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),

Upper Blackstone Water Pollution Abatement District
50 Route 20
Millbury, MA 01527

is authorized to discharge from a facility located at

50 Route 20
Millbury, MA 01527

to receiving water named

Blackstone River

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

This permit shall become effective thirty (30) days after the date of signature.

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

This Permit supersedes the permit issued on September 30, 1992.

This permit consists of 15 pages in Part I including effluent limitations, monitoring requirements, etc., and 35 pages in Part II including General Conditions and Definitions.

Signed this 30 day of September, 1999

Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

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

1. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge treated sanitary and industrial wastewater from outfall serial number 001. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations (specify units)			Monitoring Requirement	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Flow, MGD	56	----	----	Continuous	See Footnote 1
$CBOD_5$, mg/l (June to October)	10	15	17	Daily[2]	24-hr comp[3]
$CBOD_5$, mg/l (May)	20	30	33	Daily[2]	24-hr comp[3]
BOD_5, mg/l (November to April)	30	45	50	Daily[2]	24-hr comp[3]
TSS, mg/l (June to October)	10	15	17	Daily[2]	24-hr comp[3]
(May)	20	30	33	Daily[2]	24-hr comp[3]
(November to April)	30	45	50	Daily[2]	24-hr comp[3]
pH, S.U.	See I.A.1.b.			Daily	Grab
Dissolved Oxygen	--- 6.0 mg/l minimum ----			Daily	Grab
Fecal Coliform[4], #/100 ml (April 1 - October 31)	200	400	400	Daily	Grab
Total Residual Chlorine[4,5], ug/l (April 1 - October 31)	12	----	21 [6]	Daily	Grab
Total Ammonia Nitrogen, in mg/L as N (December to April)	10	20	Report	3/Week	24-hr comp[3]
(May)	3.0	6.0	Report	3/Week	24-hr comp[3]
(June to October)	2.0	4.0	Report	3/Week	24-hr comp[3]
(November)	8.0	16	Report	3/Week	24-hr comp[3]

-- Footnotes are listed on Page 4 --

	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Phosphorus, Total, mg/l				
April 1 - October 31	0.75	Report	3/Week	24-hr comp[3]
November 1 - March 31	Report	Report	1/Month	24-hr comp[3]
Nitrate and nitrite nitrogen, mg/l		Report	1/Month	24-hr comp[3]
Cadmium, ug/l	1.0	2.0	1/Week	24 hour comp[3]
Copper, Total, ug/l	7.2	10	1/Week	24 hour comp[3]
Zinc, Total, ug/l	65	72	1/Week	24 hour comp[3]
Cyanide, Free, ug/l	----	Report	1/Month	Grab
Whole Effluent Toxicity Testing				
LC_{50}, [7]	----	100%	4/Year [8]	24 hour comp[3]
C-NOEC [9,10]	----	90%	4/Year [8]	24 hour comp[3]

PART A.1. continued

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 at any time, unless these values are exceeded due to natural causes.

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. When the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the designed flow, the permittee shall submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

Footnotes:

1. For flow, report maximum and minimum daily rates and total flow for each operating date.

2. Sampling required for influent and effluent.

3. A 24-hour composite sample will consist of at least eight (8) flow weighted grab samples taken during one working day.

4. Fecal coliform and total residual chlorine monitoring will be conducted during the period April 1st through October 31st only, to reflect the seasonal chlorination. These are also State certification requirements.

5. Total Residual Chlorine (TRC) shall be tested using **Amperometric Titration** or the **DPD spectrophotometric** method. The EPA approved methods are found in Standard Methods for the Examination of Water and Wastewater - 18th Edition, 4500-CL E and method 4500-CL G or USEPA Manual of Methods of Analysis of Water and Wastes Method 330.5.

   The limit at which compliance/noncompliance determinations will be based is the Minimum Level (ML) which is defined as 50 ug/l for TRC. This value may be reduced by permit modification as more sensitive methods are approved by EPA and the State. Any value below 50 ug/l shall be reported as non-detect.

6. The daily maximum TRC limit is an instantaneous limit and the highest of all sample results for the month shall be reported. See Attachment 1 for the chlorination system report requirement.

7. 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.

8. The permittee shall conduct chronic and acute toxicity tests four times per year. The permittee shall test the daphnid, Ceriodaphnia dubia, and the fathead minnow, Pimephales promelas. Toxicity test samples shall be collected and tests completed during the quarters ending March 31, June 30, September 30 and December 31. Results are to be submitted by the 15th day of the month following the end of the quarter. See Attachment A, Toxicity Test Procedure and Protocol.

9. C-NOEC is the highest effluent concentration at which No Observed Chronic Effects (e.g. growth, reproduction, mortality) will occur at continuous exposure to test organisms in a life-cycle or partial life-cycle test.

10. The "90% or greater" limit is defined as a sample which is composed of 90% (or greater) effluent, the remainder being dilution water. This is a maximum daily limit based on the dilution ratio of 1.1 : 1.

Part I.A. continued

2. 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.

3. **Toxics Control**

   a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

   b. The total chlorine residual and/or other 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.

B. 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. Infiltration/Inflow

The permittee shall eliminate excessive infiltration/inflow to the sewer system. A summary report of all actions taken to minimize infiltration/inflow during the previous twelve months shall be submitted to EPA and the MA DEP by April 1st of each year.

3. 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).

C. DEVELOPMENT OF LIMITATIONS FOR INDUSTRIAL USERS:

1. Pollutants introduced into POTWs by a non-domestic source (user) shall not Pass Through the POTW or Interfere with the operation or performance of the works.

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 three (3) months of the effective date this permit, the permittee shall submit its final local limits report to EPA for review and approval. This final report shall incorporate EPA's comments dated May 16, 1997. This report 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. Justifications and conclusions should be based on actual plant data if available and should be included in the report. The Permittee shall develop its final report in accordance with EPA Guidance Manual for the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (December, 1987).

D. INDUSTRIAL PRETREATMENT PROGRAM

1. The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR 403. At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program ("IPP"):

   a. Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

   b. Issue or renew all necessary industrial user control mechanisms within 120 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

   c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement; and

d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

2. The permittee shall provide the EPA and the MA DEP with an annual report describing the permittee's pretreatment program activities over the twelve 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 B of this permit and shall be submitted no later than December 1 of each year.

3. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).

4. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR 405 et. seq.

E. COMBINED SEWER OVERFLOWS (CSO)

There is one CSO in the permittee's sewer system. This CSO treatment facility is located in Worcester and can provide some detention time for CSOs and chlorination prior to discharge. This facility is owned and operated by the City of Worcester and is currently operating under its own NPDES permit.

F. SLUDGE CONDITIONS

Standard Conditions

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 Clean Water Act (CWA) Section 405(d) technical standards.

If an applicable management practice or numerical limitation for pollutants in sewage sludge more stringent than existing federal and state regulations is promulgated under Section 405(d) of the CWA , this permit shall be modified or revoked and reissued to conform to the promulgated regulations.

The permittee shall give prior notice to the Director of any change(s) planned in the permittee's sludge use or disposal practice.

A change in the permittee's sludge use or disposal practice is a cause for modification of the permit. It is a cause for revocation and reissuance of the permit if the permittee requests or agrees.

1. General Requirements

   a. No person shall fire sewage sludge in an sewage sludge incinerator except in compliance with the requirements of 40 CFR part 503 subpart E.

2. Pollutant Limitations

   a. Firing of sewage sludge shall not violate the requirements in the National Emission Standard for Beryllium in 40 CFR part 61, subpart C, 10 grams per 24-hour period.

   b. Firing of sewage sludge shall not violate the requirements in the National Emission Standard for Mercury in 40 CFR part 61, subpart E, 3200 grams per 24-hour period.

   c. The daily concentration of the metals in sewage sludge fed to the incinerators shall not exceed the limit specified below (dry weight basis):

	Maximum Daily	
Arsenic	6,817	mg/kg
Cadmium	3,150	mg/kg
Chromium	59,330	mg/kg
Lead	79,411	mg/kg
Nickel	1×10^6	mg/kg

3. Carbon Monoxide Operational Standard

   a. The exit gas from the sewage sludge incinerator stand shall be monitored continuously for carbon monoxide (CO).

   b. The monthly average concentration of carbon monoxide in the exit gas from the sewage sludge incinerator stack, corrected for zero percent moisture and to seven percent oxygen, does not exceed 100 ppm on a volumetric basis.

   c. The measured CO concentration shall be corrected to seven percent Oxygen using the correction factor below:

$$\text{Correction factor} = \frac{14}{(\text{Oxygen})\ (21 - Y)}$$

Where: Y= percent oxygen in the sewage sludge incinerator Stack exit gas (dry volume/dry volume)

d. The measured CO value shall be multiplied by the correction factor in item c. The corrected CO value shall be used to determine compliance with Paragraph F.3.b.

4. Management Practices

a. An instrument that continuously measures and records the CO concentration in the sewage sludge incineration stack exit gas shall be installed, operated and maintained for each incinerator in accordance with the manufacturer's instructions.

b. The C O monitor and the oxygen monitor must meet the performance specification detailed in "THC Continuous Emission Monitoring Guidance for Part 503 Sewage Sludge Incinerators" (EPA 833-B-94-003).

c. Upon completion of the testing to demonstrate compliance with the performance specification, but not later than 90 days from the effective date of this permit, the operator of the incinerators shall submit a certification stating that the continuous emissions monitoring system meets the performance specification detailed in the above referenced guidance.

d. An instrument which measures and records combustion temperatures continuously shall be installed, calibrated, operated and maintained for the sewage sludge incinerators in accordance with the manufacturer's written instructions.

e. The range for combustion temperature of the sewage sludge incinerator shall be 1300 - 1580° F.

f. The venturi scrubber shall be operated in accordance with 40 CFR Subpart O - Standards of Performance for Sewage Treatment Plants, which requires a pressure drop of 20 inches of water column.

g. Sewage sludge shall not be fired in a sewage incinerator if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered Species Act or its designated critical habitat.

h. The permittee shall notify the EPA within 7 days, if any continuous emission monitoring equipment is shut down or broken down for more than 72 hours while the incinerator continues to operate.

i. Notification shall include the following:

1. The reason for the shut down or break down;

2. Steps taken to restore the system;

3. The expected length of the down time; and

4. The expected length of the incinerator operation during the down time of the monitoring system.

j. Break downs or shut downs of less than 72 hours shall be recorded in the operations log along with an explanation of the event.

k. Copies of all manufacturer's instructions shall be kept on file and be available during inspections.

5. Monitoring Frequency

a. Beryllium and mercury shall be monitored at the following frequency: 2 times per year, during the months of January and July.

b. Either stack testing or sludge testing may be used for demonstration of compliance with the beryllium and mercury requirements in Paragraphs 2.a. and 2.b.

c. The pollutants in Paragraph 2.c. shall be monitored at the following frequency: 6 times per year, during the months of January, March, May, July, September and November.

d. The operating parameters for the air pollution control devices shall be monitored at the following frequency: 1/day.

e. The C O concentration in the exit gas, the oxygen concentration in the exit gas, and combustion temperatures shall be monitored continuously.

6. Sampling and Analysis

a. The sewage sludge shall be sampled at a location which is prior to charging to the incinerator and provides a representative sample of the sewage sludge being used or disposed.

b. The metals in the sewage sludge shall be analyzed using "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW-846, Second Edition (1982) with Updates I (April 1984) and II (April 1985) and Third Edition (November 1986) with Revision I (December 1987).

c. If emission testing is done for demonstration of NESHAPS, testing shall be in accordance with Method 101A in 40 CFR Part 60, Appendix B, "Determination of Particulate and Gaseous Mercury Emissions from Sewage Sludge Incinerators."

d. When sludge sampling is used for demonstration of compliance with NESHAPS, the following equation shall be used:

$$E = \frac{(M) \times (Q) \times (PS)}{1000}$$

Where:

E = Emission rate in grams/day
M = Pollutant concentration in sewage sludge in ug/gram
Q = Sludge feed rate to incinerator
PS = Percent Solids

When determining emissions for beryllium, multiply the above equation by (1 - CE). (CE is the control efficiency for beryllium)

7. Record keeping

The permittee shall develop and retain the following information for five years:

a. The concentration of pollutants in Paragraph 2.c. Report the maximum value of each pollutant.

b. The C O concentration in the exit gas from each sewage sludge incinerator stack. Report the average monthly concentration as defined in Paragraph 3.a.

c. The information that demonstrates that the requirements in the National Emission Standard for beryllium are met. The results of either the emission testing or sludge sampling shall be reported. If sludge sampling is reported, include calculation in Paragraph 6.d. for compliance demonstration.

d. The information that demonstrates that the requirements in the National Emissions Standard for mercury are met. The results of either the emission testing or sludge sampling shall be reported. If sludge sampling is reported, include calculation in Paragraph 6.d. for compliance demonstration.

e. The combustion temperatures, including the maximum combustion temperature for each sewage sludge incinerator. Report the average temperature range within the combustion zone and the maximum combustion temperature described in Paragraph 4.e.

f. The values for the air pollution control device(s) operating parameters. Report the monthly average operating range.

g. The oxygen concentration in the exit gas from the sewage sludge incinerator. Report the oxygen concentration and percent moisture results which were used to determine the C O values reported in Paragraph 7.b.

h. The sewage sludge feed rate to the incinerator. Record the average daily and average monthly feed rate.

i. The stack height of the sewage sludge incinerator.

j. The dispersion factor for the site where the sewage sludge incinerator is located.

k. The control efficiency for lead, arsenic, cadmium, chromium and nickel for each incinerator.

l. The risk specific concentration for chromium, if a site specific risk specific concentration is determined.

m. A calibration and maintenance log for the instruments used to measure the C O concentration and oxygen concentration in the exit gas from the sewage sludge incinerator stack, and the combustion temperatures.

8. Reporting

The information in Paragraph 7, a. through g., shall be reported annually on the effective date of the permit. All reports shall be submitted to:

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

G. REOPENER CLAUSE

The EPA reserves the right to make appropriate revisions to this permit in order to establish any additional and/or modified effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA based on new information.

H. MONITORING AND REPORTING

1. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the effective date of the permit.

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
627 Main Street
Worcester, MA 01608

Signed and dated toxicity test reports required by this permit shall be submitted to the State at:

Massachusetts Department of Environmental Protection
Division of Watershed Management
Watershed Planning and Permitting Section
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

I. STATE PERMIT CONDITIONS

1. 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.

2. 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.

ATTACHMENT 1

Chlorination System Report

Within six (6) months of the effective date of the permit, the permittee will submit a report documenting the effectiveness of the chlorination and dechlorination systems. The report will specifically address how flow variability and chlorine demand variability affect compliance with the TRC and fecal coliform limits at all times. Sampling data shall 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 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 report will include a schedule for implementing all of the necessary changes. An annual report shall be submitted on September 30 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.