

**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 Fitchburg
Wastewater Treatment Facilities Commission**

is authorized to discharge from the facility located at:

**Fitchburg East Wastewater Treatment Facility
24 Landies Lane
Fitchburg, MA 01420
and Combined Sewer Overflows listed in Attachment A**

to receiving waters named:

**North Nashua River (Outfall 063 and 18 CSOs), Sand Brook (1 CSO), Birch Brook (3 CSOs),
Baker Brook (2 CSOs), Punch Brook (5 CSOs), and unnamed tributaries (4 CSOs)
in the Nashua River Watershed - MA81-03**

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

This permit shall become effective on **September 1, 2010**

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

This permit supersedes the permit issued on September 13, 2002.

This permit consists of 20 pages in Part I including effluent limitations, monitoring requirements, Attachments A, B, C, & D, and 25 pages in Part II (Standard Conditions).

Signed this 22nd day of July, 2010



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 **063**, 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 TYPE ³
FLOW ¹	***	***	***	Report MGD	***	Report MGD	CONTINUOUS	RECORDER
FLOW ²	***	***	***	12.4 MGD	***	***	CONTINUOUS	RECORDER
BOD ₅ ⁴ (November 1 to April 30)	2070 lbs/Day	3100 lbs/Day	3620 lbs/Day	20 mg/l	30 mg/l	35 mg/l	1/DAY	24-HOUR COMPOSITE ⁵
BOD ₅ ⁴ (May 1 to October 31)	830 lbs/Day	1240 lbs/Day	1550 lbs/Day	8 mg/l	12 mg/l	15 mg/l	1/DAY	24-HOUR COMPOSITE ⁵
TSS ⁴ (November 1 to April 30)	3100 lbs/Day	4650 lbs/Day	5170 lbs/Day	30 mg/l	45 mg/l	50 mg/l	1/DAY	24-HOUR COMPOSITE ⁵
TSS ⁴ (May 1 to October 31)	1030 lbs/Day	1550 lbs/Day	2070 lbs/Day	10 mg/l	15 mg/l	20 mg/l	1/DAY	24-HOUR COMPOSITE ⁵
pH RANGE ⁶	6.5 - 8.3 SU SEE PERMIT PAGE 7 PARAGRAPH I.A.2.b.						1/DAY	GRAB
DISSOLVED OXYGEN (May 1 to October 31)	***	***	***	5.0 mg/l minimum			1/DAY	GRAB
FECAL COLIFORM ^{6,7} (See Schedule)	***	***	***	200 cfu/100 ml	***	400 cfu/100 ml	1/DAY	GRAB
ESCHERICHIA COLI ^{6,7} (See Schedule)	***	***	***	126 cfu/100 ml	***	409 cfu/100ml	1/DAY	GRAB

Part I.A.1. continued								
<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 TYPE ³
TOTAL RESIDUAL CHLORINE ^{7, 8, 9, 10}	***	***	***	18 ug/l	***	30 ug/l	3/DAY	GRAB
TOTAL RESIDUAL CHLORINE ^{7, 8, 9, 10}	***	***	***	Report mg/l	***	Report mg/l	CONTINUOUS	Recorder
TOTAL PHOSPHORUS (November 1- March 31)	***	***	***	1.0 mg/l	***	Report mg/l	1/WEEK	24-HOUR COMPOSITE ⁵
TOTAL PHOSPHORUS (April 1- October 31) ¹¹	20.7 lbs/day	***	Report mg/l	0.2 mg/l	***	Report mg/l	3/WEEK	24-HOUR COMPOSITE ⁵
ORTHO PHOSPHORUS, DISSOLVED ¹¹ (November 1- March 31)	***	***	***	Report mg/l	***	Report mg/l	1/WEEK	24-HOUR COMPOSITE ⁵
TOTAL AMMONIA, as N (November 1 – April 30)	Report lbs/Day	***	Report lbs/Day	Report mg/l	***	Report mg/l	1/WEEK	24-HOUR COMPOSITE ⁵
TOTAL AMMONIA, as N (May 1- May 31)	Report lbs/Day	***	Report lbs/Day	5.0 mg/l	5.0 mg/l	8.0 mg/l	2/WEEK	24-HOUR COMPOSITE ⁵
TOTAL AMMONIA, as N (June 1- October 31)	Report lbs/Day	***	Report lbs/Day	1.0 mg/l	1.0 mg/l	2.0 mg/l	3/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				
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE ³
TOTAL ALUMINUM	***	***	***	139 ug/l	***	Report ug/l	1/MONTH	24-HOUR COMPOSITE ⁵
TOTAL CADMIUM ¹²	***	***	***	0.3 ug/l	***	2 ug/l	1/MONTH	24-HOUR COMPOSITE ⁵
TOTAL COPPER	***	***	***	27 ug/l	***	39 ug/l	1/MONTH	24-HOUR COMPOSITE ⁵
TOTAL LEAD ¹²	***	***	***	3 ug/l	***	62 ug/l	1/MONTH	24-HOUR COMPOSITE ⁵
TOTAL ZINC	***	***	***	117 ug/l	***	117 ug/l	1/MONTH	24-HOUR COMPOSITE ⁵
WHOLE EFFLUENT TOXICITY ^{13, 14, 16, 17}	Acute LC ₅₀ ≥ 100%						4/YEAR	24-HOUR COMPOSITE ⁵
WHOLE EFFLUENT TOXICITY ^{13, 15, 16, 17}	Chronic NOEC ≥ 62%						4/YEAR	24-HOUR COMPOSITE ⁵

Sampling Location: Effluent samples shall be taken below the point that bypassed flows combine with the main flow and prior to discharge from Outfall 063.

Footnotes:

1. The monthly average and maximum daily flows for each month shall be reported. An attachment to the monthly DMRs containing the date, time of initiation, duration, and estimated total daily volume for all bypasses, as well as the total and maximum WWTF flow for each day that there was a bypass, shall be submitted each month. The permittee shall not accept septage during any calendar day in which a bypass of secondary treatment is anticipated.
2. This is an annual average limit, which shall be reported as a rolling average. The rolling average will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows for the previous 11 months.
3. All required effluent samples shall be taken at the point specified on Page 4. All sampling shall be representative of the effluent that is discharged through Outfall 063 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. Influent samples shall be taken prior to the introduction of all recycle flows.
5. 24-hour composite samples will consist of at least twenty four (24) grab samples taken during one consecutive 24 hour period (e.g. 0700 Monday - 0700 Tuesday), either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.
6. Required for State Certification.
7. Fecal coliform, *Escherichia coli* bacteria, and total residual chlorine limits and monitoring requirements are in effect year round. The average monthly limits for fecal coliform and *E. coli* are expressed as geometric means. Samples for fecal coliform bacteria and *E. coli* shall be taken at the same time as a total residual chlorine sample. An attachment to the monthly DMRs containing all individual sampling results for fecal coliform, *Escherichia coli* bacteria, and total residual chlorine, including the date and time of the sample and whether or not the facility was bypassing at the time of the sample, shall be submitted each month.

The fecal coliform limits and monitoring requirements are in effect for one year after the effective date of this permit. One year from the effective date of this permit, the fecal coliform limits and monitoring requirements will end.

The *E. coli* effluent limitations go into effect one year from the effective date of the permit. The monitoring and report requirements for *E. coli* go into effect on the effective date of this permit. The monitoring frequency for *E. coli* is 1/month during the first year after the effective date of the permit and 1/day thereafter.

8. The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA approved methods found in the most currently approved edition of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G.. One of these methods must be used to determine total residual chlorine. For effluent limitations less than 20

- ug/l, compliance will be determined based on the ML. Sample results of less than 20 ug/l shall be reported as zero on the DMR.
9. The permittee shall collect and analyze a minimum of three grab samples per day from outfall 063 for determination of compliance with the monthly average and maximum daily limits. The permittee shall also report the monthly average and daily maximum discharge of TRC from outfall 063 using data collected by the continuous TRC analyzer. Four continuous recording charts (1/week), showing weekly data shall be submitted with the monthly DMRs. An attachment to the monthly DMRs containing the following information shall also be submitted each month:
 - a. The average monthly, maximum daily and maximum instantaneous concentrations as measured by the continuous analyzer;
 - b. A comparison between the results of the grab samples and the continuous analyzer reading, including the time of the grab samples;
 - c. The total duration of time during the month that the continuous analyzer measurements were greater than the monthly average effluent limitation: and
 - d. The total duration of time during the month that the continuous analyzer measurements were greater than the maximum daily effluent limitation.
 10. 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.
 11. The maximum daily concentration of orthophosphorus shall be the value from the same day the maximum daily total phosphorus value was measured.
 12. The minimum level (ML) for total cadmium and total lead is defined as 0.5 ug/l. This value is the minimum reporting level for cadmium and lead using EPA approved methods found in the most currently approved edition of Standard Methods for the Examination of Water and Wastewater or USEPA Manual of Methods of Chemical Analysis of Water and Wastes. For effluent limitations less than 0.5 ug/l, compliance will be determined based on the ML. Sample results of less than 0.5 ug/l shall be reported as zero on the DMR.
 13. The permittee shall conduct chronic (and modified acute) toxicity tests four (4) times per year using two species, the daphnid, Ceriodaphnia dubia and fathead minnow, Pimephales promelas. 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 B** of this permit.
 14. 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) shall cause no more than a

- 50% mortality rate.
15. 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. The "62% or greater" limit is defined as a sample which is composed of 62% (or greater) effluent, the remainder being dilution water.
 16. Synthetic, soft reconstituted water prepared in accordance with Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms (EPA/600/4-91/002) is authorized for use as dilution water in P. promelas tests. 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.
 17. If Ceriodaphnia dubia 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** Toxicity Test Procedure and Protocol, Section IV, Dilution Water, in order to obtain permission to use an alternate dilution water or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance document which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of the NPDES Permit Program Instructions for the Discharge Monitoring Forms (DMRs) available on the EPA Region I website at <http://www.epa.gov/region1/enforcementandassistance/dmr.html>. If this Guidance document is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment B**. Any modification or revocation to this guidance 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**. 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.

Part I.A.2.

- a. The discharges 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 or greater than 8.3.
- c. The discharges 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. If the annual average flow in any calendar year exceeds 80 percent of the facility's design flow, the permittee shall submit a report to MassDEP by March 31 of the following year describing its plans for further flow increases and describing how it will maintain compliance with the flow limit and all other effluent limitations and conditions.
- g. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control.

- h. The results of sampling for any parameter in accordance with EPA approved methods 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 POTWs by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

5. Toxics Control

- a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.
- b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

6. Numerical Effluent Limitations for Toxicants

EPA or MassDEP may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including but not limited to those pollutants listed in Appendix D of 40 CFR Part 122.

B. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfalls listed in Part I.A.1. and 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 shall be reported in accordance with Section II. 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 shall be in compliance with the General Requirements of Part II and the following terms and conditions:

1. Maintenance Staff

The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Preventative Maintenance Program

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

3. Infiltration/Inflow Control Plan:

The permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The plans shall be submitted to EPA and MassDEP **within twelve (12) 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 I/I plan requirements constitute an update of the previously required plan.

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 a result of reduction/elimination of infiltration and inflow to the system; and
- 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 March 31**. 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 provide an alternative power source with which to sufficiently operate its treatment works (as defined at 40 CFR §122.2).

D. COMBINED SEWER OVERFLOWS (CSOs)

1. **Effluent Limitations**

During wet weather, the permittee is authorized to discharge storm water/wastewater from combined sewer outfalls listed in **Attachment A**, subject to the following effluent limitations:

- a. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgment (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control includes the implementation of Nine Minimum Controls (NMC) specified below and detailed further in Part I.D.2, "Nine Minimum Controls Minimum Implementation Levels" of this permit:
 - (1) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows;
 - (2) Maximum use of the collections system for storage;
 - (3) Review and modification of the pretreatment program to assure CSO impacts are minimized;
 - (4) Maximization of flow to the POTW for treatment;
 - (5) Prohibition of dry weather overflows from CSOs;
 - (6) Control of solid and floatable materials in CSOs;
 - (7) Pollution prevention programs that focus on contaminant reduction activities;
 - (8) Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts;

- (9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.
- b. **Within 6 months of the effective date of this permit**, the permittee shall submit to EPA updated documentation on its implementation of the Nine Minimum Controls. Implementation of the Nine Minimum Controls is required by the effective date of the permit. EPA and MassDEP consider that approvable documentation must include the minimum requirements set forth in Part I.D.2 of this permit and additional activities the permittee can reasonably undertake.
- c. The discharges shall not cause or contribute to violations of federal or state Water Quality Standards.

2. Nine Minimum Controls Minimum Implementation Levels

- a. The permittee must implement the nine minimum controls in accordance with the documentation provided to EPA and MassDEP or as subsequently modified to enhance the effectiveness of the controls. This implementation must include the following controls plus other controls the permittee can reasonably undertake as set forth in the documentation.
- b. Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected, at a minimum of once per month, to insure that they are in good working condition and adjusted to minimize combined sewer discharges and tidal surcharging (NMC # 1, 2 and 4). The following inspection results shall be recorded: the date and time of inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The permittee shall maintain all records of inspections for at least three years.

Annually, no later than January 15th, the permittee shall submit a certification to MassDEP and EPA which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained.

MassDEP and EPA have the right to inspect any CSO related structure or outfall at any time without prior notification to the permittee.

- c. Discharges to the combined system of septage, holding tank wastes, or other material which may cause a visible oil sheen or containing floatable material are prohibited during wet weather when CSO discharges may be active (NMC # 3, 6, and 7).
- d. Dry weather overflows (DWOs) are prohibited (NMC # 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and MassDEP orally within 24 hours of the time the permittee becomes aware of the circumstances and a written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances (Paragraph D.1.e of Part II of this permit).
- e. The permittee shall quantify and record all discharges from combined sewer outfalls (NMC # 9). Quantification may be through direct measurement or estimation. When estimating, the permittee shall make reasonable efforts, i.e. gauging or measurements, to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

- Estimated duration (hours) of discharge;
- Estimated volume (gallons) of discharge;
- National Weather Service precipitation data from the nearest gage where precipitation is available at daily (24-hour) intervals and the nearest gage where precipitation is available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated.

The permittee shall maintain all records of discharges for at least six years after the effective date of this permit.

Annually, no later than January 15th, the permittee shall submit a report containing the required discharge monitoring information for all combined sewer discharges during the previous calendar year.

- f. The permittee shall install and maintain identification signs for all combined sewer outfall structures (NMC # 8). The signs must be located at or near the combined sewer outfall structures and easily readable by the public. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against a green background, and shall contain the following information:

CITY OF FITCHBURG
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

3. Nine Minimum Controls Reporting Requirement

Annually, no later than January 15th, the permittee shall submit a report summarizing activities during the previous calendar year relating to compliance with the nine minimum controls including the required information on the frequency, duration, and volume of discharges from each CSO.

E. COMBINATION MANHOLES

1. All discharges of separate sanitary sewage to storm water drains that discharge to waters of the United States are unauthorized discharges pursuant to Part I.B of this permit and are subject to the requirements of that Part.
2. For all combination manholes indicating evidence of the transference of sewage to a storm drain or transference of storm water to the sanitary sewer, based on monitoring results including, but not limited to, the results reported in Attachment C of the City of Fitchburg's comment letter dated September 21, 2009, the manhole shall be completely separated or otherwise modified within two years of the monitoring date in order to control the transfer of sewage and/or storm water.
3. For years three through five of the permit, the permittee shall monitor all combination manholes, except those that have been completely separated, once per year for storm events that equal or exceed two inches in a 24-hour period. The required inspections shall be conducted within 96 hours of the end of two separate and distinct storm events that exceed one inch in a 24-hour period.

The monitoring plan shall include the installation of secured tell-tale blocks on the weir wall, to

determine if sanitary wastewater transfers from the sanitary sewer to the storm drain or if storm water transfers from the storm drain to the sanitary sewer, in conjunction with a surcharge detection device suitable for determining the extent of surcharging conditions in the manhole.

For all combination manholes indicating evidence of the transference of sewage to a storm drain or transference of storm water to the sanitary sewer, the manhole shall be completely separated or otherwise modified within two years of the monitoring date in order to control the transfer of sewage and/or storm water.

4. The City shall create a log for recording information from all combination manhole inspections. The log shall include the following information at a minimum:
 - a. combination manhole identification number;
 - b. date and time of the inspection;
 - c. date and time that the monitoring mechanism was set or reset; and
 - d. the duration and intensity of the storm event that immediately preceded the inspection.
 - e. a description of evidence indicating whether there has been a surcharge event resulting in transference of sewage to the storm drain or transference of storm water to the sanitary sewer. If surcharge conditions occurred it shall be assumed that transference of sewage to the storm drain **and** transference of storm water to the sanitary sewer has occurred.

5. Within twelve (12) months of the effective date of the permit, the permittee shall identify and assess all combination manholes in the Collection System, and shall submit a report providing the location and a description of each manhole (the "Combination Manhole Report") to EPA and MassDEP. For each combination manhole, the report shall include:
 - a. the street address;
 - b. a distinct identification number;
 - c. a description or schematic of the control system within the manhole, including relative elevations of sewer and storm drain inverts, diameter of sewer and storm drain pipes, control structures separating pipes (weir walls, covers, etc);
 - d. a determination of whether the storm sewer served by the combination manhole discharges to a surface water;
 - e. a description and schematic of the sewer and storm drain entering and leaving the manhole, including proximity of the sewers and storm drains (i.e. over and under in a common trench vs. separate trench construction); and
 - f. a large scale map or maps including a GIS layer of both the Collection System and the storm water drainage system indicating the location of each combination manhole with the identification number, any other sanitary and storm water connections (e.g. connections other than combination manholes installed to relieve surcharging in either system), water resource areas (i.e. rivers, lakes, wetlands, etc) in the vicinity of the combination manhole, and the location of the outfall of the storm drain served by the combination manhole. The map shall clearly depict the size and direction of flow of all sewers in the Collection System and storm water drainage system and shall distinguish between combined and separate sanitary sewers.

7. Within twenty-four (24) months of the effective date of this permit, and annually thereafter, the permittee shall submit to EPA and MassDEP a report presenting the results of the monitoring, including but not limited to the information in the log book and a description of remediation measures taken.

F. 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 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 pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form **Attachment C** with 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 Limits Development Guidance (EPA 833-R-04-002A, July 2004).

G. 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 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.
2. In accordance with 40 CFR Part 403.12(i), the permittee shall provide the EPA and MassDEP with an annual report describing the permittee's pretreatment program activities for the twelve month period ending December 31. The annual report shall be consistent with the format described in **Attachment D** of this permit and shall be submitted no later than **March 1st** of each year.

3. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).
4. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR 405 et. seq.
5. The permittee must modify its pretreatment program to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within 180 days of this permit's effective date, proposed changes 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, if applicable, 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 above.

H. SLUDGE CONDITIONS

1. Standard Conditions

- a. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices and the Clean Water Act section 405(d) technical standards.
- b. The permittee shall comply with the more stringent of either the state or federal requirements.
- c. No person shall fire sewage sludge in a 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 of 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 the sewage sludge fed to the incinerator shall not exceed the limits specified below (dry weight basis):

<u>Metal</u>	<u>Maximum Daily</u>
Arsenic	169 mg/kg
Cadmium	119 mg/kg
Chromium	1.0 x10 ⁴ mg/kg
Lead	4747 mg/kg

3. Operational Standards

- a. The exit gas from the sewage sludge incinerator stack shall be monitored continuously for

carbon monoxide.

- b. The monthly average concentration of carbon monoxide in the exit gas from the sewage sludge incinerator, corrected for zero percent moisture and to seven percent oxygen, shall not exceed **100 ppm on a volumetric basis**.
- c. The CO concentration shall be corrected to zero percent moisture using the correction factor below:

$$\text{Correction factor} = \frac{1}{(1-X)}$$

Where : X = decimal fraction of the percent moisture in the sewage sludge incinerator exit gas in hundredths.

- d. The measured CO concentration shall be corrected to seven percent oxygen using the correction factor below:

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

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

- e. The measured CO value shall be multiplied by the correction factors in items c and d. The corrected CO value shall be used to determine compliance with paragraph b.

4. Management Practices

- a. An instrument that continuously measures and records the carbon monoxide concentration in the sewage sludge incinerator stack exit gas shall be installed, calibrated, operated and maintained for each incinerator.
- b. An instrument that continuously measures and records the oxygen concentration in the sewage sludge incinerator stack exit gas shall be installed, calibrated, operated and maintained for each incinerator.
- c. An instrument that continuously measures and records combustion temperatures shall be installed, calibrated operated and maintained for each incinerator.
- d. Operation of the incinerator shall not cause the operating combustion temperature for the incinerator to exceed the performance test combustion temperature by more than 20 percent.
- e. Any air pollution control devices shall be appropriate for the type of incinerator and operating parameters for the air pollution control device shall be adequate to indicate proper performance of the air pollution control device. For incinerators subject to the requirements of 40 CFR subpart O, operation of the air pollution control device shall not violate the air pollution control device requirements of that part.
- f. Sewage sludge shall not be fired in an 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.

- g. The permittee shall notify the EPA and MassDEP if any continuous emission monitoring equipment is shut down or broken down for more than 72 hours while the incinerator continues to operate.
- h. Notification shall include the following:
 - (1) The reason for the shut down or break down;
 - (2) Steps taken to restore the system;
 - (3) Expected length of the down time; and
 - (4) The expected length of the incinerator operation during the down time of the monitoring system.
- i. Break downs or shut downs of less than 72 hours shall be recorded in the operations log along with an explanation of the event.
- j. Copies of all manufacturer's instructions shall be kept on file and be available during inspections.

5. Monitoring Frequency

- a. The frequency of monitoring for beryllium shall be as required in 40 CFR Part 61, Subpart C.
- b. The frequency of monitoring for mercury shall be as required in 40 CFR Part 61, Subpart E.
- c. The pollutants in paragraph 2c shall be monitored at the following frequency – **once per 60 days (6 times per year)**.
- d. After the sewage sludge has been monitored for the pollutants in paragraph 2c for two years at the frequency specified above, the permittee may request a reduction in the monitoring frequency.
- e. The operating parameters for the air pollution control devices shall be monitored at the following frequency - **1/day**.
- f. The CO concentration in the exit gas, the oxygen concentration in the exit gas, information from the instrument used to determine moisture content, and combustion temperatures shall be monitored at the following frequency - **continuously**.

6. Sampling and Analysis

- a. The sewage sludge shall be sampled at a location which is prior to entering the incinerator and provides a representative sample of the sewage sludge being incinerated.
- b. 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. Sewage sludge samples for mercury shall be sampled and analyzed using Method 105 in 40 CFR part 61, Appendix B, "Determination of Mercury in Wastewater Treatment Plant Sewage Sludge".

7. Record Keeping Requirements

- a. The concentrations of the pollutants in paragraph 2c. Report the maximum value of each pollutant.
- b. The CO concentration in the exit gas from the incinerator stack. Report the average monthly concentration.
- c. Information that demonstrates compliance with the National Emission Standard for beryllium.
- d. Information that demonstrates compliance with the National Emission Standard for mercury. If sludge sampling is used, include calculation for compliance demonstration.
- e. The operating combustion temperature for the sewage sludge incinerator.
- f. Values for the air pollution control devices operating parameters. Report the average monthly operating values.
- g. The oxygen concentration and the information used to measure moisture content in the exit gas from the sewage sludge incinerator. Report the oxygen concentration and percent moisture results which were used to determine the CO values reported in paragraph 7b.
- h. The sewage sludge feed rate to the incinerator. Record the average daily and average monthly feed rate.
- i. The stack height of the incinerator.
- j. The dispersion factor for the site where the incinerator is located.
- k. The control efficiency for arsenic, lead, chromium, cadmium and nickel.
- l. A calibration and maintenance log for the instruments used to measure the CO concentration and the oxygen concentration in the exit gas; the information need to determine moisture content in the exit gas, and the combustion temperatures.

8. Reporting

The permittee shall report the information in paragraphs 7 (a-g) **annually on February 19**.

I. 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 (with the exception of whole effluent toxicity test reports which should not be sent to the MassDEP Central Regional Office) at the following addresses:

Water Enforcement
OES4-SM
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

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

Industrial Pretreatment Program Reports should be sent to:

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

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
627 Main Street
Worcester, MA 01608

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

J. 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.

ATTACHMENT A

NPDES MA0100986
 Combined Sewer Overflow Outfalls
 City of Fitchburg

CSO Outfall #	Regulator Location	Receiving Water	Internal Regulator #	Base Flow to	CSO to
038	Daniels St. @ Fairmont St.	Nashua River @ Daniels St.			
	Pratt Rd. @ Madison St.		006	011	038
011	Clarendon St. @ Plymouth St.	Shares Outfall with 038			
	Clarendon St. @ St. Andrews St.		065	011	038
	377 Beech St.	Sand Brook @ Pratt Rd.	074	038	038
036	Laurel St. @ Putnum St.	Nashua River near Laurel St. Bridge			
	Pearl St. @ Milk St.		009	036	036
051	Water St. @ Centrino Memorial Bridge	Birch Brook			
076	Birch St. @ Heywood St.	Birch Brook @ Heywood St.			
	38 Birch Street		077	076	076
	Salem St. @ Birch St.		078	077	077
	50 Fairbanks St.		075	077	077
080	Ellis St. @ Kingsbury St.	Open ditch @ Kingsbury St. & Colburn St.			
017	Water Street @ Burnett St.	Birch Brook			
	55 Albee St. @ Burnett St.		018	017	017
	Hassett St. @ Burnett St.		081	017	017
016	509 Water St.	Nashua River near Birch Brook			
	Water St. near 016		016c	016b	017
	Water St. near 016		016a	016	016c
	Water St. near 016		016b	016	016
	Newton St. @ Water St.		15	016b	016a
064	Chamber behind 672 Water St.	Nashua River			
071	Leyte Rd. @ Normandy St.	Culverted brook ditch @ Water St. & Devlin Pass.			
079	Romano St. @ Belmont St.	Ditch @ Water St. & Canton St.			
041	Benson Rd. near Falulah St.	Abandoned Falulah Canel			
072	Pearl St. @ Townsend St.	Baker Brook @ Pearl St.			
	East St. @ Pearl St.		025	024	072
024	Boutelle St. @ Lunenburg St.	Baker Brook @ Lunenburg St.			
033	Summer St. grit chamber	Nashua River @ East Fitchburg Siphon		MTL	
023	Bemis Rd. Siphon	Shares Outfall with 033		033	
	Harrison Ave. off Boutelle St.		070	023	023
032	843 Main St. @ Post Office	Nashua River @ Circle St.			
030	Simmonds St. @ High St.	Nashua River near Rollstone St.			
045a	Main St. @ Putnum St. (a)	Punch Brook Culvert @ Boulder Dr. via Putnum St.			
045b	Main St. @ Putnum St. (b)	Punch Brook Culvert @ Boulder St. via Main St.			
053	41 Fox St.	Punch Brook Culvert @ Fox St.			
082	Oliver St. @ Police Staion	Punch Brook Culvert @ Oliver St.			
083	Main St. @ Prichard St.	Punch Brook Culvert @ Main St.			
004	Oakhill Rd. @ Cleghorn St.	Nashua River			
060	Kimball St. @ Cleghorn St.	Nashua River			
010	Main St. @ River St.	Nashua River			
031	Broad St. @ Rollstone St.	Nashua River			
007	Cushing St. Subway	Nashua River			
061	Cushing St. @ Boulder Dr.	Nashua River			
	Blossom St. @ Main St.		063	048	061
	Blossom St. @ Crescent St.		099	063	063
	Blossom St. @ Pearl St.		034	042	099
	Blossom St. 300' N of Ross St.		095	097	097
	Blossom St. 600' N of Ross St.		096	095	095
	Blossom St. @ Ross St.		097	098	098
	Blossom St. @ Ryefield Rd.		098	034	034
48	85 Water St. @ Crocker St.	Nashua River			
39	Water St. @ Walnut St.	Nashua River			
44	Nashua River near First & Railroad Sts.	Nashua River			
19	Nashua River				

ATTACHMENT B

FRESHWATER CHRONIC TOXICITY TEST PROCEDURE AND PROTOCOL USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic (and modified acute) toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

Chronic and modified acute toxicity data shall be reported as outlined in Section VIII. The chronic fathead minnow and daphnid test data can be used to calculate an LC50 at the end of 48 hours of exposure when both acute (LC50) and chronic (C-NOEC) test endpoints are specified in the permit.

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition, October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at <http://www.epa.gov/waterscience/WET/>. Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6° C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2, Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and

toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use and written authorization from the permit issuing agency(s) is required prior to switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
One Congress St., Suite 1100
Boston, MA 02114-2023

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
One Congress Street, Suite 1100
Boston, MA 02114-2023

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at <http://www.epa.gov/region1/enforcementandassistance/dmr.html> for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥ 3 standard deviations for IC25s and LC50 values and \geq two concentration intervals for NOECs or NOAECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness ^{1,4}	x	x	0.5
Total Residual Chlorine (TRC) ^{2, 3, 4}	x		0.02
Alkalinity ⁴	x	x	2.0
pH ⁴	x	x	--
Specific Conductance ⁴	x	x	--
Total Solids ⁶	x		--
Total Dissolved Solids ⁶	x		--
Ammonia ⁴	x	x	0.1
Total Organic Carbon ⁶	x	x	0.5
Total Metals ⁵			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:
 - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
 - Method 2340B (hardness by calculation)
 - Method 2340C (titration)
2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
 - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
 - Method 4500-CL E Low Level Amperometric Titration
 - Method 4500-CL G DPD Colorimetric Method
 - USEPA 1983. Manual of Methods Analysis of Water and Wastes
 - Method 330.5
3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013.

Guidance for this review can be found at

<http://www.epa.gov/waterscience/WET/guide/index.html> . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value, for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.
- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: [Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program](#) can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater than the PMSD lower bound, then the treatment is considered statistically significant.
- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
 - Facility name
 - NPDES permit number
 - Outfall number
 - Sample type
 - Sampling method
 - Effluent TRC concentration
 - Dilution water used
 - Receiving water name and sampling location
 - Test type and species
 - Test start date
 - Effluent concentrations tested (%) and permit limit concentration
 - Applicable reference toxicity test date and whether acceptable or not
 - Age, age range and source of test organisms used for testing
 - Results of TAC review for all applicable controls
 - Test sensitivity evaluation results (test PMSD for growth and reproduction)
 - Permit limit and toxicity test results
 - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

Attachment C.

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

- * In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.
- * In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.
- * In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

- * In Column (1), list the safety factor, if any, that was used

when your existing TBLLs were calculated.

- * In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

- * List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

- * Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

- * Since your existing TBLLs were calculated, identify the following in detail:

- (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.
- (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

- * Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

- * Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable

environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see p. 3-28 in EPA's Guidance Manual on the Development and Implementation of Local Limits Under the Pretreatment Program, 12/87.

Item VI.

- * Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period.

All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

- * List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLs were calculated, please note what hardness value was used at that time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

- * In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

- * Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planning on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

**REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS
(TBLLs)**

POTW Name & Address : _____

NPDES PERMIT # : _____

Date EPA approved current TBLLs : _____

Date EPA approved current Sewer Use Ordinance : _____

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.

	Column (1) EXISTING TBLLS	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?

If yes, explain.

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain.

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.

Pollutant	Column (1) Influent Data Analyses		Column (2) MAHL Values (lb/day)	Criteria
	Maximum (lb/day)	Average (lb/day)		
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1)		Columns (2A) (2B)	
	Effluent Data Analyses		Water Quality Criteria (Gold Book)	
	Maximum (ug/l)	Average (ug/l)	From TBLs (ug/l)	Today (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Pollutant	Column (1)	Columns	
	Biosolids Data Analyses	(2A)	(2B)
	Average (mg/kg)	From TBLLs (mg/kg)	New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

ATTACHMENT D

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 C.F.R. 403.8(f)(2)(i), indicating compliance or noncompliance with the following:
 - baseline monitoring reporting requirements for newly promulgated industries
 - compliance status reporting requirements for newly promulgated industries
 - periodic (semi-annual) monitoring reporting requirements,
 - categorical standards, and
 - local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:
 - significant industrial users inspected by POTW (include inspection dates for each industrial user),
 - significant industrial users sampled by POTW (include sampling dates for each industrial user),
 - compliance schedules issued (include list of subject users),
 - written notices of violations issued (include list of subject users),
 - administrative orders issued (include list of subject users),
 - criminal or civil suits filed (include list of subject users) and,
 - penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 C.F.R. 403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for the Wastewater Treatment System and effluent sampling results versus water quality standards. Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling program described in this Permit.

At a minimum, annual sampling and analysis of the influent and effluent of the Wastewater Treatment Plant shall be conducted for the following pollutants:

- | | |
|--------------------|-------------------|
| a.) Total Cadmium | f.) Total Nickel |
| b.) Total Chromium | g.) Total Silver |
| c.) Total Copper | h.) Total Zinc |
| d.) Total Lead | i.) Total Cyanide |
| e.) Total Mercury | j.) Total Arsenic |

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;
7. A thorough description of all investigations into interference and pass-through during the past year;
8. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;
9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the Town is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.