

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),

Massachusetts Department of Corrections

is authorized to discharge from the facility located at

**MCI Bridgewater Water Pollution Control Facility
Conant Street
Bridgewater, Massachusetts 02324**

to receiving water named

**Sawmill Brook
Taunton Watershed (62)**

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

This permit shall become effective sixty days from the date of signature.

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

This permit supercedes the permit issued on September 30, 1998.

This permit consists of 10 pages in Part I including effluent limitations, monitoring requirements, Attachments A, B, and 35 pages in Part II including General Conditions and Definitions.

Signed this 14th day of December, 2005

/s/ SIGNATURE ON FILE

Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

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

PART I

A.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number 001 into the receiving stream, Sawmill Brook. Such discharge shall be limited and monitored by the permittee as specified below.

| <u>Effluent Characteristic</u> | <u>Units</u> | <u>Discharge Limitation</u> | | | <u>Monitoring Requirement</u> | |
|---|--------------|------------------------------------|-----------------------|----------------------|-------------------------------|--------------------------------|
| | | <u>Average Monthly</u> | <u>Average Weekly</u> | <u>Maximum Daily</u> | <u>Measurement Frequency</u> | <u>Sample Type</u> |
| Flow ² | MGD | 0.55 | ***** | Report | Continuous | Recorder |
| BOD ₅ (November 1 - April 30) | mg/l | 30 | 45 | Report | 2/Week | 24 Hour Composite ³ |
| | lbs/day | 63 | 104 | Report | 2/Week | 24 Hour Composite ³ |
| BOD ₅ (May 1 - October 31) | mg/l | 14 | 23 | Report | 2/Week | 24 Hour Composite ³ |
| | lbs/day | 63 | 104 | Report | 2/Week | 24 Hour Composite ³ |
| TSS (November 1 - April 30) | mg/l | 30 | 45 | Report | 2/Week | 24 Hour Composite ³ |
| | lbs/day | 63 | 104 | Report | 2/Week | 24 Hour Composite ³ |
| TSS (May 1 - October 31) | mg/l | 14 | 23 | Report | 2/Week | 24 Hour Composite ³ |
| | lbs/day | 63 | 104 | Report | 2/Week | 24 Hour Composite ³ |
| pH ¹ | S.U. | (See Condition I.A.1.b. on Page 6) | | | 1/Day | Grab ³ |
| Dissolved Oxygen ⁴ | mg/l | | ≥6.0 | | 2/Week | Grab ³ |
| Total Residual Chlorine ^{5,6,7} | ug/l | 14 | ***** | 24 | 3/Day | Grab ³ |
| Fecal Coliform ⁵ | cfu's/100 ml | 200 | 400 | 400 | 2/Week | Grab ³ |

| <u>Effluent Characteristic</u> | <u>Units</u> | <u>Discharge Limitation</u> | | | <u>Monitoring Requirement</u> | |
|---|-----------------|-----------------------------|-----------------------|----------------------|-------------------------------|--|
| | | <u>Average Monthly</u> | <u>Average Weekly</u> | <u>Maximum Daily</u> | <u>Measurement Frequency</u> | <u>Sample Type</u> |
| Oil and Grease | mg/l | Report | ***** | Report | 1/Week | Grab ³ |
| Copper, Total | ug/l | 6.0 | ***** | 9.0 | 1/Month | 24 Hour Composite ³ |
| Ammonia Nitrogen (April 1 through October 31) | mg/l lbs/day | 2.0 9.2 | ***** ***** | ***** ***** | 1/Week 1/Week | 24 Hour Composite ³ 24 Hour Composite ³ |
| Ammonia Nitrogen (November 1 through March 31) | mg/l lbs/day | Report Report | ***** ***** | ***** ***** | 1/Month 1/Month | 24 Hour Composite ³ 24 Hour Composite ³ |
| Total Kjeldahl Nitrogen (TKN) | mg/l lbs/day | Report Report | ***** ***** | Report Report | 1/Month 1/Month | 24 Hour Composite ³ 24 Hour Composite ³ |
| NO ₂ /NO ₃ Nitrite/Nitrate | mg/l lbs/day | Report Report | ***** ***** | Report Report | 1/Month 1/Month | 24 Hour Composite ³ 24 Hour Composite ³ |
| Total Phosphorus ⁸ (May 1 - October 31) | mg/l lbs/day | 1.0 4.6 | ***** ***** | ***** ***** | 1/Week 1/Week | 24 Hour Composite ³ 24 Hour Composite ³ |
| Total Phosphorus (November 1 - April 30) | mg/l lbs/day | Report Report | ***** ***** | ***** ***** | 1/Month 1/Month | 24 Hour Composite ³ 24 Hour Composite ³ |
| Orthophosphate | mg/l lbs/day | Report Report | ***** ***** | ***** ***** | 1/Month 1/Month | 24 Hour Composite ³ 24 Hour Composite ³ |
| LC ₅₀ ^{9,10,12} | % | **** | ***** | 100 | 4/Year | 24 Hour Composite ³ |
| C-NOEC ^{9,11,12} | % | **** | ***** | 81 | 4/Year | 24 Hour Composite ³ |

Footnotes:

1. Required for State Certification.
2. For flow, report maximum and minimum daily rates and total flow for each operating date.
3. Effluent parameters that require 24-hour composite samples shall be taken prior to the effluent discharging at the chlorine contact chamber. Effluent parameters that require grab samples shall be taken at the outfall structure after the chlorine contact chamber. 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. Samples shall be 24-hour composites unless specified as a grab sample in 40 CFR §136.

A 24-hour composite sample will consist of at least twenty-four (24) grab samples that are flow proportioned and taken during one working day. Working day is defined as a twenty-four hour period such as 12 am to 12 am the following day.

4. DO samples shall be collected before 8:00 am from May 1 through October 31.
5. Fecal coliform and total residual chlorine monitoring will be conducted year round. This is a State certification requirement. Fecal coliform discharges shall not exceed a monthly geometric mean of 200 colony forming units (cfu's) per 100 ml, a weekly geometric mean of 400 cfu's per 100 ml, nor shall they exceed 400 cfu's per 100 ml as a daily maximum. Fecal coliform samples shall be taken 2 times per week and conducted concurrently with the TRC sampling described below.
6. The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G, or United States Environmental Protection Agency Manual of Methods of Analysis of Water and Wastes, Method 330.5. One of these methods must be used to determine total residual chlorine. For effluent limitations less than 20 ug/l, compliance/non-compliance will be determined based on the ML. Sample results of 20 ug/l or less shall be reported as zero on the discharge monitoring report.
7. Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection, interruption or, malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.
8. A one year compliance schedule has been established for Total Phosphorus. See Part I.C.

9. The permittee shall conduct chronic and modified acute toxicity tests four times per year. The chronic test may be used to calculate the acute LC₅₀ at the 48 hour exposure interval. The

permittee shall test the daphnid, Ceriodaphnia dubia, only. Toxicity test samples shall be collected during the second week in the months of February, May, August, November. The test results shall be submitted by the last day of the month following the completion of the test. The results are due March 31, June 30, September 30, and December 31, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

| Test Dates Second Week in | Submit Results By: | Test Species | Acute Limit LC ₅₀ | Chronic Limit C-NOEC |
|---------------------------------------|--|--|---------------------------------|-------------------------|
| February May August November | March 31 June 30 September 30 December 31 | <u>Ceriodaphnia dubia</u> (daphnid) See Attachment A | ≥ 100% | > 81 % |

10. 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.
11. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing where the test results exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect. The "81.0 % or greater" limit is defined as a sample which is composed of 81.0% (or greater) effluent, the remainder being dilution water. This is a maximum daily limit derived as a percentage of the inverse of the dilution factor of 1.24.
12. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachment A Section IV., DILUTION WATER** in order to obtain permission to use an alternate dilution water. In lieu of individual approvals for alternate dilution water required in **Attachment A**, EPA-New England has developed a Self-Implementing Alternative Dilution Water Guidance document (called "Guidance Document") which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. If this Guidance document is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment A**. The "Guidance Document" has been sent to all permittees with their annual set of DMRs and Revised Updated Instructions for Completing EPA's Pre-Printed NPDES Discharge Monitoring Report (DMR) Form 3320-1 and is not intended as a direct attachment to this permit. Any modification or revocation to this "Guidance Document" will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

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 8.3 at any time, unless these values are exceeded due to natural causes or as a result of the approved treatment processes.
- 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, and shall be reported on the monthly discharge monitoring report.
- 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 the 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 the 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

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.

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 MA 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.

B. UNAUTHORIZED DISCHARGES

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

C. SCHEDULE OF COMPLIANCE

The phosphorus limit will become effective one year after the effective date of the permit. The monitoring requirement goes into effect on the effective date of the permit.

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. 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).

E. INFILTRATION/INFLOW

The permittee shall control infiltration and inflow (I/I) to the separate sewer system to prevent infiltration/inflow-related effluent limit violations, and any unauthorized discharges of wastewater, including overflows and by-passes, due to excessive infiltration/inflow.

F. 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 sludge 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. See Attachment B, Sludge Guidance.

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

G. MONITORING AND REPORTING

1. Reporting

Monitoring results obtained during each calendar month shall be summarized and reported on separate 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
Bureau of Resource Protection
Southeast Regional Office
20 Riverside Drive
Lakeville, MA 02347

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

H. 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.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
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.: **MA0102237**

PUBLIC NOTICE DATE:

NAME AND ADDRESS OF APPLICANT:

**Massachusetts Department of Corrections
10 Administration Road
Box 366
Bridgewater, Massachusetts 02324**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**MCI Bridgewater Water Pollution Control Facility
Conant Street
Bridgewater, Massachusetts 02324**

RECEIVING WATER: **Sawmill Brook draining to the Taunton River**

CLASSIFICATION: **Class B**

I. Proposed Action, Type of Facility and Discharge Location.

The above named applicant has applied to the U.S. Environmental Protection Agency for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving water. The existing NPDES permit for MCI-Bridgewater, MA 0102237, was signed on September 30, 1998. and on November 6, 1998, the permittee requested an evidentiary hearing contesting the copper limits in the final permit.

The request for the evidentiary hearing was neither granted or denied. On May 15, 2000, the Agency published Amendments to Streamline the National Pollutant Discharge Elimination System Program Regulations in the Federal register. The amended rule became effective June 14, 2000. The amended rule required that the Regional Administrator notify the permittee that the request for an evidentiary hearing was being returned without prejudice and to file an appeal with the Environmental Appeals Board (EAB) no later than August 13, 2000.

On July 26, 2000, the permittee filed a petition for review with the EAB objecting to the copper limits in the

final permit. The Region sent out a letter dated September 27, 2000 notifying the permittee of the uncontested and severable conditions of the permit. The letter stated that the copper limits were stayed during the appeals process and, all other permit conditions were effective 30 days from the date of the letter or October 27, 2000. The EAB denied the permittee's petition for review on October 16, 2000. Therefore, October 27, 2000 became the effective date of the permit and it expires five years from the effective date.

The facility is engaged in the collection and treatment of sanitary wastewater. The effluent from the wastewater treatment system is discharged to Sawmill Brook. Figures 1 and 2 attached to the fact sheet show the location of the facility and a flow chart of the treatment process.

II. Description of Discharge

A quantitative description of effluent data parameters based on recent effluent monitoring data may be found in Table 1 of this fact sheet.

III. Permit Basis and Explanation of Effluent Limitation Derivation.

General Requirements

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Clean Water Act (CWA) (see 40 C.F.R. Part 125 Subpart A).

Under Section 301(b)(1)(B) of the CWA, POTW's must have achieved effluent limitations based upon secondary treatment by July 1, 1977. The secondary treatment requirements are set forth at 40 CFR Part 133. Effluent limitations for monthly and weekly average Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) are based on requirements under Section 301(b)(1)(B) of the Clean Water Act and 40 CFR 133.102. Fecal coliform bacteria and pH are based on State Certification requirements for Publicly Owned Treatment Works (POTW's) under Section 401(d) of the CWA, 40 CFR 124.53 and 124.55, and water quality considerations.

Under Section 301(b)(1)(C) of the Clean Water Act (CWA), discharges are subject to effluent limitations based on Water Quality Standards. The Massachusetts Surface Water Quality Standards include the requirements for the regulation and control of toxic constituents and also require that EPA criteria established pursuant to Section 304 (a) of the CWA shall be used unless site specific criteria are established. The State will limit or prohibit discharges of pollutants to surface water to assure that surface water quality standards of the receiving water are protected and maintained or attained.

According to 40 CFR 122.44(l), when a permit is reissued effluent limitations, standards or conditions must be at least as stringent as effluent limitations in the previous permit unless the circumstances on which the previous permit were based have materially and substantially changed since the time the permit was issued, except under certain, specific conditions.

Waterbody Classification and Usage

The Sawmill Brook is classified as a Class B warm water fishery waterbody by the Massachusetts Department of Environmental Protection (MA DEP). Class B warm water fishery waters are designated as habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. These waters shall have consistently good aesthetic value.

Where designated, Class B waters shall be suitable as a source of public water supply with appropriate treatment. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses.

Dilution

Water quality based limitations are established with the use of a calculated available dilution. Title 314 CMR 4.03(3)(a) requires the effluent dilutions be calculated based on the receiving water 7Q10. The 7Q10 is the lowest observed mean river flow for seven consecutive days over a ten year recurrence interval.

A design flow of 0.55 MGD (0.85 cfs) and an estimated 7Q10 at the point of discharge of 0.2 cfs for Sawmill Brook was used to calculate a dilution factor. A review of recent United States Geologic Survey (USGS) does not indicate the need to recalculate the 7Q10 used to determine the design flow dilution.

$$\text{Design flow dilution} = \frac{7\text{Q10 cfs} + \text{plant design flow cfs}}{\text{plant design flow cfs}} = \frac{0.2 \text{ cfs} + 0.85 \text{ cfs}}{0.85 \text{ cfs}} = 1.235 = 1.24$$

Conventional Pollutants

BOD₅ and TSS

The BOD₅ and TSS draft permit limits for November 1 through April 30 are based on secondary treatment requirements, and the BOD₅ and TSS draft permit limits for May 1 through October 31 are based on water quality concerns. The concentration and mass limits for both are the same as those in the current permit. The sampling frequency has been increased for BOD₅ and TSS to twice per week in the draft permit. EPA and MA DEP believe that once a week is not sufficient to consistently characterize the effluent therefore, an additional weekly sample for both has been added in the draft permit.

Expressing limitations in terms of concentration and mass encourages proper operation of a treatment facility. Concentration limits discourage the reduction of treatment efficiency during low flow periods, and mass limits discourage higher loads being discharged into the receiving water during periods of high flow. Regulations found at 40 CFR Section 122.45 encourage that mass limits, where appropriate, be included in a NPDES permit. See 40 CFR Section 122.45 (f)(1) and (2).

A review of the discharge monitoring data submitted from January 2004 through January 2005, shows that the BOD₅ limits was exceeded in February 2004. There were no exceedances reported for TSS during those months.

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 BOD₅ and TSS be no less than 85%. The facility has reported no violations for the secondary treatment removal requirement of 85% for BOD₅ or for TSS for the last two years.

Dissolved Oxygen, and pH and Fecal Coliform

The numerical limitations for dissolved oxygen (DO) and pH are based on state certification requirements under Section 401(a)(1) of the CWA, as described in 40 CFR 124.53 and 124.55. The Massachusetts Surface Water Quality Standards 314 CMR 4.05 (3)(b) contain specific numerical limits for dissolved oxygen, pH and fecal coliform.

The effluent limitation for dissolved oxygen in the existing permit is greater than or equal to 6 mg/l and will remain the same in the draft permit. There was one reported DO exceedance between January 2004 and January 2005.

The draft permit includes proposed pH limitations required by state water quality standards that are at least as stringent as pH limitations set forth at 40 CFR 133.102(c). Class B waters shall be in a range of 6.5 through 8.3 standard units and not more than 0.5 standard units outside of the background range. There shall be no change from background conditions that would impair any use assigned to this class. The facility has reported no pH violations in the last year.

The draft permit carries forward the average monthly, average weekly, and maximum daily concentration limits for fecal coliform in the existing permit. The sampling frequency for fecal coliform has been increased due to the minimal dilution available in Sawmill Brook and because we believe that a weekly sample is not sufficient to consistently characterize the effluent.

The proposed limits in the draft permit are 200 colony forming units (cfu's)/100 ml for the average monthly limit, 400 cfu's/100 ml for the weekly average limit, and 400 cfu's/100 ml for the maximum daily limit. The monitoring frequency for fecal coliform has been changed to twice (2) per week, and must be collected concurrently with sampling for Total Residual Chlorine between the months of April through October. There have been no fecal coliform violations for the reporting period of January 2004 through January 2005.

Oil and Grease

A reporting requirement has been included in the draft permit to determine any potential

Non-Conventional Pollutants

Chlorine

Chlorine and chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The effluent limits for maximum daily and monthly average Total Residual Chlorine (TRC) were developed using the acute and chronic criterion defined in the National Recommended Water Quality Criteria published in the Federal Register in December 2002. The criterion was multiplied by the available receiving water dilution for the appropriate flow scenario to obtain the TRC limit found in the draft permit. The criterion states that the average total residual chlorine in the receiving water should not exceed 11 ug/l for chronic toxicity protection, and 19 ug/l for acute toxicity protection. Therefore, for protection from the toxic effects of TRC, the dilution factor is multiplied by the acute and chronic criteria to obtain average monthly and maximum daily TRC permit limits.

Chlorine calculation:

Acute chlorine water quality criteria is 19 ug/l

Chronic chlorine water quality criteria is 11 ug/l

Plant design flow is 0.55 MGD

Design flow dilution factor is 1.24

Average Monthly Total Residual Chlorine Limit = $1.24 \times 0.011 \text{ mg/l} = 0.0136 \text{ mg/l} = 14 \text{ ug/l}$

Maximum Daily Total Residual Chlorine Limit = $1.24 \times 0.019 \text{ mg/l} = 0.0235 \text{ mg/l} = 24 \text{ ug/l}$

The permittee reported two exceedances of the maximum daily total residual chlorine effluent limitation between January 2004 and January 2005 and no exceedances of the average monthly limit.

Total Phosphorus

The Massachusetts Surface Water Quality Standards (314 CMR 4.00) do not contain numerical criteria for total phosphorus. The criteria for nutrients are found at 314 CMR 4.05(5)(c), which states that nutrients "shall

not exceed the site specific limits necessary to control accelerated or cultural eutrophication”. The Water Quality Standards also require that “any existing point source discharges containing nutrients in concentrations which encourage eutrophication or growth of weeds or algae shall be provided with the highest and best practicable treatment to remove such nutrients (314 CMR 4.04).

EPA has produced several guidance documents which contain recommended total phosphorus criteria for receiving waters. The 1986 Quality Criteria of Water (the Gold Book) recommends in-stream phosphorus concentrations of 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impoundments, and 0.025 mg/l within the lake or reservoir.

More recently, EPA has released “Ecoregional Nutrient Criteria”, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published criteria represent conditions in waters in that ecoregion minimally impacted by human activities, and thus representative of water without cultural eutrophication. Bridgewater is within Ecoregion XIV, Eastern Coastal Plains. The total phosphorus criteria for this ecoregion, found in Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV, published in the December, 2000 is 24 ug/l (0.024 mg/l).

In July 2003, EPA conducted a site visit to observe water quality conditions at the point of discharge, upstream and downstream of the discharge. Based on observation at these locations, Sawmill Brook did not appear to be highly eutrophied. This may be due partly to the natural dark color of the river which prevents sunlight from contributing to algae growth.

Consequently, the draft permit will not establish limits based on the EPA ecoregion guidance but, will instead establish a monthly average total phosphorus limit of 1.0 mg/l to prevent eutrophication problems. This limit will be in effect seasonally, from May 1 to October 31. The draft permit also contains total phosphorus monitoring requirements from November 1 to April 30.

When, in the future MADEP adopts nutrient criteria, a TMDL is completed, or additional water quality information shows that the phosphorus limit is not stringent enough to meet water quality standards, a more stringent limit may be imposed.

Ammonia Nitrogen

The limit for total ammonia during the warm weather months and the reporting requirements for the remainder of the year will remain the same in the draft permit as those in the existing permit. The effluent limitation between May through October is 2.0 mg/l. There were no exceedances in 2004.

Ammonia can impact the receiving stream’s dissolved oxygen concentration and can be toxic at elevated levels. Ammonia limits during the warm weather season are necessary to maintain the dissolved oxygen levels of 5 mg/l in the receiving stream as required by the State’s Water Quality Standards for Class B waters. Dissolved oxygen (D.O.) levels downstream of the discharge were below water quality criteria in the months of July and August 2000, see Taunton River Watershed Association (TRWA) 2001 Water Quality Monitoring Report.

Metals

Certain metals in water can be toxic to aquatic life. There is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. An evaluation of the reasonable potential of toxicity on the

concentration of metals in the effluent shows there is a reasonable potential of toxicity for copper.

EPA is required to limit any pollutant or pollutant parameter that is or may be discharged at a level that caused, has reasonable potential to cause, or contributes to an excursion above any water quality criterion.

Calculation of reasonable potential for copper:

The limits for copper were calculated based on National Recommended Water Quality Criteria: 2000. The copper criteria are hardness dependent. Hardness values from toxicity tests shows values from 48 to 52. A hardness value of 50 and a dilution factor of 1.24 were used to determine the critical effluent concentration of total copper to assess the need for a limit.

Allowable Receiving Water Concentration, C = Criteria (Total Recoverable) x Dilution Factor

| | | |
|---------|---------|--|
| Copper: | Acute | C = 9.03 ug/l x 1.24 = 11 ug/l which is less than the monthly average effluent copper concentration submitted by the facility on recent monthly discharge monitoring reports. There is a reasonable potential that copper being discharged in the effluent will exceed the water quality criteria. |
| | Chronic | C = 6.41 ug/l x 1.24 = 7.95 ug/l which is less than the maximum effluent copper concentration submitted by the facility on recent monthly discharge monitoring reports. There is a reasonable potential that copper being discharged in the effluent will exceed the water quality criteria. |

Water Quality Criteria for hardness-dependent metals:

Acute criteria (dissolved) = $\exp\{m_a [\ln(h)] + b_a\}$ (CF)

m_a = pollutant specific coefficient

b_a = pollutant specific coefficient

h = hardness

ln = natural logarithm

CF = pollutant-specific conversion factor used to convert total recoverable to dissolved metal

Chronic criteria (dissolved) = $\exp\{m_c [\ln(h)] + b_c\}$ (CF)

m_c = pollutant specific coefficient

b_c = pollutant specific coefficient

h = hardness

ln = natural logarithm

CF = pollutant-specific conversion factor used to convert total recoverable to dissolved metal

Reasonable potential calculation of acute limit for copper:

$m_a = 0.9422$ $b_a = -1.7$ CF = 0.96

Acute criteria (dissolved) = $\exp\{0.9422 [\ln(50)] + -1.7\} (0.96) = 6.99 \text{ ug/l}$

Acute criteria (total) = $\exp\{0.9422 [\ln(50)] + -1.7\} = 7.29 \text{ ug/l}$

Dilution Factor = 1.24

Effluent limitation for dissolved copper = $6.99 \text{ ug/l} \times 1.24 = 8.67 \text{ ug/l}$

Effluent limitation for total recoverable copper = $8.67/0.96 = 9.03 \text{ ug/l}^*$

Reasonable potential calculation for chronic limit for copper:

$m_a = 0.8545$ $b_a = -1.7$ $CF = 0.96$
Chronic criteria (dissolved) = $\exp\{0.8545 [\ln(50)] + -1.7\} (0.96) = 4.96 \text{ ug/l}$
Chronic criteria (total) = $\exp\{0.8545 [\ln(50)] + -1.7\} = 5.16 \text{ ug/l}$
Dilution Factor = 1.24
Effluent limitation for dissolved copper = $4.96 \text{ ug/l} \times 1.24 = 6.15 \text{ ug/l}$
Effluent limitation for total recoverable copper = $6.15/0.96 = 6.41 \text{ ug/l}^*$

*The conversion factor is used to determine total recoverable metal. EPA Metal Translator Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA-823-B-96-007) is used as the basis for using the criteria conversion factor. National guidance requires that permit limits be based on total recoverable metals and not dissolved metals. Consequently, it is necessary to apply a translator in order to develop a total recoverable permit limit from a dissolved criteria. The translator reflects how a discharge partitions between the particulate and dissolved phases after mixing with the receiving water. In the absence of site specific data on how a particular discharge partitions in the receiving water, a default assumption is equivalent to the criteria conversion factor used in accordance with the Translator Guidance.

The monthly average and maximum daily effluent limits for copper in the draft permit are more stringent than the limits in the existing permit. The limits in the existing permit were calculated based on guidance in EPA's publication, Quality Criteria for Water 1986. The Agency revised the National Recommended Water Quality Criteria: 2000. The effluent limits in the draft permit reflect those changes specified in the Federal Register notice. See 67 FR 7909, December 27, 2002, National Recommended Water Quality Criteria.

The permittee reported copper levels that exceeded the existing permit limitation for February, March and, May in 2004. The monthly average limit in the existing permit is 8 ug/l and the permittee reported 23 mg/l in February 2004, 25 mg/l in March 2004 and 21 mg/l in May 2004.

Toxicity

Under Section 301(b)(1) of the CWA, discharges are subject to effluent limitations based on water quality standards. The State Surface Water Quality Standards, 314 CMR 4.05(5)e, includes the following narrative statements and requires that EPA criteria established pursuant to Section 304(a) 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. Where the State determines that a specific pollutant not otherwise listed in 3.14 CMR 4.00 could reasonably be expected to adversely effect existing or designated uses, the State shall use the recommended limit published by EPA pursuant to 33 U.S.C. 1251 §304(a) as the allowable receiving water concentrations for the affected waters unless a site-specific limit is established. Site specific limits, human health risk levels and permit limits will be established in accordance with 314 CMR 4.05(5)(e)(1)(2)(3)(4).

National studies conducted by the EPA have demonstrated that industrial and 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 and industrial contributions, the state 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 limitation

(LC50) and acute biomonitoring requirements. (See “Policy for the Development of Water Quality Based Permit Limitations for Toxic Pollutants”, 50 Federal Register 30748, July 24, 1985, and EPA’s Technical Support Document for Water Quality Based Toxics Control”, September, 1985.)

The principal advantages of biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measured only by biological analyses; (2) bioavailability of pollutants after discharge is measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

Chronic and modified acute whole effluent toxicity test results have been in compliance with the limits in the existing permit for the past two years. Due to limited flow in the receiving stream, the number of whole effluent toxicity tests remain the same as the requirement in the existing permit. The draft permit includes a limit of 81% for the C-NOEC parameter of the toxicity tests. It is based on the inverse of the dilution factor.

C-NOEC

Dilution Factor - 1.24

$$1/1.24 * 100\% = 80.6\% = 81\%$$

IV. Sludge

The permit prohibits any discharge of sludge. Section 405(d) of the Clean Water Act (CWA) requires that sludge conditions be included in all POTW permits. Technical sludge standards required by Section 405 of the CWA were finalized on November 25, 1992 and published on February 19, 1993. The regulations went into effect on March 21, 1993.

The facility generates approximately 103 dry metric tons of sludge per year. The sludge is transported off-site for incineration at the Upper Blackstone Water Pollution Abatement District .

V. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection (MADEP) with jurisdiction over the receiving waters certify that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the MADEP has reviewed the permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State and expects that the permit will be certified.

VI. Public Comment Period, Public Hearing, and Procedures for Final Decision

All person, including applicants, who believe any condition of the 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, 1 Congress Street, Suite 1100 (CMA), Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever, the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the 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 hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 C.F.R. §124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

XII. EPA Contact

Additional information concerning the permit may be obtained between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday, excluding holidays from:

Betsy Davis
US Environmental Protection Agency
1 Congress Street
Suite 1100 (CP)
Boston, Massachusetts 02114-2023
Telephone: (617) 918-1576

DATE

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

Attachment A of the Fact Sheet
MCI-Bridgewater Wastewater Treatment Facility
Summary of NPDES Permit Reporting Requirements Dates

| Permit Page | Requirement and Dates | Submit to: |
|--------------------|--|-------------------|
| 5 | Whole Effluent Toxicity Tests results are due March 31, June 30, September 31, December 31 of each year. | EPA/MA DEP |
| 9 | The permittee shall submit an annual report containing the information specified in the sludge section of the permit by February 19. | EPA/MA DEP |
| 10 | Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15 th day of the month following the effective date of the permit. | EPA/MA DEP |

Table 1
MCI - Bridgewater Wastewater Treatment Plant
NPDES MA0102237
Discharge Monitoring Data Summary

Range between February 2002 and January 2005

| | |
|--|---------------|
| Flow, MGD | 0.300 - 0.453 |
| Average monthly BOD ₅ , mg/l | 3.0 - 34.0 |
| Average monthly BOD ₅ , lbs/day | 12.0 - 59.0 |
| Average monthly TSS, mg/l | 1.9 - 78.0 |
| Average monthly TSS, lbs/day | 5.0 - 126.0 |
| pH, s.u. (minimum) | 6.6 - 7.0 |
| pH, s.u. (maximum) | 7.0 - 7.3 |
| Average monthly fecal coliform, cfu's | 1.0 - 248 |
| Total Residual Chlorine, mg/l | 0 - 500 |
| Dissolved Oxygen, mg/l | 4.3 - 9.3 |
| Ammonia, mg/l (May through October) | 0.02 - 0.95 |
| Copper, ug/l | 5.0 - 45.0 |

Whole Effluent Toxicity Test

| Measurement Date | Acute Toxicity | | Chronic Toxicity | | | |
|------------------|-----------------------|-----------------------|------------------|---------------|---------------------|-------------------|
| | LC50 24 hour survival | LC50 48 hour survival | C-NOEC Survival | LOEC Survival | C-NOEC Reproduction | LOEC Reproduction |
| February 2004 | >100% | >100% | ≥ 100% | 100% | ≥ 100% | 100% |
| May 2004 | >100% | >100% | ≥ 100% | 100% | ≥ 100% | 100% |
| August 2004 | >100% | >100% | ≥ 100% | 100% | ≥ 100% | 100% |
| November 2004 | >100% | >100% | 81% | 100% | 81% | 100% |

RESPONSE TO PUBLIC COMMENT

From to September 2, 2005 to October 1, 2005, the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MADEP) solicited Public Comments on a draft NPDES permit, developed pursuant to an application from the Massachusetts Department of Corrections for the Bridgewater Correctional Complex Water Pollution Control Facility. After a review of the comments received, EPA has made a final decision to issue the permit authorizing the discharge. The following response to comment describes the changes and briefly describes and responds to the comments on the draft permit. A copy of the final permit may be obtained by writing or calling Betsy Davis, United States Environmental Protection Agency, 1 Congress Street, Suite 1100 (CPE), Boston, Massachusetts 02114-2023; Telephone (617) 918-1576.

A). Comment submitted by Cindy Delpapa, Riverways Program, Massachusetts Department of Fish and Game on September 30, 2005.

Comment #1: On the topic of monitoring frequency, the discharge monitoring information shows this facility can have discharges with dissolved oxygen (DO) levels well below the Class B State standards. We are pleased DO monitoring is required of this facility given the low dilution ratio found in Saw Mill Brook and this low dilution is why we are concerned with some of the past DO concentrations recorded by the Permittee. The DO in May of last year had a minimum of just 3.9 mg/l though the monthly average did reach 5.3 mg/l. October of 2001 reached an excessively stressful low of 2.8 mg/l but managed a monthly average of 6.3 mg/l. This DMR data suggests the effluent DO concentration is highly variable and there is reasonable potential for DO concentrations well below standards for this water body. DO testing is not an expensive nor onerous test and a more frequent monitoring schedule, such as daily or in conjunction with the TRC monitoring 3x/day, would provide more valuable information as to the variability in the DO concentrations on a daily basis. Ideally DO monitoring would be even more frequent than daily so as to better characterize the length of time effluent DO concentrations are depressed. Knowing the extent of DO problems is important in this effluent dominated brook because prolonged discharges of low DO effluent has the potential to cause stressful and even deadly conditions in Saw Mill Brook. The permit also does not provide detailed guidance on when to sample for DO, (the parameters calling for grab samples, pH, TRC, DO, Fecal Coliform, have a footnote referring to 24 hour composite sampling which is not entirely relevant to a grab sample). It might be best to request an early morning sample when in-stream DO concentrations are typically their lowest during a 24-hour cycle. We would also like to recommend additional sampling be conducted, (perhaps hourly) should a routine sample be found to fall below 5 mg/l to determine the length of time DO concentrations were depressed.

Response: We acknowledge that dissolved oxygen levels reported on past discharge monitoring reports have at times not met the limit of 6.0 mg/l in the existing permit. We agree that there is a reasonable potential that limited dilution plus low dissolved oxygen levels in the final effluent could cause impairment for aquatic organism particularly in early life and juvenile stages downstream of the outfall.

The final permit increases the monitoring frequency to twice per week and language has

been added to the final permit requiring DO be collected before 8:00 am from May 1 through October 31 to account for low DO levels in the stream.

Footnote 3 on page 4 of the final permit establishes sampling locations for parameters requiring grab samples as well as twenty-four hour composite samples.

Comment #2: The facility has had some compliance issues with both total residual chlorine and copper- pollutants able to cause acute and chronic toxicity in relatively low concentrations. Past monitoring data shows it is not unprecedented to have TRC concentrations a full order of magnitude above permit limitations. In January, 2005 the TRC concentration was 170 ug/l followed by a February concentration of 140 ug/l. The facility had even more egregious problems in 2003 when TRC concentrations in the early months of the year ranged from 1750 to 3620 ug/l. These are very distressing numbers and would likely cause acute toxicity in the receiving water. It is hoped the compliance record for this facility will improve and the regulators can work with the facility to improve the disinfection process. It might be appropriate to consider seasonal chlorination if Saw Mill Brook is unlikely to pose a public health threat should there be some elevated bacteria levels during the winter months and corresponding changes to the Fecal Coliform requirements.

Response: The Total Residual Chlorine exceedances you refer to were caused when the sodium bisulfite line at the treatment plant froze due to severe weather conditions. The line was repaired in a timely manner and TRC levels reported in subsequent months have been within the permit limits.

Comment #3: The copper exceedances are not as dramatic as the ones seen for TRC but the data does show a great deal of variability in the effluent concentrations. Given the potential toxicity of copper, the low dilution found in the Brook and the chronic variability exhibited in the effluent concentrations it would be helpful to increase the frequency of monitoring to understand more completely the range of copper concentrations found in the effluent and the frequency of permit limitation exceedances to determine if the effluent may pose undetected chronic or acute toxicity in the Brook. Should the problems with spikes in copper concentrations continue or be found to be more frequent than the data now suggests, it is hoped an investigation into possible changes in the system to reduce copper concentrations in the effluent.

Response: In February 2003, EPA issued an Administrative Order to the permittee with interim monthly average and daily maximum copper limits of 20 ug/l and requiring the permittee submit an Annual Copper Optimization Report. The measurement frequency for the interim limits are required monthly. The report must include action taken during the year to identify sources of copper entering the treatment plant and to optimize the removal of copper from the facility's effluent. If the interim copper limits are exceeded for two consecutive months or for three months within a twelve month period the permittee is required to submit a detailed engineering report to the Agencies for achieving full compliance with the Permit's copper limit.

Comment #4: Investigations by the Bridgewater State College Watershed Access Laboratory has documented elevated concentrations and loads of nutrients in the upper Taunton River, (

Upper Taunton River Rotating Tributary Study, 2004). The total phosphorus range in the summer of 2004 was 0.108 mg/l in August to 1.45 mg/l in early July with loads ranging from 70 to 317 lbs/day. Nitrate nitrogen had concentrations ranging from .086 to 3.77 mg/l and loads from 1369 to 2528 lbs/day. This data shows a system already burdened by excessive nutrient inputs and additional nutrients, even relatively small ones, can only exacerbate an unfortunate situation.

Having nutrient concentration and loads limits is important in this permit for the above reasons. It is understandable there are difficulties with determining a suitable concentration and load limit in the absence of State water quality standards or a total maximum daily load allocation. The Ecoregional Nutrient Criteria offers a sound and scientifically based alternative tool to help determine an appropriate nutrient limitation scheme for this permit. What is immediately obvious from the Ecoregion findings and those of the nutrient monitoring done by BSC Water Access Laboratory is in-stream concentrations are already consistently well above the criteria and the limited dilution afforded by Saw Mill Brook will do little to reduce the concentration and do nothing to lessen the loads from the MCI Bridgewater facility. While year-round nutrient concentration and load limits have not been included in MA NPDES permits, we would like to suggest the winter phosphorus monitoring be expanded to include total reactive phosphate to better understand the dynamics of phosphorus loading in this system. Ideally this would be a year round requirement to help identify what sources of phosphorus have the most potential to cause eutrophication in the Taunton River system. We would also like to see some investigation into treatment changes in the facility that could result in even lower phosphorus concentrations than 1.0 mg/l.

Response: The Agencies have reviewed the water quality data available on the Upper Taunton from the sources you reference in your comment. We agree that limiting total phosphorus in the facility's effluent, particularly in the warm weather months, is necessary to protect the River. The phosphorus requirements in the draft permit, an average monthly limit of 1.0 mg/l from May 1 through October 31 and a monitoring requirement for the remainder of the year shall remain in the final permit. An average monthly monitoring requirement for orthophosphate has been added to the final permit. The data will provide the Agencies with information that will be useful in understanding how phosphorus impacts the Taunton River as well as in assessing the need for more stringent phosphorus limits in future permits at this facility.

Comment #5: Nitrogen is another important nutrient to consider in this system as the Taunton River drains into Narraganset Bay and is one of the two major sources of nitrogen loading to the Bay. The monitoring and reporting requirements for nitrogen included in this permit will help inform future TMDL and management options in this watershed and the Bay.

The one form of nitrogen in this permit with limitations has shown the real potential to be above acceptable criteria is ammonia. The facility has had elevated concentrations and in 2004 these high concentrations occurred in early spring, (March was 10.4 mg/l and February 10.8 mg/l). The high concentration in spring is worrisome. Often there is a great deal of activity in aquatic systems in March as plankton blooms peak for the year and macroinvertebrates become more active. We would like some consideration given to

expanding the seasonal limitation for ammonia, which would be toxic to these important species forming the base of the food web, to start in March. In addition to placing limitations on what has the potential to be lethal or toxic ammonia levels it would also provide more frequent monitoring which would help in determining if there is a more pervasive problem with early spring ammonia levels.

Response: The Agencies agree that early life stages for many aquatic systems occur in the early spring and exposure to high ammonia levels could be potentially damaging to this community. The effluent limits for ammonia nitrogen in the final permit have been changed to take effect April 1 of each year.