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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 Newburyport

is authorized to discharge from the facility located at

Newburyport Wastewater Treatment Plant
157 Water Street
Newburyport, MA 01950

to receiving water named

Merrimack River (Merrimack River Watershed - 84)

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

This permit shall become effective on (See ** below)

This permit and the authorization to discharge expire at midnight, three (3) years from the effective date.

This permit supersedes the permit issued on September 17, 1998.

This permit consists of 9 pages in Part I including effluent limitations, monitoring requirements, Attachment A and 35 pages in Part II including General Conditions and Definitions.

Signed this day of

Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

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

** This permit will become effective on the date of signature if no comments are received during public notice. If comments are received during public notice, this permit will become effective 60 days after signature.

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PART I

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number 001, treated effluent to Merrimack River. Such discharges shall be limited and monitored as specified below.

<u>EFFLUENT CHARACTERISTIC</u>		<u>EFFLUENT LIMITS</u>					<u>MONITORING REQUIREMENTS</u>		
<u>PARAMETER</u>	<u>AVERAGE MONTHLY</u>	<u>AVERAGE WEEKLY</u>	<u>AVERAGE MONTHLY</u>	<u>AVERAGE WEEKLY</u>	<u>MAXIMUM DAILY</u>	<u>MEASUREMENT FREQUENCY</u>	<u>SAMPLE TYPE</u>		
FLOW ^{1,2}	***	***	3.4 MGD	***	Report MGD	CONTINUOUS	RECORDER		
BOD ₅ ⁴	851 lbs/Day 387 kgs/Day	1276 lbs/Day 580 kgs/Day	30 mg/l	45 mg/l	Report	3/WEEK	24-HOUR COMPOSITE ⁵		
TSS ⁴	851 lbs/Day 387 kgs/Day	1276 lbs/Day 580 kgs/Day	30 mg/l	45 mg/l	Report	3/WEEK	24-HOUR COMPOSITE ⁵		
pH RANGE	6.5 - 8.5 SU SEE PERMIT PAGE 4 PARAGRAPH I.A.1.b.							GRAB	
FECAL COLIFORM BACTERIA ⁷	***	***	200/100 ml	***	400/100 ml	1/DAY	GRAB		
DISSOLVED OXYGEN	>5.0	***	***	***	***	1/DAY	GRAB		
TOTAL RESIDUAL CHLORINE ⁶	***	***	0.23 mg/l	***	0.39 mg/l	CONTINUOUS	RECORDER		
AMMONIA NITROGEN	***	***	***	***	REPORT	1/MONTH	24-HOUR COMPOSITE ⁵		
WHOLE EFFLUENT TOXICITY ⁷	Acute LC ₅₀ ≥ 100%							24-HOUR COMPOSITE ⁵	

Footnotes:

1. For flow, report maximum and minimum daily rates and total flow for each operating date. This is an annual average limit, which shall be reported as a rolling average. The first value will be calculated using the monthly average flow for the first full month ending after the effective date of the permit and the eleven previous monthly average flows. Each subsequent month's DMR will report the annual average flow for the previous 12 months.
2. The facility must submit a report by July 1 of each year documenting the annual calibration of the influent and effluent Venturi flow meters. This requirement will be reconsidered should the facility install new flow meters.
3. Samples taken in compliance with monitoring requirements specified in this permit shall be taken at a representative point prior to mixing with the receiving water. Any change in sampling location must be reviewed and approved in writing by EPA and MADEP. All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. All samples shall be 24 hour composites unless specified as a grab sample in 40 CFR §136.
4. Sampling required for influent and effluent.
5. A 24-hour composite sample will consist of at least twenty four (24) grab samples taken during one working day.
6. Monitoring for Total Residual Chlorine (TRC) shall be continuous. TRC shall be continuously monitored both before and after dechlorination. The highest daily discharge during the calendar month shall be reported as the maximum daily discharge. (A daily discharge for a continuous measurement is the average of the measurements during a calendar day). The average of the daily discharges during the calendar month shall be reported as the average monthly discharge. The permittee shall collect and analyze a minimum of two grab samples per day for calibration purposes, one before dechlorination and one after dechlorination. The results of the grab samples and a comparison to the continuous chlorine analyzer reading, including the time of the grab sample, shall be included with the monthly DMRS. Eight (8) continuous recording charts, one chart per week with weekly data, (one set of four (4) for before dechlorination and one set of four (4) for after dechlorination) shall be included with the monthly DMRs.

Due to the proximity to shellfishing resources, the facility must work with the Massachusetts Division of Marine Fisheries to develop an immediate warning system, notifying DMF of a disinfection failure or if TRC concentrations exceed the permit limit.
7. This is a State certification requirement. Fecal coliform bacteria discharges shall not exceed a monthly geometric mean of 200 colony forming units per 100 ml, nor shall they exceed 400 cfu per 100 ml as a daily maximum. This monitoring shall be conducted concurrently with the TRC sampling.
8. The permittee shall perform modified acute toxicity tests four times per year. The tests must be performed in accordance with test procedures and protocols specified in Attachment A of this permit.

Test Dates Second Tuesday in	Submit Results By:	Test Species	Acute Limit LC ₅₀
February May August November	March 31 st June 30 th September 30 th December 31 st	Mysid Shrimp Inland Silverside	≥ 100%

After submitting four consecutive sets of WET test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the frequency of required WET testing. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the WET testing requirement has been changed.

9. 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.

Part I.A.1. (Continued)

- a. The discharge shall not cause a violation of the water quality standards of the receiving waters.
- b. The pH of the effluent shall not be less than 6.5 nor greater than 8.5 at any time and not more than 0.2 units outside the normally occurring range, unless these values are exceeded due to natural causes.
- c. The discharge shall not cause objectionable discoloration of the receiving waters.
- d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
- e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand. The percent removal shall be based on monthly average values.
- f. When the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the designed flow, the permittee shall submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.
- g. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control.
- h. The results of sampling for any parameter above its required frequency must also be reported.

2. All POTWs must provide adequate notice to the Director of the following:

- a. Any new introduction of pollutants into that POTW from an indirect discharger in a primary industry category discharging process water; and
- b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
- c. For purposes of this paragraph, adequate notice shall include information on:
 - (1) the quantity and quality of effluent introduced into the POTW; and
 - (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

3. Prohibitions Concerning Interference and Pass Through:

- a. Pollutants introduced into POTW's by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.
- b. If, within 30 days after notice of an interference or pass through violation has been sent by EPA to the POTW, and to persons or groups who have requested such notice, the POTW fails to commence appropriate enforcement action to correct the violation, EPA may take appropriate enforcement action.

4. 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.

5. Numerical Effluent Limitations for Toxicants

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

C. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from outfalls listed in Part I A.1. of this permit. Discharges of wastewater from any other point sources,

including sanitary sewer overflows (SSOs) are not authorized by this permit and shall be reported in accordance with Section D.1.e. (1) of the General Requirements of this permit (Twenty-four hour reporting).

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

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

1. Maintenance Staff

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

2. Preventative Maintenance Program

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

3. Infiltration/Inflow Control Plan:

The permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The plan shall be submitted to EPA and MA DEP within six months of the effective date of this permit (see page 1 of this permit for the effective date) and shall describe the permittee's program for preventing infiltration/inflow related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive infiltration/inflow.

The plan shall include:

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

Reporting Requirements:

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

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

3. Alternate Power Source

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

4. Outfall Inspection and Report

Within 12 months of the effective date of the permit, the permittee shall conduct an inspection of the diffuser. The inspection is necessary to achieve several objectives: confirm the diffuser was installed as designed, gather important details of the diffuser design, including the diameter of jets in the orifice plate, and evaluate the current condition of the diffuser.

The inspection report will detail the information gathered during the inspection including rectifying the installation details and conditions with the design plans. The report shall also address the current condition of the outfall and prioritize maintenance activities so the design dilution can be achieved.

E. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices and with the CWA Section 405(d) technical standards.
2. The permittee shall comply with the more stringent of either the state or federal (40 CFR part 503), requirements.
3. The requirements and technical standards of 40 CFR part 503 apply to facilities which perform one or more of the following use or disposal practices.
 - a. Land application - the use of sewage sludge to condition or fertilize the soil

- b. Surface disposal - the placement of sewage sludge in a sludge only landfill
 - c. Sewage sludge incineration in a sludge only incinerator
4. The 40 CFR part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions also do not apply to facilities which do not dispose of sewage sludge during the life of the permit but rather treat the sludge (lagoons- reed beds), or are otherwise excluded under 40 CFR 503.6.
 5. The permittee shall use and comply with the attached compliance guidance document to determine appropriate conditions. Appropriate conditions contain the following elements.
 - General requirements
 - Pollutant limitations
 - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
 - Management practices
 - Record keeping
 - Monitoring
 - Reporting

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

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

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

7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR 503.8.
8. The permittee shall submit an annual report containing the information specified in the guidance by February 19. Reports shall be submitted to the address contained in the reporting section of the permit. Sludge monitoring is not required by the permittee when the permittee is not responsible for the ultimate sludge disposal. The permittee must be assured that any third party contractor is in compliance with appropriate regulatory requirements. In such case, the permittee is required only to submit an annual report by February 19 containing the following information:
 - Name and address of contractor responsible for sludge disposal
 - Quantity of sludge in dry metric tons removed from the facility by the sludge contractor

F. MONITORING AND REPORTING

1. Reporting

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

Signed and dated originals of these, and all other reports required herein, shall be submitted to the Director and the State at the following addresses:

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

The State Agency is:

Massachusetts Department of Environmental Protection
Northeast Regional Office
205A Lowell Street
Wilmington, MA 01887

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

G. STATE PERMIT CONDITIONS

This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MA DEP pursuant to M.G.L. Chap.21, §43.

Each Agency 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.

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

FACT SHEET

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

NPDES PERMIT NO: MA0101427

PUBLIC NOTICE DATE:

NAME AND ADDRESS OF APPLICANT:

City of Newburyport
157 Water Street
Newburyport, MA 01950

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Newburyport Wastewater Treatment Plant
157 Water Street
Newburyport, MA 01950

RECEIVING WATERS: Merrimack River (MA-84A-06)

CLASSIFICATION: SB-Warm Water, CSO

I. PROPOSED ACTION

The above named applicant has applied to the U.S. Environmental Protection Agency for the re-issuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving water. The current permit was issued on September 17, 1998 and became effective 30 days from the date of signature. It expired on October 17, 2002. A timely re-application was received on February 13, 2002 and the permit was administratively continued as provided for in 40 CFR 122.6. This draft permit, after it becomes effective, will expire three years from the effective date of issuance to be synchronized with the Merrimack River Watershed permitting cycle.

II. TYPE OF FACILITY AND DISCHARGE LOCATION

The facility is a 3.4 million gallon per day wastewater treatment plant which was originally built in 1964 and upgraded to a secondary treatment facility in the 1980s. The facility discharges from a multiport diffuser approximately 1120 feet offshore on the bottom of the Merrimack River (See Figure 1). This facility serves a population of more than 17,000. The system is a separate sewer system with no combined sewers. Wastewater is composed of domestic sewage and twelve (12) industrial dischargers (5 categorical).

The facility's discharge outfall is listed below:

<u>Outfall</u>	<u>Description of Discharge</u>	<u>Outfall Location</u>
001	Treated Effluent	Merrimack River

III. DESCRIPTION OF DISCHARGE

A quantitative description of the discharge in terms of significant effluent parameters based on recent discharge monitoring reports (DMRs), March 2000 through August 2002, and the February 2002 application, is shown on Tables 1 and 2 of this fact sheet.

IV. LIMITATIONS AND CONDITIONS

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

V. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. PROCESS DESCRIPTION

The Newburyport Wastewater Treatment Plant is engaged in the collection and treatment of municipal wastewater. The system provides secondary treatment. The wastewater treatment is as follows (See Figure 2):

1. Headworks
2. Primary Clarifiers
3. Aeration Tanks
4. Secondary Clarifiers
5. Chlorine Contact Tank /Dechlorination
6. Outfall/Diffuser

At the headworks, influent passes through a mechanical bar screen and comminutor. It is then pumped to the primary clarifiers for settling and then flows to the aeration tanks and then to the secondary clarifiers. Treated wastewater from the secondary clarifiers then flows to the chlorine contact chamber. Chlorination is flow paced with a feedback loop from the continuous analyzer. The effluent is then dechlorinated with sulfur dioxide. Sludge is dewatered on site and transported to AgreSource, Inc. composting facility in Ipswich, MA.

Significant capital improvements have been undertaken over the past years and a five-year Capital Projects Plan is in place. Recent activities include continued improvements to the WWTF and the collection system. Inflow and infiltration (I/I) removal and sewer replacement activities have been prioritized by a city wide I/I study and SSES. Improvements are being made based on net flow reductions. Facility improvements include upgrading the aeration tanks and adding a final third clarifier to improve treatment. Other recent or planned improvements include:

- Completed
- Retrofit four lift stations
- Sludge Conditioning System Upgrade
- Upgrade Plant Water System
- Retrofit Belt Filter Presses
- Clean Water and Merrimack Street Interceptors
- City-wide I/I and SSES study

Replace Grit Pump and Chamber
Replace Automated Samplers

Underway

Mapping of the City's wastewater system
O&M at selected sewers/wet wells including cleaning to improve capacity
Sewer replacement, based on SSES priorities.

Future

Replace Storey Avenue Interceptor (Design complete)
Replace Traffic Circle Lift Station with Interceptor (Design complete)
Retro-fit aeration tanks (Design complete)

B. FLOW/CAPACITY ISSUES

There has been significant concern regarding the capacity of the wastewater treatment plant to treat additional wastewater flows from a proposed sewer extension to Plum Island. The proposed sewer extension would add an annual average flow of approximately 0.3 mgd and a peak flow of approximately 1.2 mgd to the treatment plant flow. Discharge monitoring reports show that over the last year, the monthly average flows to the treatment plant ranged from 1.9 mgd to 2.4 mgd, far below the permit limit of 3.4 mgd.

Since the permittee has not requested an increase in the permit's flow limit, nor requested that EPA relax any permit condition, the decision of whether to allow a sewer extension to Plum Island is not an NPDES permit issue. The sewer extension project was reviewed and approved by Massachusetts Environmental Policy Act (MEPA) program, and a certificate was issued by the Massachusetts Secretary of Environmental Affairs. The MADEP has worked with the proponent throughout the process to assure that the WWTF is technically capable of achieving the effluent limits in the NPDES permit. MADEP has issued the permits necessary for this project to proceed including a sewer extension permit.

It should be noted, however, that the City of Newburyport is responsible for assuring that any flow increase will not lead to violations of NPDES permit limits. Furthermore, the draft permit includes a condition, that when the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the designed flow (>2.72 mgd), the permittee is required to submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

Infiltration/Inflow

The City of Newburyport has made efforts to address extraneous flows such as inflow and infiltration (I/I) into the municipal wastewater system. In 1999, the entire city was smoke tested. Following smoke testing, suspected problem areas were TV'd. The city's consultant has developed a sewer and manhole rehabilitation program and estimated removal rates range from 259,475 to 518,950 gpd. Two additional sections of city have been added as part of the rehabilitation project but infiltration removal estimates were not made.

As of February 2003, nearly 70% of the planned I/I work was completed. The city has recently increased the scope of the project by 10%. It is anticipated that the entire project will be completed by Summer 2003. Actual reductions have yet to be quantified, however, the average flow measured in 2001 was 2.97 mgd and 2002 was 2.15 mgd.

The City has a 3:1 I/I reduction program, which requires any proponent that proposes to add additional flow to the system must remove 3 gallons of I/I for every 1-gallon of proposed wastewater flow. If a proponent chooses, they may opt for an alternative program in which they pay a one time fee of \$3.00/gpd of additional wastewater flow in place of performing the work necessary to comply with the I/I reduction program.

Additionally, the City has included in its operating budget, funds to perform approximately 10,000 linear feet of TV inspection per year, and sewer manhole frame and cover replacement work.

Flow Exceedance

Back in March and April 2001, the facility exceeded its permitted monthly average flow of 3.4 mgd, with flows of 4.2 mgd and 4.0 mgd, respectively. It should be noted, however, that the total precipitation for March 2001 was 7.46 inches, 3.77 inches above normal as measured by the National Weather Service at Boston. Extreme events such as March 2001 cannot be fully addressed in the design process. It is the city's belief that the connection of Plum Island flows to the Newburyport WWTF will not require an increase in the NPDES permitted flow limit and due to the significant I/I work planned, flows may be lower than present. I/I is expected to be virtually zero in the Plum Island system as it is a vacuum sewer system.

Flow Measurement

The treatment plant has both an influent and effluent flow meter. Historically, the flow reported on discharge monitoring reports has been from the effluent meter. The plant operators had noticed significant differences between the measured and recorded flow rates for the two meters. It was common for the recorded flow rates to vary by 500,000 gpd. As part of the planning process to determine if the Newburyport WWTF could adequately treat flows from the proposed Plum Island project, the flow meter issue was addressed. The flow meters were inspected by two separate consultants. Both consultants concurred that the probable source of the over-registration of flow was less than ideal installation conditions. Both the meters have insufficient lengths of straight pipe prior to and immediate following the meter.

In order to evaluate the problem, several studies were undertaken. In the Spring of 2001, a Doppler ultrasonic meter was installed at the facility. The meter was initially installed near the existing effluent meter for 12 days and then near the existing influent meter for 15 days. WWTF operators made recordings of the measured flow rate at the influent and effluent flow indicators/recorders in the WWTF Control Room as well as the flow measurements made by the Doppler ultrasonic flow meter. The data showed that the Doppler meter better correlated with the influent meter (Table 3).

The influent and effluent meters were recalibrated on May 30, 2001. The influent meter transmitter was calibrated and readings at the WWTF control room indicator/recorder were confirmed to be less than 1% error. A significant zero error was found to exist in the effluent meter transmitter. This was corrected, and readings at the WWTF control room indicator/recorder were confirmed to be accurate to less than 1% error.

To further confirm the accuracy of the influent meter, a volumetric test was conducted using an empty aeration basin (Table 4). The average flow rate recorded by the existing influent meter was 2.73 mgd and the actual measured average flow rate was 2.47 mgd. Therefore, it was concluded that the existing influent meter is recording 1.1 times the actual flow through the meter. Newburyport's consultant recommended the use of the influent meter for regulatory reporting.

MADEP has reviewed and accepted the reports and documents submitted by the City of Newburyport and their consultants. Presently, the facility continues to use the influent meter for reporting flow for regulatory purposes as approved by MADEP. Newburyport has budgeted for the annual calibration of both meters. As a condition of the draft permit, the facility will be required to submit an annual report documenting the calibration of the influent and effluent meters. When the facility replaces the meters, this permit requirement will be reconsidered.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

Under Section 301(b)(1) 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 Merrimack River in the vicinity of the discharge is classified as a Class SB water in the Massachusetts Surface Water Quality Standards (314 CMR 4.00). Class SB waters are designated as a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. In approved areas, they shall be suitable for shellfish harvesting with depuration (Restricted Shellfish Areas). The waters shall have consistently good aesthetic value.

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such require the development of total maximum daily loads (TMDL). The 1998 Massachusetts Section 303(d) List of Waters states that Merrimack River Segment MA 84A-6 is not attaining water quality standards for pathogens.

Shellfishing Designation

In the summer of 1997, a dye study was conducted at the mouth of the Merrimack River by the US Department of Health and Human Services at the request of the Massachusetts Division of Marine Fisheries. The purpose of the study was to trace the path of effluent as

it traveled from the Newburyport WWTF outfall toward the mouth of the Merrimack River. The results indicate that a portion of the growing waters could be considered conditionally restricted for depuration. Of primary concern was the relatively short travel time of effluent from the WWTF to the growing waters, as little as 1 hour and 45 minutes. Therefore, notification time of a facility malfunction was considered to be very important.

Since the 1997 Study, MA DMF has continued sampling in the area. Currently, the Massachusetts Division of Marine Fisheries is completing a report which is expected to recommend the opening of shellfish beds in the Merrimack River Estuary for restricted conditional shellfishing.

Available Dilution

Water quality based limitations are established with the use of a calculated available dilution. The Newburyport WWTF discharge is from a multi-port diffuser located on the bottom of the Merrimack River estuary. Dilution calculations are complicated by the dynamic tidal environment.

The 1997 hydrographic study approximated a dilution factor of 30. This is slightly less than the dilution value of 39:1 estimated in 1993 by EPA. EPA also applied the CORMIX modeling system to further confirm a dilution factor, however, model results were inconclusive because of the limited engineering details available for the diffuser. The draft permit uses the conservative value of 30:1 since it is supported by field data.

Flow - The flow limit is based on the design flow of the treatment plant, which is 3.4 mgd. The flow limit is now expressed as an annual average, rather than a monthly average as in the current permit. This change is being made to all POTW permits in MA at the request of MADEP. The purpose of this change was to allow some variation in POTW flows in response to wet weather, and in recognition that the flow rate used as the monthly average is in most cases presented in the treatment plant planning documents as an annual average. As part of this change in how flow limits are written, DEP and EPA agreed that mass limitations for BOD and TSS should be included as permit conditions to ensure that existing controls on mass discharges of BOD and TSS were maintained, in order to prevent degradation of the receiving water.

To provide some background, every treatment plant has any number of design flows. The design engineer could provide a design flow for any time period, including yearly, monthly, daily, and hourly. A design flow is simply the flow rate which the designer establishes can be adequately treated over a given time period. Typically, a treatment facility can provide adequate treatment for higher flow rates for short periods than it can for long periods, meaning that design flow increases as the time period decreases. The annual average design flow is almost always provided in the planning documents for POTWs. Other design flow rates are not as consistently calculated or provided in planning documents. The Newburyport facilities plan, updated February 1974, estimates the annual average flow of 3.4 mgd and a peak flow of 9.45 mgd.

Therefore, the previous use of an annual average flow as a monthly average limit provided some conservatism to the permit by not allowing the facility to operate at its maximum monthly hydraulic capacity. We believe that this was the intention of EPA and MADEP in limiting the flow in this manner. We have now decided to relax the flow limit somewhat, but have sought to balance this action by imposing mass limitations on the discharge of BOD and TSS to ensure that the easing of the flow restriction does not result in a significant increase of pollutants during months when the monthly average discharge flow exceeds the limit established in the current permit. We have also

strengthened the I/I requirements of the permit to ensure that the permittee maintains efforts to minimize extraneous flows to the collection system.

OUTFALL 001 - CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD₅) - The draft permit carries forward the average monthly and average weekly limits in the previous permit. The limits are based on the requirements set forth at 40 CFR 133.102 (b)(1), (2) and 40 CFR 122.45 (f). The secondary treatment limitations are monthly average BOD₅ concentrations of 30 mg/l, weekly average concentrations of 45 mg/l. The permittee shall continue to report the maximum BOD value monthly. The mass limitations for BOD are based on a 3.4 MGD design flow. The monitoring frequency is three times per week.

Total Suspended Solids (TSS) - The draft permit carries forward the average monthly and average weekly limits in the previous permit. The limits are based on the requirements set forth at 40 CFR 133.102 (b)(1), (2) and 40 CFR 122.45 (f). The secondary treatment limitations are monthly average TSS concentrations of 30 mg/l, weekly average concentrations of 45 mg/l. The permittee shall continue to report the maximum TSS value monthly. The mass limitations for TSS are based on a 3.4 MGD design flow. The monitoring frequency is three times per week.

BOD₅ and TSS Mass Loading Calculations:

Calculations of maximum allowable loads for maximum daily, average weekly, and average monthly BOD₅ and TSS are based on the following equation:

$$L = C \times DF \times 8.34 \text{ or } L = C \times DF \times 3.79 \text{ where:}$$

L = Maximum allowable load in lbs/day.

C = Maximum allowable effluent concentration for reporting period in mg/l.

Reporting periods are average monthly and weekly and daily maximum.

DF = Design flow of facility in MGD.

8.34 = Factor to convert effluent concentration in mg/l and design flow in MGD to lbs/day.

3.79 = Factor to convert effluent concentration in mg/l and design flow in MGD to kgs/day.

$$\text{(Concentration limit) [45] X 8.34 (Constant) X 3.4 (design flow) = 1276 lb/day}$$

$$\text{(Concentration limit) [45] X 3.79 (Constant) X 3.4 (design flow) = 580 kg/day}$$

$$\text{(Concentration limit) [30] X 8.34 (Constant) X 3.4 (design flow) = 851 lb/day}$$

$$\text{(Concentration limit) [30] X 3.79 (Constant) X 3.4 (design flow) = 387 kg/day}$$

Eighty-Five Percent (85%) BOD₅ and TSS Removal Requirement - the provisions of 40 CFR §133.102(3) requires that the 30 day average percent removal for BOD and TSS be not less than 85%. These limits are maintained in the draft permit.

pH - The draft permit includes pH limitations which are required by state water quality standards, and are at least as stringent as pH limitations set forth at 40 C.F.R. §133.102(c). Class SB waters shall be in a range of 6.5 through 8.5 standard units and not more than 0.2 standard units outside of the normally occurring range (314 CMR 4.0 (4)(a)3). There shall be no change from background conditions that would impair any use assigned to this class. The monitoring frequency is daily.

Fecal Coliform Bacteria - The draft permit includes fecal coliform bacteria limitations which are in accordance with the Massachusetts Surface Water Quality Standards 314 CMR 4.05 (4)(b).

Currently, the Merrimack River in the vicinity of the discharge is closed to shellfishing. Therefore, the limits on fecal coliform are maintained as 200/100 ml average monthly and 400/100 ml maximum daily. The monitoring frequency for fecal coliform continues to be daily and samples must be collected concurrent with samples for Total Residual Chlorine.

If the waters in the vicinity of the discharge are approved for conditionally restricted shellfishing, fecal coliform bacteria shall not exceed a median or geometric mean MPN of 88 per 100 ml nor shall 10% of the samples exceed a MPN of 260 per 100 ml. EPA will modify the permit when this occurs.

Dissolved Oxygen - The dissolved oxygen levels reported by the city in the 2002 application are significantly lower than the minimal requirement in the Massachusetts State Surface Water Quality Standards 314 CMR 4.05. DO levels shall not be less than 5.0 mg/l unless background conditions are lower. The monitoring frequency for dissolved oxygen is daily.

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS

Total Residual Chlorine (TRC) - The draft permit includes proposed total residual chlorine limitations which are calculated based on national recommended water quality criteria. 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 a saltwater receiving water. Given the dilution factor of 30, the total residual chlorine limits have been calculated as 0.39 mg/l maximum daily and 0.23 mg/l average monthly. In order to ensure that this facility consistently maintains appropriate disinfection and dechlorination, and due to the the proximity of shellfish beds and the potential impact of toxicity on these resources, the monitoring frequency has been increased to continuous. The permittee shall monitor total residual chlorine concentration prior to dechlorination to assure adequate bacterial control and then sample following dechlorination to assure discharge concentration do not exceed permit limits and cause toxic conditions.

Total Residual Chlorine Limitations:

(acute criteria * dilution factor) = Acute (Maximum Daily)
(13 ug/l x 30) = 390 ug/l = 0.39 mg/l

(chronic criteria * dilution factor) = Chronic (Monthly Average)
(7.5 ug/l x 30) = 225 ug/l = 0.23 mg/l

Copper - Certain metals like copper can be toxic to aquatic life. The maximum daily discharge of copper reported by this facility in the 2002 application was 0.037 mg/l. This value is less than the acute limit, therefore there is no reasonable potential.

Chronic (chronic criteria * dilution factor)/conversion factor = Chronic (Monthly Average)
(3.1 ug/l * 30) / 0.83 = 112 ug/l = 0.112 mg/l

Acute (acute criteria * dilution factor)/conversion factor = Acute (Maximum Daily)
(4.8 ug/l * 30) / 0.83 = 173.5 ug/l = 0.174 mg/l

Zinc - Zinc can be toxic to aquatic life. The maximum daily discharge of zinc reported by this facility in the 2002 application was 0.09. This value is less than the acute limit therefore there is no reasonable potential.

Chronic (chronic criteria * dilution factor)/conversion factor = Chronic (Monthly Average)
 $(81 \text{ ug/l} * 30) / 0.946 = 2568.7 \text{ ug/l} = 2.569 \text{ mg/l}$

Acute (acute criteria * dilution factor)/conversion factor = Acute (Maximum Daily)
 $(90 \text{ ug/l} * 30) / 0.946 = 2854.1 \text{ ug/l} = 2.854 \text{ mg/l}$

OUTFALL 001 - WHOLE EFFLUENT TOXICITY (WET)

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) of the CWA be used as guidance for interpretation of the following narrative criteria: All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. Based on the potential for toxicity from domestic; 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. (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 the City of Newburyport WWTF. In addition, EPA recognizes 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 the facility does not discharge combinations of toxic compounds into Massachusetts Bay/Atlantic Ocean in amounts which would affect aquatic or human life.

The draft permit carries forward a requirement for quarterly Acute toxicity tests using the specie Menidia Beryllina. The tests must be performed in accordance with the test procedures and protocols specified in Permit Attachment A. The tests will be conducted four times a year.

The LC₅₀ of ≥ 100% is established by EPA/MADEP policy for facilities with less than 100:1 dilution.

As a condition of this permit, the testing requirements may be reduced if certain conditions are met. The permit provision anticipates that the permittee may wish to request a reduction in the WET testing. After four consecutive WET tests, demonstrating compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to the EPA seeking a review of toxicity test results. The EPA will review the test results and pertinent information to make a determination. The permittee is required to continue testing at the frequency and species specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA indicating a change in the permit conditions.

VI. 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, 1984 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.

Lastly, the permittee must continue to submit, annually by March 1, a pretreatment report detailing the activities of the program for the twelve month period ending 60 days prior to the due date.

VII. INFLOW/INFILTRATION REQUIREMENTS

As described in Section V.B. Infiltration/Inflow, the city of Newburyport has an ongoing I/I program, the draft permit includes requirements for the permittee to continue to control infiltration and inflow (I/I). Infiltration/inflow is extraneous water entering the wastewater collection system through a variety of sources. The permittee shall develop an I/I removal program commensurate with the severity of the I/I in the collection system. Where portions of the collection system have little I/I, the control program will logically be scaled down.

Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes, or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems.

Significant I/I in a collection system may displace sanitary flow reducing the capacity and the efficiency of the treatment works and may cause bypasses to secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSO) in separate systems, and combined sewer overflows in combined systems.

The permit standard conditions for 'Proper Operation and Maintenance' are found at 40 CFR §122.41(e). These require proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, the permittee has a 'duty to mitigate' as stated in 40 CFR §122.41 (d). This requires the permittee to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment. EPA and MADEP maintain that an I/I removal program is an integral component to insuring permit compliance under both of these provisions.

The MADEP has stated that inclusion of the *DI* conditions in the draft permit shall be a standard State Certification requirement under Section 401 of the Clean Water Act and 40 CFR §124.55(b).

VIII. SLUDGE INFORMATION AND REQUIREMENTS

Section 405(d) of the Clean Water Act requires that sludge conditions be included in all POTW permits. The Newburyport Wastewater Treatment Facility presses its sludge, which is transported to the AgreSource Inc. Composting Facility in Ipswich, MA. The annual quantity of dry sludge is approximately 698 tons. Sludge requirements for the facility are outlined in the permit and defined in the sludge attachment. If the ultimate sludge disposal method changes, the permit requirements pertaining to sludge monitoring and other conditions would change accordingly.

IX. ANTI-BACKSLIDING

Anti-backsliding as defined at 40 CFR §122.44(l)(1) requires reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation. Anti-backsliding does not apply when changes to limits are based on new information not available at the time of the previous permit reissuance (40 CFR §122.44 (l)(2)(i)(B)(1)) or when limits are changed as a result of material and substantial additions or alterations to the permitted facility which occurred after permit issuance which justify the application of less stringent limitations, as defined 40 CFR § 122.44 (l)(2)(i)(A).

X. ANTI-DEGRADATION

The Massachusetts Anti-degradation Policy is found at Title 314 CMR 4.04. All existing uses of Merrimack River must be protected. This draft permit is being reissued with allowable discharge limits as or more stringent than the current permit with the same parameter coverage except for the removal of the settleable solids limitation which is no longer required for state certification. There is no change in outfall location. The public is invited to participate in the anti-degradation finding through the permit public notice procedure.

spacing

XI. UNAUTHORIZED DISCHARGES

The permittee is not authorized to discharge wastewater from any pump station emergency overflow. Overflows must be reported in accordance with reporting requirements found in Section D.I.e. of Part II of the permit (24-hour reporting). If a discharge does occur, the permittee must notify the EPA, the MA DEP, and others, as appropriate (i.e. local Public Health Department), both orally and in writing as specified in the draft permit.

XII. ESSENTIAL FISH HABITAT

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 *et seq.* (1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat," 16 U.S.C. § 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," 16 U.S.C. § 1802(10). "Adverse impact" means any impact which reduces the quality and/or quantity of EFH, 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. *Id.*

Essential fish habitat is only designated for fish species for which federal Fisheries Management Plans exist. 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

EFH Species

The following is a list of the EFH species and applicable lifestage(s) for the area that includes Atlantic Ocean waters around Newburyport, MA.

Summary of Essential Fish Habitat (EFH) Designations

Name of Estuary/ Bay/ River: Merrimack River, Massachusetts

10' x 10' latitude and longitude squares included in this bay or estuary or river (southeast corner boundaries): 4250/7040; 4250/7050; 4240/7040; 4240/7050; 4240/7100; 4240/7110

Species	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Atlantic salmon (<i>Salmo salar</i>)			F,M	F,M	
pollock (<i>Pollachius virens</i>)	M	M	M		
whiting (<i>Merluccius bilinearis</i>)	M				
white hake (<i>Urophycis tenuis</i>)	M				
winter flounder (<i>Pleuronectes americanus</i>)	M	M	M	M	M
yellowtail flounder (<i>Pleuronectes ferruginea</i>)	S	S			
Atlantic halibut (<i>Hippoglossus hippoglossus</i>)	S	S	S	S	S
Atlantic sea herring (<i>Clupea harengus</i>)		M	M		
Atlantic mackerel (<i>Scomber scombrus</i>)	M	M			

Massachusetts Bay in the vicinity of the Newburyport Wastewater Treatment Facility discharge is designated essential fish habitat (EFH) for 9 species of finfish. Based on the amount and frequency of the discharge, as well as effluent limitations and other permit requirements identified in this Fact Sheet that are designed to be protective of all aquatic species, including those with designated EFH, EPA has determined that a formal EFH consultation with NMFS is not required because the proposed discharge will not adversely impact EFH.

XIII. COASTAL ZONE MANAGEMENT (CZM) CONSISTENCY REVIEW

40CFR §122.49 (d) states: *The Coastal Zone Management Act, 16 U.S.C. 1451 et seq. section 307(c) of the Act and implementing regulations (15 CFR part 930) prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the State's nonconcurrence).*

The discharge is within the defined CZM boundaries. The permittee has submitted a letter dated February 27, 2002 to the Massachusetts Coastal Zone Management Program stating their intention to abide by the CZM water quality and habitat policies. The CZM shall review the draft permit and it will only be issued after CZM certification.

XIV. MONITORING AND REPORTING

The permittee is obliged to monitor and report sampling results to EPA and the MADEP within the time specified in the permit. The effluent monitoring requirements have been established to yield data representative of the discharge by the authority under Section 308(a) of the CWA in accordance with 40 CFR 122.441(j), 122.44, and 122.48.

The remaining general conditions of the permit are based primarily on the NPDES regulations 40 CFR 122 through 125 and consist primarily of management requirements common to all permits.

XV. 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 MA DEP Commissioner.

XVI. GENERAL CONDITIONS

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

XVII. 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 CFR § 124.53 and expects that the draft permit will be certified.

XVIII. 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.

XIX. EPA CONTACT

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

Michele Cobban Barden
Office of Ecosystem Protection
U.S. Environmental Protection Agency
One Congress Street, Suite-1100 (CPE)
Boston, MA 02114-2023

DRAFT

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Telephone: (617) 918-1539
Barden.Michele@epa.gov

November 19, 2003
Date

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

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KWR



CITY OF NEWBURYPORT

MASSACHUSETTS

OFFICE OF THE SEWER DEPARTMENT

157 WATER STREET

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FAX: 978-463-3536

August 27, 2003

ALAN P. LAVENDER
MAYOR

BRENDAN B. O'REGAN
SUPERINTENDENT

U.S. Environmental Protection Agency
Office of Ecosystem Protection – NPDES Permit Unit
1 Congress Street – Suite 1100
Mail Code: CPE
Boston, MA 02114-2023
Attn: Michele Cobban Barden

Re: City of Newburyport's Comments on Draft NPDES Permit

Dear Ms. Barden:

Thanks in large part to the dedication and expertise of plant staff, the City of Newburyport Wastewater Treatment Facility (WWTF) has a long, consistent, and proven track record of performance in maintaining a high level of treatment efficiency, ensuring adequate disinfection of the effluent prior to discharge, and in ensuring the protection of fisheries and wildlife habitat in the vicinity of the WWTF. Our commitment is to continuing this tradition of excellence, as well as to providing our ratepayers with a cost-effective maintenance, capital improvement and monitoring program. In accordance with the Joint Public Notice dated June 12, 2003, we respectfully submit the following comments on the Draft NPDES permit and fact sheet issued on June 11, 2003 for NPDES Application No. MA0101427 for the Newburyport Wastewater Treatment Facility.

Our comments fall into four sub-categories: (1) comments on effluent limitations; (2) comments on monitoring requirements; (3) comments on reporting requirements; and (4) comments on schedule requirements.

The Newburyport Sewer Department respectfully requests the following modifications to the Draft NPDES permit:

- That the dissolved oxygen effluent limitation of 5 mg/l be eliminated from the permit.
- That the outfall diffuser dilution factor be maintained at 39:1 as currently accepted and used in the existing WWTF NPDES permit.

- If average monthly and maximum daily total chlorine residual limitations are imposed, they should be set at 0.3 mg/l and 0.5 mg/l, respectively, based upon the 39:1 dilution factor. Otherwise, the maximum daily total residual chlorine effluent limitation should be maintained from the existing permit as 0.3 mg/l (as based upon the 39:1 dilution factor).
- That the requirement to install additional monitoring equipment to measure and continuously record chlorine residuals prior to the dechlorination process be removed from the final permit.
- That the requirement for use of continuously recorded chlorine residuals for permit compliance be removed from the final permit.
- That the timeframe for submission of an infiltration/inflow (I/I) control plan (Part I.C.3 of the draft permit) be adjusted from within six (6) months of the effective date of the permit to within twelve (12) months of the effective date of the permit.
- The City requests that a clarification be added to the request for I/I control plan information to ensure that the City is permitted to provide existing information cost-effectively.
- That the timeframe for conducting an inspection of the diffuser be adjusted from within twelve (12) months of the effective date of the permit to within twenty-four (24) months of the effective date of the permit. Additionally, the City requests that the permit allow for submission of the inspection report within thirty (30) months of the effective date of the permit (the draft permit does not specify a schedule for submission of the outfall inspection report).

The sections below describe in further detail the rationale used in making our requests.

Part I.A.1 – Effluent Limitations

Proposed Dissolved Oxygen Effluent Limitation

The City does not believe that a dissolved oxygen (DO) effluent limitation should be incorporated in the WWTF's final NPDES permit.

As indicated in Table A.1. of the draft permit, EPA is proposing that the average monthly DO concentration in the discharge be maintained at a level greater than 5 mg/l. EPA's rationale for adding a new effluent limitation, as presented on page 8 of 14 of the Fact Sheet, states the following:

Dissolved Oxygen – The dissolved oxygen levels reported by the city in the 2002 application are significantly lower than the Massachusetts State Surface Water Quality Standards 314 CMR 4.05. DO levels shall not be less than 5 mg/l unless

background conditions are lower. The monitoring frequency for dissolved oxygen is daily.

The City questions the need for implementing a DO limitation in the Facility's NPDES permit. The Massachusetts State Surface Water Quality Standard for Class SB Waters requires that the *ambient* dissolved oxygen level not be less than 5 mg/l, but there is no Federal or State technology-based requirements establishing end of pipe dissolved oxygen levels prior to effluent discharge through a multi-port diffuser. In addition, the City is not aware of any recent data (i.e., data following construction of secondary wastewater treatment facilities throughout the Merrimack River Basin) suggesting that the background dissolved oxygen concentrations in the Merrimack River Estuary would ever be less than the Massachusetts State Water Quality Criteria under any conceivable flow condition. Finally, review of the Massachusetts Section 303(d) list of impaired waters does not indicate that any portion of the Merrimack River is in violation of State Water Quality Criteria for DO.

In light of the above, the City evaluated the possibility that the discharge from the WWTF could cause a violation of State Water Quality Criteria, and concluded that it could not. The analysis was based on the following assumptions:

1. Ambient or background dissolved oxygen levels in the Merrimack River Estuary typically exceed 7.5 mg/l in the vicinity of the diffuser, and would not drop below 6 mg/l at any time.
2. The multi-port diffuser yields a dilution factor of at least 39, and likely higher values during the majority of the tidal cycle.
3. Available dilution in the immediate vicinity of individual discharge ports will exceed a factor of 110 and will increase with increasing distance from the outfall.
4. The dissolved oxygen concentration following initial dilution can be calculated based on the following mixing relationship:

$$DO_{(mix)} = DO_{(amb)} + 1/S (DO_{(eff)} - DO_{(amb)})$$

Where:

- $DO_{(mix)}$ = dissolved oxygen concentration following initial dilution (mg/l)
- $DO_{(amb)}$ = ambient receiving water dissolved oxygen concentration (mg/l)
- $DO_{(eff)}$ = effluent dissolved oxygen concentration (mg/l)
- S = dilution factor following initial mixing

Conservatively assuming the ambient dissolved oxygen concentration in the Merrimack River Estuary approached 6.0 mg/l and that the dissolved oxygen concentration of the effluent approached 0 mg/l, the resulting dissolved oxygen concentration in the immediate vicinity of the diffuser (assuming a dilution factor of 110) would be projected

to be approximately 5.9 mg/l. Assuming a dilution factor of 39, the dissolved oxygen concentration in the receiving water would be projected to remain above 5.8 mg/l.

Based upon this analysis, the City believes it is unreasonable to expect that the discharge from the Newburyport WWTF could potentially result in a violation of the State Water Quality Criteria for dissolved oxygen. Further, the City notes that a requirement to meet the minimum dissolved oxygen level in the draft permit could adversely impact treatment plant performance for other parameters (i.e., limit the Facility's ability to ensure adequate dechlorination). Therefore, we believe that inclusion of a dissolved oxygen limitation in the final NPDES permit is not appropriate, and the City requests that the proposed effluent limitation for dissolved oxygen be removed from the final permit.

As discussed during our meeting on July 30, 2003, DO measurements have historically been taken at the down gradient end of the chlorine contact tank, prior to discharge over the effluent weir into the stilling basin at the head end of the outfall pipe. Although only a limited data base is currently available, monitoring of DO in the stilling basin indicates that DO increases at this point and that the effluent DO is greater than 5 mg/l prior to entering the outfall pipe. Therefore, the City requests that the effluent limitation for DO be removed from the permit, and that additional data be collected from the stilling basin during the period of this permit to more accurately characterize effluent DO entering the outfall pipe.

Proposed Total Residual Chlorine (TRC) Effluent Limitation

The City does not believe that the proposed new TRC effluent limitations should be incorporated in the WWTF's final NPDES permit.

The Newburyport WWTF uses chlorine as a disinfectant followed by dechlorination using sulfur dioxide to minimize potential impacts of residual chlorine on receiving water biota. As part of its commitment of ensuring appropriate levels of disinfection without excessive discharge of chlorine, the City has voluntarily spent in excess of \$75,000 for equipment upgrades and modifications to the chlorination and dechlorination processes at the WWTF. The chlorination/dechlorination process at the WWTF is regulated through flow proportioning. By continuously monitoring flow and adjusting chlorine and sulfur dioxide feed rates, the facility has consistently maintained compliance with technology based fecal coliform levels (i.e., number of colony forming units per 100 ml) as well as discharge limitations for TRC.

Under the draft permit, EPA proposes to modify the existing maximum day permit limit for total residual chlorine of 0.3 mg/l, and replace it with an average monthly discharge limitation of 0.23 mg/l and a maximum daily limit of 0.39 mg/l. The City respectfully disagrees with the proposed revisions to the TRC effluent limitation for the following reasons:

- The key factor used in deriving the TRC effluent limitations contained in the draft permit is the available dilution. As described in the draft NPDES permit fact

sheet (page 6), a dilution factor of 30:1 was chosen by EPA for use in the draft permit, apparently based solely upon interpretation of an initial dilution estimate provided in a 1997 hydrographic study conducted by the U.S. Department of Health & Human Services. This initial dilution analysis is described in the draft permit as having "approximated a dilution factor of 30." Because CORMIX model results were inconclusive, this approximated dilution factor was then used to back calculate an average monthly limitation using EPA's chronic toxicity criteria for saltwater.

- The City has initiated a review of the report dated August 8, 1997, and wishes to note that it is a preliminary draft edition. The City has been unable to ascertain whether a revised draft or final version of this report has been prepared.
- The City notes that the dye study conducted in 1997 appears to have used the WWTF *effluent* flow meter to estimate dye feed rates for the analysis. Use of the effluent flow meter, however, would not have been accurate for this purpose, because it has been shown to overestimate the quantity of flow through the treatment facility. By adjusting dye addition rates using the effluent flow meter measurements, as suggested in the report, excess dye would have been added to the discharge resulting in an underestimation of initial dilution at the outfall site.
- Notwithstanding the fact that the 1997 report is a preliminary draft, the City notes that the study verifies the previously established dilution factor of 39:1. The first conclusion states that "the minimum initial dilution was in the 27 to 40:1 range determined at high tide near slack water. The dilution was greater after the tidal current began." Measured dilution with distance from the outfall is illustrated in Figures 9 and 16 of the draft report, which clearly demonstrates that dilution factors increase with increasing distance from the outfall. Accordingly, the City disagrees with EPA's interpretation of the 1997 preliminary draft study as a basis for establishing the 30:1 dilution factor, and thus the TRC effluent limitations contained in the draft permit. The City requests that the previously established dilution factor of 39:1 be maintained and used for the purpose of establishing the TRC limitations.
- The revised average monthly total residual chlorine concentration of 0.23 mg/l will increase operation and maintenance (O&M) costs for dechlorination, but is not anticipated to have any beneficial impact on receiving water quality.
- Reducing the TRC level at the down gradient end of the chlorine contact tank may adversely impact disinfection efficiency of the treatment facility. At the NPDES permit flow rate (3.4 million gallons per day), it has been calculated that an additional 33 minutes of detention time is achieved in the outfall pipe prior to discharge to the receiving waters through the multi-port diffuser. Reducing the TRC level prior to entering the outfall pipe would reduce the concentration of disinfectant available over the 33-minute contact time in the outfall pipe. The potential impacts of reducing the TRC effluent concentration on disinfection

effectiveness must be considered prior to modifying/reducing the existing effluent limitation for TRC. The lower average daily flows experienced at the WWTF would reduce the above-referenced contact time.

By definition, chronic toxicity implies continued or continuous low-level exposure to a toxicant over a long duration. Given the tidally dynamic mixing characteristics of the receiving water in the vicinity of the diffuser, and the "relatively fixed" benthic location of most shellfish over the tidal period, long term continuous exposure of shellfish to low levels of Total Residual Chlorine in the discharge is unlikely. In fact, the 1997 dye study results show that dilution factors in excess of 100:1 are found in close proximity to the diffuser as the discharge plume is advected away from the discharge point during each tidal exchange. As shown on Figure 9 and Figure 15 of the draft study, rapid dilution occurs in the near field area within a few hundred yards of the diffuser. Figure 25 of the draft report illustrates the location of the 1000:1 dilution factor within the Merrimack River Estuary.

Considering these factors, and seeing that the 1997 study could be interpreted as supporting the existing effluent limits, the City requests that if EPA chooses to modify the existing effluent limits for TRC, then a minimum dilution factor of 39:1 should be applied. The TRC limits should be set at 0.3 mg/l and 0.5 mg/l for average monthly and maximum daily, respectively.

Part LA.1 - Monitoring Requirements

Proposed Total Residual Chlorine (TRC) Continuous Monitoring Requirement

The draft permit proposes the following with respect to compliance monitoring:

Monitoring for Total Residual Chlorine (TRC) shall be continuous. TRC shall be monitored both before and after dechlorination. DMR reporting, however, applies to the final effluent only.... The permittee shall collect and analyze a minimum of two grab samples per day for calibration purposes, one before dechlorination and one after dechlorination. The results of the grab samples and a comparison to the continuous chlorine analyzer reading, including the time of grab sample, shall be included with the monthly DMRs. Eight (8) continuous recording charts, one chart per week with weekly data, (one set of four (4) for before dechlorination and one set of four (4) for after dechlorination) shall be included with the monthly DMRs.

Due to the proximity to shellfishing resources, the facility must work with the Massachusetts Division of Marine Fisheries to develop an immediate warning system notifying DMF of a disinfection failure or if TRC concentrations exceed the permit limit.

The City will continue to work with the Massachusetts Division of Marine Fisheries in developing a suitable notification procedure if shellfish restrictions are removed from the Merrimack River Estuary. For the following reasons, the City does not believe that continuous monitoring for TRC is necessary or appropriate.

- Continuous monitoring equipment was installed during the past year to track TRC effluent concentrations prior to discharge. Plant operators are continuing to develop experience with its operation. Continuous monitoring equipment is not available to assess TRC levels prior to dechlorination.
- Continuously monitoring chlorine levels prior to dechlorination offers only an indirect measure of disinfection capability, since disinfection effectiveness also depends on contact time and the total suspended solids concentration of the effluent.
- The Newburyport WWTF has not had a history of chlorination failures in the past and this performance can be expected in the future.
- Operation of continuous chlorine monitors/analyzers cannot be performed reliably without daily grab sampling for calibration purposes. Under the current permit, daily grab sampling is used to confirm total residual chlorine concentrations in the effluent. Since daily grab sampling results are required by either system, and noting that analytical data is more accurate than continuous monitors, the City feels that the additional O&M expenditures required for continuous monitors does not enhance overall chlorination/dechlorination system reliability or effectiveness.
- Existing internal feed-back systems are already in place to identify if there are problems with either the chlorine feed system or the dechlorination system.
- According to our review of continuous chlorine analyzers, we are informed that are viewed as "secondary instruments," meaning that they require regular calibration from a standard method or primary laboratory instrument. Our supplier recommends that the daily calibration sample for the analyzer is a better data source to determine chlorine residual compliance.

In light of the above, the City believes that it would be more beneficial to conduct additional grab sample tests of total chlorine residual both prior to and following the dechlorination process. The City suggests increasing the frequency of grab sampling from once per day, as contained in the existing permit, to sampling at points both prior to and following dechlorination two times per day, as proposed in the draft permit.

Proposed Requirement for Continuous Chlorine Monitor Prior to Dechlorination

The City does not believe that the requirement should be added to install a continuous chlorine monitor prior to dechlorination. First, the capital cost of adding a second continuous chlorine monitor prior to dechlorination is expected to range from \$30,000 to \$40,000. The City contends that this amount of money will be necessary to achieve other requirements in the permit that will enhance overall treatment efficiency or effectiveness.

In summary, for the reasons described above, the City requests the following:

1. That the requirement to install additional monitoring equipment to measure and continuously record total chlorine residual prior to the dechlorination process be removed from the final permit.
2. That the requirement to continuously record total chlorine residual prior to discharge to the outfall diffuser be removed from the final permit.

Part LC – Operation and Maintenance of the Sewer System

Part I.C.3 – Infiltration/Inflow Control Plan

As acknowledged in the Fact Sheet issued by the EPA (pages 3 and 4) for the Draft NPDES Permit, inflow and infiltration (I/I) removal have been prioritized by a city wide I/I study. In addition to the city wide I/I study, funding in the capital budget has been provided to perform television inspections of sewer pipelines, sewer manhole frame and cover replacement work, testing and sealing, pipeline lining, and other sewer system rehabilitation work. Additional I/I control is achieved through the City's on-going sewer line maintenance program that results in every sewer line being inspected and cleaned at a frequency of every 4 to 6 years.

The City requests that a clarification be added to the request for I/I control plan information to ensure that the City is permitted to provide existing information cost-effectively.

In addition, in light of the significant level of sewer line maintenance and I/I work completed, underway, and planned, the City requests that the timeframe for submission of an I/I plan (Part I.C.3 of the draft permit) be adjusted from within six (6) months of the effective date of the permit to within twelve (12) months of the effective date of the permit. The adjustment to the timeframe is requested in order to provide sufficient time for the City to assess the cost implications of this permit requirement; to allocate appropriate funds within the Sewer Department operating budget and obtain approval of the funding from the City Council; and to procure any needed consulting engineer and/or specialty contractor services. We are currently in the FY04 Budget cycle (July 2003 to June 2004). Preparation of the FY05 budget will begin in February 2004 and be completed by June 2004. There will also be a need to dedicate an appropriate amount of time to assure proper procurement of these services.

Part I.C.5 – Outfall Inspection and Report

The City requests that the timeframe for conducting an inspection of the diffuser be adjusted from within twelve (12) months of the effective date of the permit to within twenty-four (24) months of the effective date of the permit. Additionally, the City requests that the permit schedule submission of the inspection report within thirty (30) months of the effective date of the permit (the draft permit does not specify a schedule for submission of the outfall inspection report). The adjustments to the timeframes are requested in order to provide sufficient time for the City to assess the cost implications of this permit requirement; assess the condition of the outfall and prioritize any needed maintenance activities; to allocate appropriate funds within the Sewer Department operating budget and obtain approval of the funding from the City Council; and to procure any needed consulting engineer and/or specialty contractor services.

For the record, the Sewer Department wishes to provide EPA and DEP with further information regarding the older WWTF outfall pipe. The older outfall pipe was abandoned when the existing outfall pipe was constructed as part of the secondary improvements to the WWTF performed in the early 1980s. A television inspection completed on June 4, 2003, of the old outfall pipe confirmed that it is walled off from the end closest to the WWTF and silt exists in the outlet end. A copy of the television inspection report is available from the Sewer Department.

The City of Newburyport Sewer Department appreciates this opportunity to comment on the Draft NPDES Permit. We look forward to continuing to work with EPA and DEP to serve the wastewater treatment needs of our community and to protect the important water resources of our community.

Very truly yours,

NEWBURYPORT SEWER DEPARTMENT



Brendan B. O'Regan
Superintendent

cc: Mr. Paul Hogan, Massachusetts Department of Environmental Protection

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CITY OF NEWBURYPORT

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February 23, 2004

Mr. Paul M. Hogan
Massachusetts Department of Environmental Protection
Central Regional Office
627 Main Street
Worcester, Massachusetts 01608

Re: Newburyport Wastewater Treatment Facility (WWTF)
NPDES Permit No. MA0101427 - Draft 2003 Reissuance
Schedule of Activities

Dear Mr. Hogan:

This letter is sent on behalf of the City of Newburyport Sewer Department with respect to the referenced Draft NPDES Permit reissuance ("Draft Permit") for the City of Newburyport's wastewater treatment facility ("WWTF"). Specifically, I am writing to address the issue of limitations in the Draft Permit for fecal coliform bacteria.

As you know, the Draft Permit issued for public comment on June 13, 2003, maintained the current limits for fecal coliform bacteria of 200/100 ml average monthly and 400/100 ml maximum daily. These limits were maintained because at that time, the Merrimack River in the vicinity of the WWTF's discharge was closed to shellfishing.

On page 8 of 14 in the Fact Sheet that accompanied the Draft Permit, it was indicated that different limitations for fecal coliform bacteria ("shall not exceed a median or geometric mean MPN of 88 per 100 ml, nor shall 10% of the samples exceed a MPN of 260 per 100 ml") would apply if the waters in the vicinity of the discharge were approved for conditionally restricted shellfishing. The Fact Sheet also stated that "EPA will modify the permit when this occurs."

After the close of the public comment period on the Draft Permit, the Massachusetts Division of Marine Fisheries ("DMF") announced in a press release dated November 24, 2003, that shellfish beds in the Merrimack River estuary were reclassified for conditional re-opening. The press release states that actual harvesting will not begin until DMF works out specifics of a management plan with affected communities.

The City of Newburyport had expected that the NPDES permit reissuance would be finalized before any shellfish bed reclassification occurred. In addition, the Sewer Department was of the understanding that a formal permit modification process would be required in order to "modify the permit" to impose the new, lower limitations for fecal coliform bacteria. However, we understand that EPA and DEP believe that the new fecal coliform bacterial limitations can be included within the permit upon reissuance.

Despite the City's belief that under applicable regulations it is entitled to a formal modification process with respect to these limitations, the City is prepared to undertake reasonable efforts upon the effective date of the permit to implement a program designed to achieve the lower fecal coliform bacteria limits for the WWTF. We know that in order to lower the discharge of fecal coliform bacteria, we will need to increase chlorination dosages at the WWTF at certain times. Based upon an evaluation of our system conducted with our consultants, Weston & Sampson, we believe that other items at the WWTF need to be evaluated further and certain modifications should be made in order to increase confidence of our ability to meet the new limitations without affecting other discharge parameters. Accordingly, we are proposing the following implementation schedule for compliance with these limitations:

- Within 6 months after the effective date of the NPDES permit, the Sewer Department will change the location of the chlorine injection point to a location further upstream of the existing injection point. This change will provide for enhanced mixing and distribution of the chlorine in the wastewater prior to dechlorination and discharge to the outfall.
- Within 6 months after the effective date of the NPDES permit, the Sewer Department will make improvements to the existing dechlorination system to provide for increased sulfur dioxide feeder capacity. This change will provide appropriate dechlorination capacity to allow for the higher dosages of chlorine needed to achieve the lowered fecal coliform bacteria levels.
- At or about the same time the improvements listed above are made, the WWTF operations staff will increase the frequency of monitoring the effluent total residual chlorine (TRC) and fecal coliform bacteria values to confirm that the TRC and bacteria discharge limits in the NPDES permit can be consistently achieved without further chlorination/dechlorination system improvements.

As DEP is aware, the Sewer Department is planning a significant upgrade to the aeration system which will enhance the WWTF's treatment capabilities. At the present time, we cannot predict what specific steps will be necessary to implement this upgrade while maintaining the WWTF's ability to provide consistent levels of disinfection. However, to avoid inconsistencies in the effluent quality that may be experienced during construction and start-up of the new system, we are proposing the following implementation schedule for this item:

- **Within fifteen (15) months after the effective date of the NPDES permit, the Sewer Department expects to complete construction and start-up testing of the upgrade to the WWTF aeration system. During this time, the WWTF will operate with the intent of meeting the proposed lower fecal coliform limits. The proposed lower NPDES permit limits for fecal coliform bacteria will become effective thirty (30) days after start-up of the new aeration system.**

We also wish to confirm that the future revision to the maximum limit for fecal coliform will be based on not more than 10% of samples exceeding an MPN of 260 per 100ml (and not on a strict maximum day limit), so that the limit is consistent with the water quality standards at 314 CMR 4.05(4)(b)4.a.

The City anticipates that these compliance schedules can be incorporated into the final NPDES permit when it is issued soon. As always, we are willing to meet with you and/or EPA representatives to discuss these matters. Please contact me with any questions you may have.

Very truly yours,

NEWBURYPORT SEWER DEPARTMENT



**Brendan B. O'Regan
Superintendent**

cc: **Mayor Clancy
Newburyport Sewer Commission
Michele Cobban Barden, EPA
Kent Nichols, Weston & Sampson
Barry P. Fogel, Keegan, Werlin & Pabian**