The discharge will not cause objectionable discoloration of the receiving waters.
- f. The effluent will contain neither a visible oil sheen, foam, nor floating solids at any time.
- g. The permittee's treatment facility will maintain a minimum of 85 percent removal of both

4. Toxics Control

- a. The permittee will not discharge any pollutant or combination of pollutants in toxic amounts.
- b. Any toxic components of the effluent will 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.

5. Numerical Effluent Limitations for Toxicants

EPA or DEP 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.

6. Prior Notice

The permittee will provide at least a sixty (60) day written prior notice to EPA and the MADEP of the completion of the wastewater treatment plant upgrade.

B. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from outfalls listed in **Attachment A** of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) are not authorized by this permit and will be reported in accordance with Part II, Section D.1.e.(1) of the General Requirements of this permit (Twenty-four hour reporting).

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system will be in compliance with the General Requirements of Part II and the following terms and conditions:

1. Maintenance Staff

The permittee will 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 will maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program will include an inspection program designed to identify all potential and actual unauthorized discharges.

3. Infiltration/Inflow Control Plan:

The permittee will develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The plan will be submitted to EPA and MADEP within six months of the effective date of this permit (see page 1 of this permit for the effective date) and will 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 will include:

- (1) An ongoing program to identify and remove sources of infiltration and inflow. The program will include the necessary funding level and the source(s) of funding.
- (2) 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.
- (3) Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of infiltration and inflow to the system.
- (4) An educational public outreach program for all aspects of I/I control, particularly private inflow.

Reporting Requirements:

A summary report of all actions taken to minimize I/I during the previous calendar year will be submitted to EPA and the MADEP annually, by the anniversary date of the effective date of this permit. The summary report will, at a minimum, include:

- (1) A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year.
- (2) Expenditures for any infiltration/inflow related maintenance activities and corrective actions taken during the previous year.
- (3) A map with areas identified for I/I-related investigation/action in the coming year.

- (4) A calculation of the annual average I/I, the maximum month I/I for the reporting year.
- (5) A report of any infiltration/inflow related corrective actions taken as a result of unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to the Unauthorized Discharges section of this permit.

4. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the permittee will continue to provide an alternative power source with which to sufficiently operate its treatment works (as defined at 40 CFR §122.2).

5. Chlorination System Report

Within 1 year of the effective date of the permit, the permittee will submit a report documenting the effectiveness of the chlorination and dechlorination systems, if these systems are used. The report will specifically address how flow variability and chlorine demand variability affect compliance with the total residual chlorine (TRC) and fecal coliform limits at all times. Sampling data will be provided to support conclusions on how hourly and daily flow and chlorine demand variability affects permit compliance. The report will include a description of the chlorination and dechlorination systems, if they are used, and the methods for dosage control. The report will identify all changes necessary to ensure compliance with the TRC and fecal coliform limits at all times, including equipment modifications and upgrades, operational procedures (including calibration procedures and alarm/response procedures), and sampling protocols. The requirement for completing and submitting this report will be waived, if, prior to the required date for submitting the report, the permittee notifies EPA and MADEP that the UV disinfection system will be in service within 2 years of the effective date of the permit.

An annual report will be submitted by February 28 of each year summarizing all exceedances of the TRC and fecal coliform effluent limits during the previous year, the estimated or measured fecal coliform and chlorine discharge levels during the exceedance, and measures taken to fix the problem and to prevent future occurrences. If the permittee notifies EPA and MADEP, and provides a written certification that the ultraviolet irradiation disinfection system has been installed, is operating reliably, and the use of chlorine for disinfection has been discontinued, the agencies will waive the annual Chlorination System Report requirement.

D. SLUDGE CONDITIONS

1. The permittee will 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 will 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 will use and comply with the attached compliance guidance document to determine appropriate conditions. Appropriate conditions contain the following elements:
 - General requirements
 - Pollutant limitations
 - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
 - Management practices
 - Record keeping
 - Monitoring
 - Reporting

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

6. The permittee will monitor the pollutant concentrations, pathogen reduction and vector attraction reduction at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year:

less than 290	1/ year
290 to less than 1500	1 /quarter
1500 to less than 15000	6 /year
15000 +	1 /month

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

8. The permittee will submit an annual report containing the information specified in the guidance. Reports are due annually by **February 19**. Reports will 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:

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

E. MONITORING AND REPORTING

1. Reporting

Monitoring results obtained during each calendar month will 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, will 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

Signed and dated Discharge Monitoring Report Forms and toxicity test reports required by this permit will 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

F. STATE PERMIT CONDITIONS

This discharge permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) 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 MA DEP pursuant to M.G.L. Chap. 21, §43.

Each Agency will have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit will be effective only with respect to the Agency taking such action, and will 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 will 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 will remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

Attachment A

Advanced Wastewater Treatment Plant Discharge Outfall
NPDES Permit No. MA0101095
Douglas, MA

<u>Outfall:</u>	<u>Description of Discharge:</u>	<u>Outfall Location/Receiving Water:</u>
006	Advanced Wastewater Treatment Plant Effluent ¹	Mumford River

Footnote:

¹ This facility is currently a secondary wastewater treatment plant that will be upgraded to an advanced wastewater treatment plant during the life of the permit.