

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES.

NPDES PERMIT NO.: **MA0100382**

NAME AND ADDRESS OF APPLICANT:

**City of Fall River Sewer Commission
One Government Center
Fall River, MA 02722**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Fall River Wastewater Treatment Plant
1979 Bay Street
Fall River, MA 02724
and 19 combined sewer overflow (CSO) locations**

RECEIVING WATERS: **Mount Hope Bay** (outfall 001 and 7 CSOs), **Taunton River** (4 CSOs), and **Quequechan River** (8 CSOs)

CLASSIFICATION: **SB** (Mount Hope Bay and Taunton River) **and B** (Quequechan River)

I. PROPOSED ACTION, TYPE OF FACILITY, AND DISCHARGE LOCATION

The above named applicant has applied to the U.S. Environmental Protection Agency for re-issuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving waters. The current permit expired on March 8, 1999 and is still in effect. This permit, after it becomes effective, will expire five years from the effective date.

The Fall River Wastewater Treatment Plant is a 30.9 MGD (million gallon per day) secondary treatment plant. The outfall pipe of the treatment plant discharges to the Mount Hope Bay. There are 19 combined sewer overflow locations (CSOs) in the City of Fall River, and these CSOs discharge to the Mount Hope Bay, the Taunton River, and the Quequechan River.

The facility's wastewater discharge outfall is listed below:

<u>Outfall:</u>	<u>Description of Discharge:</u>	<u>Outfall Location/Receiving Water:</u>
001	Secondary Wastewater Treatment Plant Effluent	Mount Hope Bay

The facility's combined sewer overflow (CSO) discharge outfalls are listed in **Attachment B** of the permit.

II. DESCRIPTION OF THE DISCHARGE

A quantitative description of the wastewater treatment plant discharge in terms of significant effluent parameters based on recent monitoring data is shown on **Attachment A** of this fact sheet.

III. LIMITATIONS AND CONDITIONS

The effluent limitations of the draft permit and monitoring requirements may be found in the draft NPDES permit.

IV. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. PROCESS DESCRIPTION

The Fall River wastewater treatment facility is engaged in the collection and treatment of municipal and industrial wastewater and storm water. The wastewater treatment consists of primary clarification, pure oxygen feed activated sludge treatment, secondary clarification, and chlorine contact. Between 15% and 25% of the sludge is co-disposed at a BFI-owned municipal solid waste landfill. The remaining sludge is sent to the wastewater treatment facility's sludge incinerator. The facility's location and flow schematic are shown on figures 1 and 2 of this fact sheet.

B. OUTFALL 001 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

Under Section 301(b)(1)(B) of the Clean Water Act ("CWA"), publicly owned treatment works ("POTWs") must achieve effluent limitations based upon Secondary Treatment by July 1, 1977. The secondary treatment requirements are set forth at 40 C.F.R. Part 133.102. In addition, Section 301(b)(1)(c) of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water.

Pursuant to 40 C.F.R. § 122.44 (d), permittees must achieve water quality standards established under Section 303 of the Clean Water Act (CWA), including state narrative criteria for water quality. Additionally, under 40 C.F.R. § 122.44 (d)(1)(i), "Limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state

water quality standard." When determining whether a discharge causes, or has the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numeric criterion, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution, and where appropriate, consider the dilution of the effluent in the receiving water.

2. Water Quality Standards; Designated Use; Outfall 001

The Mount Hope Bay has been classified as Class SB by the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(a). The Massachusetts Surface Water Quality Standards describes Class SB waters as having the following uses: (1) a habitat for fish, other aquatic life, and wildlife, (2) primary and secondary contact recreation, (3) suitable for shellfish harvesting with depuration in approved areas (restricted shellfish areas), and (4) shall have consistently good aesthetic value.

OUTFALL 001 - CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD) - The draft permit includes proposed average monthly and average weekly BOD limitations which are based on the requirements set forth at 40 C.F.R. § 133.102(a)(1), (2), (3), and 40 CFR § 122.45(f). The draft permit includes average weekly mass limitations, based on current state water quality certification requirements.

Total Suspended Solids (nonfilterable) (TSS) - The draft permit includes proposed average monthly and average weekly TSS limitations which are based on the requirements set forth at 40 C.F.R. § 133.102(b)(1), (2), (3), and 40 CFR § 122.45(f). The draft permit includes average weekly mass limitations, based on current state water quality certification requirements.

pH - The draft permit includes proposed pH limitations which are required by state water quality standards, and are at least as stringent as pH limitations set forth at 40 C.F.R. § 133.102(c).

Fecal Coliform Bacteria - The draft permit includes proposed fecal coliform bacteria limitations which are required by state water quality standards for class SB waters.

Eighty-Five Percent (85%) Removal Requirement - Pursuant to 40 C.F.R. §133.102(a), treatment facilities which receive flows from a combined sewer (i.e., a combined sewer is designed to transport both storm water and sanitary sewage) may not be capable of meeting the percentage removal requirement under Part 133.102(a)(3) and 133.102(b)(3), or 133.105(a)(3) and 133.105(b)(3) during wet weather. In accordance with 40 C.F.R. §133.103, the draft permit proposes to eliminate the 85% removal requirement for BOD and TSS, since it has been determined that an attainable percent removal compliance level cannot be defined due to the complexity of the Fall River wastewater conveyance system.

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS

Nutrients - Extensive water quality monitoring in Mount Hope Bay has shown a system that is highly eutrophic, with dissolved oxygen concentrations in the bottom waters frequently dropping below 2 mg/l for extended periods over a large area of the bay (New England Power Company data, 1998). Satellite imagery of Mount Hope Bay suggests uniformly high

concentrations of chlorophyll-a throughout the bay. The low dissolved oxygen and high chlorophyll-a concentrations are indicative of a eutrophication problem. Dissolved oxygen levels this low are violations of state water quality standards, but more importantly represent a serious threat to the health of the benthic community. Data collected in Long Island Sound shows that persistent low dissolved oxygen concentrations results in a stressed (opportunistic species dominated) benthic community (Long Island Sound Study CCMP, 1994).

In marine systems, nitrogen is usually the limiting nutrient for primary production. Studies done on nitrogen loading to Mount Hope Bay suggest that point source loading accounts from slightly greater than half the nitrogen loading to almost 3/4 of the nitrogen load (Isaac, 1997). Fall River accounts for over half of the point source load, and between 1/4 and 1/3 of the total nitrogen load to Mount Hope Bay (Isaac, 1997).

The draft permit includes monitoring requirements for ammonia-nitrogen, total kjeldahl nitrogen, total nitrate, and total nitrite, based on water quality certification. The draft permit also includes the following requirements: Within 270 days of the effective date of this permit, the permittee shall submit a report to EPA and the MADEP that evaluates options for optimizing the removal of nitrogen from the wastewater treatment plant. The report shall include: (1) a summary of treatment plant upgrades and operational modifications, including costs, that could be implemented to enhance the removal of nitrogen. Particular emphasis shall be placed on the feasibility of biological nutrient removal retrofits, such as have been implemented successfully at many Connecticut wastewater treatment plants (see **Attachment E** of the permit). Upgrades and operational modifications which are evaluated shall be based on conditions following the implementation of the City's CSO abatement plan; (2) schedules estimating the time which would be required to implement each of the upgrades and operational modifications; and (3) a plan for decreasing and equalizing the influent total nitrogen loads to the treatment plant through changes to the pretreatment program, including a schedule for implementing such changes.

The permittee shall implement the operational control recommendations made pursuant to item (1) above and the recommendations made pursuant to item (3) above upon approval by EPA and the MADEP. This permit does not require that treatment plant upgrades evaluated pursuant to item (1) be implemented. Requirements to complete treatment plant upgrades will be incorporated into the permit through permit modification procedures or permit reissuance.

OUTFALL 001 - TOXIC POLLUTANTS

Total Residual Chlorine (TRC) - The draft permit includes proposed total residual chlorine limitations which are based on state water quality standards. Chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The water quality standards established for chlorine are 13 ug/l daily maximum and 7.5 ug/l monthly average in the receiving water. Given a dilution factor of 5.67, the total residual chlorine limitations have been set at 73.7 ug/l daily maximum and 42.5 ug/l monthly average. (See **Attachment A** of this fact sheet for sample calculations.)

Copper - Pursuant to 40 CFR § 122.44(d)(1)(iii), the draft permit includes a maximum daily limitation of 27 ug/l and an average monthly limitation of 17.5 ug/l for copper, since a review of the 1997, 1998, and 1999 effluent data indicates that the copper results exceeded the current

water quality standards.

Lead - Pursuant to 40 CFR § 122.44(d)(1)(iii), the draft permit includes an average monthly limitation of 45.9 ug/l for lead, since a review of the 1997, 1998, and 1999 effluent data indicates that the lead average monthly results may cause or contribute to an exceedance of the current water quality standards. Since the proposed lead limit is new for this facility, the draft permit allows one year from the effective date of the permit for the permittee to come into compliance with this new limit. Therefore, during the first year, the permittee will report the lead concentrations while working towards meeting the limit.

Chromium - The draft permit proposes to delete the once per month monitoring requirement for chromium, since a review of the 1997, 1998, and 1999 effluent data indicates that the chromium results have been below the water quality limit of 6.2 mg/l maximum daily, and 0.284 mg/l monthly average, and will not likely cause or contribute to an exceedance of the current water quality standards.

Zinc - The draft permit proposes to delete the twice per month monitoring and limitation requirement for zinc, since a review of the 1997, 1998, and 1999 effluent data indicates that the zinc results have been below the water quality limit of 510 ug/l maximum daily, and 459 ug/l monthly average, and will not likely cause or contribute to an exceedance of the current water quality standards.

OUTFALL 001 - TOXICS CONTROL

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) of the CWA be used as guidance for interpretation of the following narrative criteria:

All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

National studies conducted by the EPA have demonstrated that domestic sources, as well as industrial sources, contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. Based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, the level of dilution at the discharge location, and in accordance with EPA national and regional policy and 40 C.F.R. § 122.44(d), the draft permit includes a whole effluent acute toxicity (LC50) limitation and a chronic no observed effluent concentration (C-NOEC) limitation. (See also "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 49 Fed. Reg. 9016 March 9, 1984, and EPA's "Technical Support Document for Water Quality-Based Toxics Control", September, 1991.)

The Massachusetts Department of Environmental Protection's Division of Watershed Management has a current toxics policy which requires toxicity testing for all major dischargers such as Fall River. In addition, EPA feels that toxicity testing is required to assure that the synergistic effect of the pollutants in the discharge does not cause toxicity, even though the

pollutants may be at low concentrations in the effluent. Thus, the draft permit includes a whole effluent toxicity limitation requirement for the 001 outfall, to assure that Fall River does not discharge combinations of toxic compounds into the Mount Hope Bay in amounts which would affect aquatic or human life.

The proposed draft permit includes requirements for 7-day Chronic (and Modified Acute) toxicity tests using the Inland Silverside (Menidia beryllina), and the Sea Urchin (Arbacia punctulata). The tests must be performed in accordance with the test procedures and protocols specified in **Attachment D** of the permit, and the tests will be conducted four times a year.

OUTFALL 001 - NUMERICAL EFFLUENT LIMITATIONS FOR TOXICANTS

EPA and the MADEP may use the results of the quarterly toxicity tests and chemical analyses conducted by the permittee, required by the permit, as well as national water quality criteria, state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants.

C. SLUDGE CONDITIONS

Section 405(d) of the CWA requires that EPA develop technical regulations regarding the use and disposal of sewage sludge. These regulations are found at 40 CFR Part 503 and apply to any facility engaged in the treatment of domestic sewage. The CWA further requires that these conditions be implemented through permits. The sludge conditions in the draft permit are intended to implement these regulations. The City of Fall River operates a multiple hearth incinerator. The City generates approximately 4800 dry tons annually. When the incinerator is not operating, the sewage sludge is disposed in a sanitary landfill.

Subpart E of the Part 503 regulations outlines the standards for the incineration of sewage sludge. The permit contains general requirements, management practices, pollutant limitations, an operational standard, monitoring frequency, record keeping and reporting requirements implementing the provisions of the regulations. The basis of each provision is detailed below.

Pollutant Limitations

The sludge standards regulate seven metals. The pollutant limits in the permit are based on the requirements in §503.43.

Mercury and beryllium are regulated by the national Emission Standard for hazardous Air Pollutants (NESHAPs) found in 40 CFR Part 61. The permit requires that the firing of sewage sludge in the facility's incinerators does not cause the violation of the NESHAPs for mercury and beryllium. The NESHAP for beryllium applies to each incinerator. The NESHAP for mercury applies to the facility.

The allowable sludge concentrations for arsenic, cadmium, chromium, and nickel are calculated from Equation (5) in 40 CFR §503.43(d):

$$C = \frac{RSC \times 86,400}{DF \times (1 - CE) \times SF} \quad \text{Eq. (5)}$$

Where:

C = Daily concentration of pollutant in sewage sludge in mg/kg of total solids (dry weight basis)

CE = control efficiency for the incinerator - based on performance tests

DF = dispersion factor in micrograms per cubic meter per gram per second

RSC = risk specific concentration in micrograms per cubic meter

SF = sewage sludge feed rate in metric tons per day (dry weight basis)

The parameters, with the exception of RSC, are site specific to the Fall River incinerator. The RSC is derived for each pollutant based on a risk assessment.

The RSC is the allowable increase in the average daily ground level ambient air concentration for a pollutant above background levels that result from the firing of sewage sludge in an incinerator. It is equivalent to the amount of a pollutant that a person living near the incinerator can inhale with a probability of 1 in 10,000 that the person will contact cancer as a result of inhaling the pollutant. The RSC was calculated from the equation below:

$$RSC = \frac{RL \times BW}{Q^* \times I_a} \times 10^3$$

Where:

RL = Risk Level, 10^{-4}

BW = body weight, 70 kg (154 lbs), which is the average weight of an adult male

Q^* = allowable dose of a pollutant from EPA's Integrated Risk Information System database

I = inhalation rate, 20 m/day, normal inhalation rate for an adult male.

The RSC calculated from this equation is intended to protect the "Highly Exposed Individual" (HEI). The HEI is a person who remains for an extended period of time, 70 years, at the point of maximum ground level pollutant concentration. The RSC values for the regulated metals are found in Tables 1 and 2 of 40 CFR § 503.43.

The pollutant limit for lead is calculated using equation (4) of 40 CFR §503.43:

$$C = \frac{0.1 \times NAAQS \times 86,400}{DF \times (1 - CE) \times SF} \quad \text{Eq. (4)}$$

Instead of using an RSC, a percentage of the National Ambient Air Quality Standard (NAAQS) for lead was used. The NAAQS for lead is found in 40 CFR part 50.12. It is 1.5 µg/m. Although lead is classified as a probable human carcinogen, the Clean Air Science Advisor Committee of the Science Advisory Board recommended that the NAAQS for lead be based on the noncarcinogenic effects. Developmental neurotoxicity is considered to be the most sensitive

end point for lead exposure. The calculated concentration from equation (4) also protects the HEI described above.

Calculations of the pollutant limitations and a brief discussion of the other parameters used in Equations (4) & (5) can be found in Attachment C.

Operational Standard

The part 503 regulations have an operational standard for total hydrocarbons. Hydrocarbons are simple organic compounds containing carbon and hydrogen. The standard is designed to regulate organic emissions from sewage sludge incinerators. Total hydrocarbons represent a subset of organic compounds and is used in the regulation since it is impractical to attempt to monitor sludges or stack emissions for all organic compounds which may be present.

The THC value must be corrected to seven percent oxygen and zero percent moisture. The correction to seven percent oxygen is used because seven percent is the standard amount of oxygen used to reference measurements of pollutant limits expressed as concentration; it is also equivalent to 50 percent excess air (excess air is air added to a system above the amount of air needed for complete combustion to occur); and without the correction, inaccurate readings may occur because the presence of the additional oxygen may dilute the THC reading. Similarly, the correction for moisture is needed since the presence of moisture can also dilute the actual THC reading. THC is conventionally expressed in terms of a dry volumetric basis, hence the need to set the standard based on zero moisture.

On February 25, 1994, 40 CFR §503.40 was amended. The amendment allows facilities to monitor carbon monoxide (CO) instead of THC. This is allowed if the facility can meet a monthly average concentration CO limit of 100 parts per million on a volumetric basis. This limit is also corrected to seven percent oxygen and zero percent moisture. The City of Fall River can monitor either THC or CO.

Management Practices

The permit contains management practices based on 40 CFR §503.45. They pertain to the operation of the incinerator. The management practices include maintaining the instruments which monitor CO, oxygen and temperature; proper operation of all air pollution control devices; and notification to EPA when the continuous monitoring equipment is not operational for a period of 72 hours or more.

The permit requires notification to EPA and the MADEP if any monitoring equipment is broken or shut down for longer than 72 hours. It also prohibits adversely affecting a threatened or endangered species or their critical habitat. There are no known threatened or endangered species within the vicinity of the incinerator. Therefore, EPA has determined that the activity will not affect a threatened or endangered species.

The monitoring frequency is based on 40 CFR §503.46. The City is required to monitor heavy metals once a month. The monitoring for mercury and beryllium is at the frequency required by 40 CFR part 61. The record keeping requirements are based on 40 CFR §503.47.

D. DEVELOPMENT OF LIMITATIONS FOR INDUSTRIAL USERS

The permittee is required to identify, in terms of character and volume of pollutants, any significant indirect dischargers into the POTW subject to pretreatment standards under section 307(b) of the Clean Water Act and 40 CFR part 403.

E. INDUSTRIAL PRETREATMENT PROGRAM

The permittee is required to administer a pretreatment program based on the authority granted under 40 CFR §122.44(j), 40 CFR Part 403 and section 307 of the Act. The Permittee's pretreatment program received EPA approval on September 28, 1983 and, as a result, appropriate pretreatment program requirements were incorporated into the previous permit which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

The Federal Pretreatment Regulations in 40 CFR Part 403 were amended in October 1988, and again in July 1990. Those amendments established new requirements for implementation of pretreatment programs. Upon reissuance of this NPDES permit, the permittee is obligated to modify its pretreatment program to be consistent with current Federal Regulations. Those activities that the permittee must address include, but are not limited to, the following: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; (3) develop an enforcement response plan; (4) implement a slug control evaluation program; (5) track significant noncompliance for industrial users; and (6) establish a definition of and track significant industrial users.

These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices.

In addition to the requirements described above, the draft permit requires the permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes to permittee's pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the draft permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect. Lastly, the permittee must continue to submit, annually on October 31, a pretreatment report detailing the activities of the program for the twelve month period ending 60 days prior to the due date.

F. COMBINED SEWER OVERFLOWS (CSO)

1. **Background**

Combined Sewer Overflows (CSOs) are overflows from a combined sewer system that are discharged into a receiving water without going to the headworks of a publicly owned treatment works (POTWs). CSOs occur when the flow in the combined sewer system exceeds interceptor or regulator capacity. CSOs are distinguished from bypasses which are "intentional diversions of waste streams from any portion of a treatment facility" (40 CFR §122.41(m)).

Flows in combined sewers can be classified into two categories: wet weather flow and dry weather flow. Wet weather flow is a combination of domestic and industrial sewage, infiltration from groundwater, and storm water flow including snow melt. Dry weather flow is the flow in a combined sewer that results from domestic sewage, groundwater infiltration and industrial wastes with no contribution from storm water runoff or storm water induced infiltration.

Dry weather overflows from CSOs are illegal. They must be reported immediately to EPA and the MADEP and eliminated as expeditiously as possible.

The objectives of the National CSO Control Policy are:

- 1) To ensure that if the CSO discharges occur, they are only as a result of wet weather;
- 2) To bring all wet weather CSO discharge points into compliance with the technology based requirements of the CWA and applicable federal and state water quality standards; and,
- 3) To minimize water quality, aquatic biota, and human health impacts from wet weather flows.

2. Effluent Standards

CSOs are point sources subject to NPDES permit requirements for both water quality based and technology based requirements but are not subject to secondary treatment regulations applicable to publicly owned treatment works.

Section 301(b)(1)(C) of the Clean Water Act (CWA) of 1977 mandates compliance with water quality standards by July 1, 1977. Technology based permit limits must be established for best conventional pollutant control technology (BCT) and best available technology economically achievable (BAT) based on best professional judgment (BPJ) in accordance with Section 301(b) and Section 402(a) of the Water Quality Act Amendments of 1987 (WQA).

3. Conditions for Discharge

The draft permit prohibits dry weather discharges from CSO outfalls. During wet weather, the discharges must not cause any exceedance of water quality standards. Dry weather discharges must be reported immediately to EPA and the MADEP. Wet weather discharges must be monitored and reported as specified in the permit.

4. Nine Minimum Controls (NMC)

The permittee must comply with BPJ derived BCT/BAT controls, which at a minimum include the following: (1) proper operation and maintenance of the sewer system and outfalls; (2) maximum use of the collection systems for storage; (3) review pretreatment programs to assure CSO impacts are minimized; (4) maximization of flow to the POTW for treatment; (5) prohibition of dry weather overflows; (6) control of solid and floatable materials in the discharge; (7) pollution prevention programs which focus on contaminant reduction activities;

(8) public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and (9) monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

5. Nine Minimum Controls Documentation

In December, 1996, the permittee submitted documentation on the Nine Minimum Controls. The plan was updated within the July 1999 draft report titled "Evaluation of CSO Abatement Program". The draft permit requires the permittee to implement the nine minimum controls that are listed and described within Fall River's permit.

6. Reopener/Additional CSO Control Measures

The permit is conditioned to require an annual certification, no later than January 15th of each year, that states that all discharges from combined sewer outfalls were recorded, and other appropriate records and reports maintained for the previous calendar year.

The permit may be modified or reissued upon the completion of a long-term CSO control plan. Such modification may include performance standards for the selected controls, a post construction water quality assessment program, monitoring for compliance with water quality standards, and a reopener clause to be used in the event that the selected CSO controls fail to meet water quality standards. Section 301(b)(1)(C) requires that a permit include limits that may be necessary to protect water quality standards.

7. Required Treatment

EPA's national CSO policy ("CSO policy"), which was published in the Federal Register on April 19, 1994 (59 FR 18688), requires that permittees develop and submit a long-term CSO control plan which complies with the requirements of the CSO policy. The City first submitted a CSO facilities plan in 1992. The plan has been updated several times. The most recent update was submitted in July 1999, and is titled "Evaluation of CSO Abatement Program". Schedules for implementing the required CSO abatement facilities are contained in a federal court order.

G. UNAUTHORIZED DISCHARGES; BYPASSES

The draft permit prohibits bypasses unless all of the following conditions occur: (1) bypass was unavoidable to prevent loss of life, severe injury, or severe property damage; (2) there were no feasible alternatives to the bypass (e.g., adequate backup equipment, auxiliary treatment facilities, maintenance, etc.); and (3) the permittee submitted notice of the need for an anticipated bypass at least 10 days prior to the bypass within 24 hours from the time the permittee became aware of the discharges to be followed by a written submission within 5 days of discovery.

The draft permit makes it clear that even wet weather bypasses can be unlawful: discharges from any point source, regardless of ownership, which result from past, present, or future failure to properly design, operate, or maintain the permittee's POTW, or appurtenant facilities, or to adequately control or limit incoming flows to the permittee's POTW will be considered unauthorized discharges by the Fall River WWTP. Thus bypasses will be considered unlawful

if, for example, they could be avoided through upgrading and expansion of treatment facilities.

Pursuant to 40 C.F.R. § 122.41(e), the draft permit also requires the permittee in cooperation with its member communities to operate and improve its POTW and total sewer system to minimize the discharge of pollutants from bypasses or CSOs. The draft permit requires that the Fall River WWTP minimize infiltration/in-flow.

H. OPERATION AND MAINTENANCE OF THE FALL RIVER SEWER SYSTEM

Operation and maintenance requirements are listed within Part II of the permit, and the permittee is required to comply.

I. MONITORING AND REPORTING

The permittee is obligated to monitor and report sampling results to EPA and the MADEP within the time specified within the permit. Timely reporting is essential for the regulatory agencies to expeditiously assess compliance with permit conditions.

J. STATE PERMIT CONDITIONS

The NPDES Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the Director of the Division of Watershed Management pursuant to M.G.L. Chap. 21, §43.

K. GENERAL CONDITIONS

The general conditions of the permit are based on 40 C.F.R. Parts 122, Subparts A and D and 40 C.F.R. § 124, Subparts A, D, E, and F and are consistent with management requirements common to other permits.

L. STATE CERTIFICATION REQUIREMENTS

The staff of the Massachusetts Department of Environmental Protection ("MADEP") has reviewed the draft permit. EPA has requested permit certification by the State pursuant to 40 C.F.R. § 124.53 and expects that the draft permit will be certified.

M. PUBLIC COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection, MA Unit, One Congress Street, Suite-1100, Boston, Massachusetts 02114. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. Public hearings may be held after at least thirty days public notice whenever the Regional Administrator finds that

response to this notice indicates a significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period and after a public hearing, if such a hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the service of notice of the Director's final permit decision, any interested person may submit an adjudicatory hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of \$100 which must be mailed to the following address:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The hearing request to the Commonwealth will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver.

The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory hearing filing fee for a permittee who shows that paying the fee will create an undue financial hardship. A permittee seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

N. EPA CONTACT

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Janet Labonte - Deshais
Chemical/Environmental Engineer
U.S. Environmental Protection Agency
Office of Ecosystem Protection
One Congress Street - Suite-1100
Boston, MA 02114
Telephone: (617) 918-1667

9/8/00 (date of PN)

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

Attachments: A - Effluent Monitoring Summary Data
B - Sample Calculations - Effluent
C - Sample Calculations - Sludge

ATTACHMENT A
 EFFLUENT MONITORING DATA
 NPDES PERMIT No. MA0100382
 FALL RIVER, MA

DESCRIPTION OF DISCHARGE: Secondary Treated Wastewater

DISCHARGE: Outfall 001 (The receiving water is Mount Hope Bay)
 The monthly average and daily maximum values listed below, were reported from January 1997 to May 1999.

EFFLUENT CHARACTERISTICS AT THE POINT OF DISCHARGE:

<u>Parameter</u>	<u>Monthly Average</u> (range)	<u>Daily Maximum</u> (range)
Flow - MGD	15.1 - 29.3	-----
BOD - mg/l	10 - 23	-----
TSS - mg/l	12 - 25	-----
Chlorine Residual - ug/l	14 - 844	30 - 1800
Total Fecal Coliform - # of organisms/100 ml	7 - 127	12 - 435
Copper - ug/l	16 - 40	-----
Lead - ug/l	4 - 54	4 - 54
Zinc - ug/l	20 - 310	20 - 330
Chromium - ug/l	3 - 30	3 - 30

ATTACHMENT B
EFFLUENT SAMPLE CALCULATIONS
NPDES PERMIT No. MA0100382
FALL RIVER, MA

Average Plant Design Flow = 30.9 MGD

Peak Secondary Capacity = 50 MGD

Year 2001 Peak Wet Weather Flow Capacity = 75 MGD (predicted hydraulic capacity, primary + secondary)

Year 2005 Peak Wet Weather Flow Capacity = 106 MGD (predicted hydraulic capacity, primary + secondary)

Receiving Water (Outfall 001) = Mount Hope Bay

Dilution Factor is based on the average plant design flow of 30.9 MGD

Dilution Factor at Discharge Outfall 001 = 5.67 (High Risk Toxicity - Chronic Toxicity Testing is required.)

This dilution estimate includes the additional dilution that occurs as the surfacing effluent plume impinges on and spreads out along the water surface.¹

Total Residual Chlorine Limitations:

Acute (Maximum Daily) = (acute criteria x dilution factor) = (13 ug/l x 5.67) = 73.7 ug/l = 0.074 mg/l

Chronic (Monthly Average) = (chronic criteria x dilution) = (7.5 ug/l x 5.67) = 42.5 ug/l = 0.043 mg/l

Copper Limitations:

Acute (Maximum Daily) = (acute criteria x dilution factor) = (4.8 ug/l x 5.67) = 27.16 ug/l = 0.027 mg/l

Chronic (Monthly Average) = (chronic criteria x dilution) = (3.1 ug/l x 5.67) = 17.57 ug/l = 0.0176 mg/l

Lead Limitations:

Acute (Maximum Daily) = (acute criteria x dilution factor) = (210 ug/l x 5.67) = 1191 ug/l = 1.191 mg/l

Chronic (Monthly Average) = (chronic criteria x dilution) = (8.1 ug/l x 5.67) = 45.9 ug/l = 0.0459 mg/l

Zinc Limitations: (The zinc monitoring requirement has been removed from the Fall River permit.)

Acute (Maximum Daily) = (acute criteria x dilution factor) = (90 ug/l x 5.67) = 510.3 ug/l = 0.51 mg/l

Chronic (Monthly Average) = (chronic criteria x dilution) = (81 ug/l x 5.67) = 459.3 ug/l = 0.46 mg/l

Chromium Limitations: (The chromium monitoring requirement has been removed from the Fall River permit.)

Acute (Maximum Daily) = (acute criteria x dilution factor) = (1100 ug/l x 5.67) = 6237 ug/l = 6.24 mg/l

Chronic (Monthly Average) = (chronic criteria x dilution) = (50 ug/l x 5.67) = 283.5 ug/l = 0.284 mg/l

Footnotes:

1. Wright, Steven J., Philip J.W. Roberts, Yan Zhongmin, and N. Elizabeth Bradley, "Surface Dilution of Round Submerged Buoyant Jets", Journal of Hydraulic Research, Vol. 29, 1991, No.1.

ATTACHMENT C
 SAMPLE CALCULATIONS FOR POLLUTANT
 CONCENTRATION LIMITS IN SLUDGE
 NPDES PERMIT No. MA0100382
 FALL RIVER, MA

Background:

<u>Pollutant</u>	<u>RSC</u>	<u>CE</u> ¹
Arsenic	0.023	99.3 %
Cadmium	0.057	94.5 %
Chromium	0.064	99.5 %
Nickel	2.0	99.3 %
Lead	0.15 ²	99.2 %

DF Dispersion factor = 3.9 (µg/m³)/(g/sec); The dispersion factor was developed from a dispersion model . A dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

SF Sewage sludge feed rate; a feed rate of 25.96 metric tons/day was used in the calculation. This is the design feed rate for the incinerator.

$C = \frac{RSC \times 86,400}{DF \times (1-CE) \times SF}$ This equation is used to determine the pollutant concentration limit (C) for arsenic, cadmium, chromium, nickel, and lead.

Sample Calculations for Arsenic: (All of the other limitations were calculated similarly.)

$$C = \frac{0.23 \times 86,400}{(3.9)(1-.993)(25.96)}$$

$$C = \frac{1987.2}{0.7087}$$

$$C = 2,804 \text{ mg/kg}$$

Footnotes:

1. The control efficiency for each metal was determined from performance testing of the incinerator during normal operating conditions.
2. This number is 10% of the National Ambient Air Quality Standard for lead - 1.5.