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ENVIRONMENTAL APPEALS BOARD  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C.

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ENVIRONMENTAL APPEALS BOARD

NPDES Appeal No. \_\_\_\_\_

In re:

SCITUATE WASTEWATER TREATMENT  
PLANT  
  
NPDES Permit No. MA0102695

PETITION FOR REVIEW

INTRODUCTION

Now come the Town of Scituate and the Scituate Wastewater Treatment Plant ("Petitioner" or "Scituate") and, pursuant to 40 CFR 124.19(a) hereby petition for review of National Pollutant Discharge Elimination System ("NPDES") Permit No. MA0102695 (the "Permit") which the Environmental Protection Agency ("EPA") purported to serve on the Petitioner on November 23, 2004 (a copy of the Permit and the cover letter accompanying the same are attached hereto as Exhibit A). The Permit authorizes the Petitioner to discharge to the Herring River.

As a threshold matter, the Petitioner claims that the EPA failed to follow the applicable procedures for properly authorizing the Permit, thereby precluding the Permit's implementation. With respect to the Permit itself, the Petitioner asserts that certain conditions are based upon clearly erroneous findings of fact and/or errors of law. Specifically, Scituate contends that the Permit dilution factor as measured, in the receiving water (Herring River), as was previously reviewed and approved, was an appropriate mechanism for quantifying discharge limits and should not arbitrarily be replaced by an unproven method that would necessitate a multi-million dollar renovation. Scituate also contends that the Permit limits regarding concentration and mass

limits for Biochemical Oxygen Demand levels ("BOD") and Total Suspended Solids ("TSS") should be based on an annual rolling average, similar to the Total Nitrogen ("TN") limits or, in the alternative, the TN limits should be eliminated from the Permit because the concentration limits otherwise included in the Permit provide adequate protection to the receiving waters. Scituate also

For further reasons therefore, the Petitioner relies upon the following.

#### RELEVANT FACTS

1. The Town of Scituate is a political subdivision of the Commonwealth of Massachusetts. The Town of Scituate has a usual address of 600 Chief Justice Cushing Highway, Scituate, Massachusetts.
2. The Town of Scituate is the owner and operator of a certain wastewater disposal plant known as the Scituate Wastewater Treatment Plant ("SWTP"). The SWTP has an address of 161 Driftway, Scituate, Massachusetts.
3. Pursuant to the Federal Clean Water Act, the Town is authorized to discharge from the SWTP to the Herring River pursuant to the terms of a certain NPDES permit issued on January 30, 1997.
4. From December 22, 2003 to January 20, 2004, EPA solicited public comments on the draft of the reissued NPDES Permit. The engineering firm of Camp, Dresser and McKee submitted comments on behalf of Scituate. The Comments and EPA's response thereto are attached to the Permit (See Exhibit A).
5. Comment #3 submitted on behalf of the Town provides that  

"[t]he town's existing NPDES permit was based on a 13:1 dilution factor in the receiving waters (Herring River). The tidal ditch conveying plant effluent to the Herring River was permitted as a mixing zone. The point of discharge for loading calculations was the confluence of the tidal creek and the Herring River. As noted in the Fact Sheet, 'The point where dilution is

measured for toxic pollutants has **been re-evaluated by EPA during this permit reissuance [emphasis added]** . . . .’ The Town strongly contests this re-evaluation and subsequent reduction in dilution, which is resulting in increased stringency for copper, nickel and zinc discharges. As noted in the Fact Sheet, the town evaluated alternate discharge methods, including an ocean outfall, during Facilities Planning. The current course of action was selected based on facilities planning, environmental impacts, and approval by the regulatory agencies. Construction of the current facilities and discharge to the current point were implemented under an Administrative Consent Order, ACO-SE-94-1003. The town maintained complete compliance with all terms, conditions, and schedule of the ACO. To reverse findings and concurrences leading to a multi-million dollar facility upgrade through discretionary reasoning during the next round of permit reissuance places an unreasonable burden on the Town of Scituate. To further aggravate the situation, EPA representatives verbally indicated that the current dilution would be acceptable if the town were to build a pipe from the current discharge point to the Herring River. Construction of such a pipe would be costly and likely result in significantly more environmental impact during construction (if even allowed) than current practice, with no change in the water quality of the Herring River. The following are hereby incorporated to this comment by reference: Final Facilities Plan and Environmental Impact Report for Wastewater Management, Scituate, MA dated March 1, 1995, Volumes I, II, and III, prepared by Metcalf and Eddy, Wakefield, MA; and all correspondence, meeting notes, memorandum, public hearings, MEPA reviews, regulatory approvals, files, and associated materials related to the production and approval of the facilities plan/EIR.”

6. This 11<sup>th</sup>-hour re-evaluation of dilution factors belies the fact that Scituate, the EPA and DEP had previously devised an approved system whereby effluent may be discharged through a tidal ditch, with attendant limits to be measured within the receiving waters according to a mutually acceptable dilution factor of 13:1.

7. In suggesting that, as an alternative, the Petitioner be allowed to utilize the 13:1 dilution factor if it constructs a pipe to the receiving water, EPA ignores several material facts:

- a. Construction of a pipe is impossible within the area of the present ditch without causing severe adverse impacts to wetland resource areas of the type that are stringently protected by the Massachusetts Wetlands Protection Act, which is, ironically, administered by the DEP.

b. Because location of any such pipe would have to re-route the path of effluent discharge across different areas to an entirely different discharge point, Scituate would have to engage in an entirely new permitting process, necessitating several years of additional permitting at massive cost to the Town. Even if such discretionary permits could be obtained, the cost of such a venture is conservatively estimated at \$20,000,000.00.

8. The EPA's response to Scituate's concerns is inadequate. EPA offers no evidence in support a conclusion that the current method of transporting effluent to the receiving waters is resulting in adverse impacts. Nor has EPA advanced any evidence to support its arbitrary hypothesis that the construction of a multi-million dollar pipe to a different discharge point would function at a higher level than the current mixing zone. Scituate constructed a new, advanced treatment facility in accordance with a facilities plan approved by DEP and EPA, MEPA, and an Administrative Order issued by EPA. The EPA has not provided any documentation that the SWTP is discharging, or is likely to discharge, toxic materials in toxic concentrations or that water quality has been, or is likely to be, impacted. EPA's stance is not based upon site specific facts and, rather, appears to be based on a purely mechanical application of Gold Book Standards, which have been under continuous scrutiny regarding the impact of low level metal concentrations in highly treated effluents.

9. Furthermore, EPA's response contains the startling admission that its permit terms are unachievable. Rather, EPA admits that it will have to issue an administrative consent order wholly outside of the permitting process in order to rectify its imposition of clearly untenable permit terms.

10. Additionally, the Petitioner takes exception to the response by EPA of its Comment #2. Comment #2, submitted on behalf of Scituate states, in relevant part,

“[t]he draft permit contains concentration and mass limits for BOD, TSS, and TN. The mass limits are based on the concentration limits and the average plant flow (1.6 mgd). The TN mass limits are based on an annual rolling average. The BOD and TSS mass limits are monthly limits based on the average annual flow and the 10 mg/l average monthly limits. This results in the concentration limits governing at flows of 1.6 mgd or less and the mass limits governing at flows in excess of 1.6 mgd. This could be problematic as the plant approached design flows. For example, the current peak month flow is about 1.6 times the annual average. At design flows, the peak month flow should be in the range of 2.6 mgd. Under these conditions effluent TSS and BOD must be 6mg/l. The reasoning presented in the Fact Sheet more appropriately leads to the conclusion that mass limits should be based on an annual rolling average similar to the TN limits. The town is not requesting, or suggesting, that the monthly concentration limits be based on an annual rolling average. The mass limits should be adjusted to an annual rolling average or eliminated from the permit. The concentration limits provide adequate protection to the receiving waters. Weekly mass limits should be eliminated.”

11. The EPA failed, in its response, to adequately discuss the ramifications and suggestions presented in the Town’s original comment. The EPA responded to the Town’s comment by stating that “If an annual average flow is used to calculate mass limits, a peak flow of 1.6 times the design flow would result in a discharge of 213 lbs/day or a 62% increase in BOD or TSS. . . .” This response is wholly unresponsive to Scituate’s comment. The average design flow was used to determine mass limits ( $10 \times 8.34 \times 1.6$  (average annual design flow) = 133 which is the permit limit). Nitrogen in the existing permit is mass only. The proposed Permit includes a concentration limit, meaning that the mass limit will not govern until the plant reaches flow capacity. All arguments presented in the EPA materials indicate that the permitted mass would meet water quality criteria for Nitrogen regardless of plant flow. Therefore, concentration limits for Nitrogen should be eliminated from the permit.

12. Finally, the EPA sent a purported Permit to the Town of Scituate on or about November 23, 2004. The Permit is signed by an apparent delegate of EPA’s regional Director of Ecosystem Protection (and the Director of the Division of Watershed Management for the

DEP). The cover letter accompanying the Permit was signed by Roger Janson, the Associate Director of EPA's Municipal Permits Branch.

13. The Permit was not issued by the EPA's Regional Administrator. Nor did the Permit include a notice of the Regional Administrator specifically referencing the procedures for appeal under 40 CFR 124.19.

#### ARGUMENT

1. The Permit is ineffective due to failure to comply with the provisions of 40 CFR 124.15.

The provisions of 40 CFR 124.15 contain specific requirements for the issuance of NPDES permits. First, the permit must be issued by the Regional Administrator. Second, “[t]he Regional Administrator shall notify the applicant and each person who has submitted written comments or requested notice of the final permit decision.” In this matter, the Permit was not signed or issued by the Regional Administrator nor was the Permit accompanied by a notice from the Regional Administrator. Furthermore, neither the Permit nor its cover letter contain a specific reference to 40 CFR 124.19 as the procedures for appeal of the permit.

The failure to comply with these minimum requirements is not a matter of semantics. Rigid compliance with the unambiguous requirements for issuance of a permit ensures a uniform method by which applicants and other interested parties are provided with notice of a Permit. Without proper notice, there is no assurance that interested parties will be given a full and fair opportunity to exercise their right of appeal. In order to ensure proper notice and due process, the thirty-day appeal period begins only upon “service of notice of the Regional Administrator.” 40 CFR 124.19(a). In that EPA has failed to comply with the unambiguous notice provisions under 40 CFR 124.15, the Board must find that the Permit has not been properly issued and, therefore, cannot take effect, as scheduled.

2. The Permit Condition Eliminating the Mixing Zone is Based Upon Finding of Facts and Conclusions of Law that are Clearly Erroneous and is a Matter of Important Public Policy that Should be Reviewed by the Board

The elimination of the mixing zone and the attendant dilution factors allowed by the Town's prior NPDES permit and the subject of any earlier Administrative Order is based upon findings of fact and conclusions of law that are clearly erroneous and, which, as a matter of public policy, must be reviewed by the Board.

In this matter, the Town constructed a new, advanced treatment facility in accordance with a facilities plan approved by DEP and EPA, MEPA, and an Administrative Order issued by EPA. Shortly after the completion of the new facility, the Town submitted its application to renew its NPDES permit with the reasonable assumption that the new permit would not be conditioned on terms that would require a massive reconstruction of the project that was approved by these same agencies just five years ago. To the amazement of the Town, the very same agency that issued an Administrative Order approving the mixing zoning now has imposed an admittedly unattainable permit term. In the alternative, the EPA has arbitrarily and capriciously suggested that it would allow the continuation of existing permit levels if the Town commits to the construction of a new outfall pipe to a different point of discharge. Such construction would require several years of permitting and would conservatively cost the Town in excess of \$20,000,000.00. At the very least, an alternate position such as this should be documented with the same level of environmental analyses, public participation, and reviews as the documents leading to the original position on dilution.

EPA has not provided any documentation that the town is discharging toxic materials in toxic concentrations or that water quality has been impacted. EPA's stance is based on Gold Book Standards, which have been under continuous scrutiny regarding the impact of low level metal concentrations in highly treated effluents. The permit as proposed by EPA would result in

construction costs, either for an extended outfall or modified treatment, far in excess of the costs of the current advanced treatment facility, with no documented demonstration of improvements in environmental conditions or water quality. The Petitioner understands that limits can become tighter with future permits. However, the imposition of stricter permit limits cannot be based on a decision with no supporting documentation. Before imposing Permit terms that significantly alter the criteria currently governing the SWTP, it was incumbent on EPA to support its position with scientific fact. The EPA has utterly failed to support its position in this regard and accordingly, has acted arbitrarily and capriciously.

Moreover, meeting the Permit limits within the mixing zone with a 1:1 dilution factor is a standard that is simply impossible to achieve, a fact which EPA has expressly acknowledged. Indeed, EPA's response to the Petitioner's comments affirms the inability to comply with this term and EPA's comments expressly suggest that it will subsequently issue an Administrative Consent Order to remedy the Town's inability to meet an impossible Permit term. By virtue of this admission, and its corresponding willingness to subsequently enter into an order allowing non-compliance, the EPA has refuted any argument that the proposed permit terms are necessary. Moreover, this method operates to circumvent the legitimate permitting process and vests EPA with the opportunity to impose additional conditions without the benefit of public comments and notice. This practice should not be countenanced.

Additionally, and most significantly, EPA's suggested alternative is wholly arbitrary. There is absolutely no evidence advanced by the EPA or the DEP that the suggested construction of a multi-million dollar pipe will result in any enhanced level of treatment over the currently employed mixing zone/ditch. Nor is there any evidence whatsoever that the current vessel for transport of the effluent (within the mixing zone/ditch) is resulting in adverse impacts of any kind. In posing such an alternative, the Permit writers ignore the fact that the current method by



which effluent is transported to the receiving waters received extensive scrutiny and, ultimately, the approval of all permitting agencies.

For the above mentioned reasons this completely arbitrary exercise of power by the EPA supported by little factual data indicating any change in the environmental conditions is clearly erroneous and of such an important public policy concern that it must be reviewed by the Board. 40 CFR 124.19(a)(2).

3. The EPA's Required Method of Measurement of BOD and TSS is Based Upon Finding of Facts and Conclusions of Law that are Clearly Erroneous and is a Matter of Important Public Policy that Should be Reviewed by the Board.

The EPA response to the Town's concerns regarding BOD and TSS are wholly inadequate and fail to address the concerns clearly identified in Scituate's comments. Therefore, any conclusions or findings pertaining thereto are clearly erroneous because the EPA's response to Town Comment # 2— "If an annual average flow is used to calculate mass limits, a peak flow of 1.6 times the design flow would result in a discharge of 213 lbs/day or a 62% increase in BOD or TSS...."—does not address the issue. This is so because the average design flow was used to determine mass limits ( $10 \times 8.34 \times 1.6$  (average annual design flow) = 133 which is permit limit). Nitrogen in the existing Permit is mass only. The proposed permit includes a concentration limit, meaning that the mass limit will not govern until the plant reaches flow capacity. All arguments presented in the EPA materials indicate that the permitted mass would meet water quality criteria for Nitrogen regardless of plant flow. Therefore, concentration limits for Nitrogen serve no appreciable benefit or deterrent to the permit and should be eliminated from the permit.

In light of the evidence supplied to the EPA that indicates permitted mass would meet water quality criteria for Nitrogen regardless of plant flow, any condition requiring the reduction of

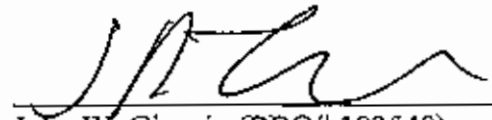
Nitrogen for no appreciable reason constitutes a matter of important public policy that should be reviewed by the Board. 40 CFR 124.19(a)(2).

CONCLUSION

For the foregoing reasons, the Town of Scituate and the Scituate Wastewater Treatment Plant request that the Board enter an Order declaring that the Permit was improperly issued; or, in the alternative, grant the Petition for Review of those terms discussed herein.

TOWN OF SCITUATE AND SCITUATE  
WASTEWATER TREATMENT PLANT,

By its attorneys,




John W. Giorgio (BBO# 193540)  
Jason R. Taleran (BBO#567927)  
Kopelman and Paige, P.C.  
Town Counsel  
31 St. James Avenue  
Boston, MA 02116  
(617) 556-0007  
fax: (617) 654-1735  
jtaleran@k-plaw.com

CERTIFICATE OF SERVICE

I, Jason R. Taleran hereby certify that, on this 22<sup>nd</sup> day of December, 2004, I caused a copy of the foregoing to be served upon the following, by first class mail:

Tonia Bandrowicz  
U.S. EPA, Region I  
Office of Environmental Stewardship, (SEL)  
1 Congress Street, Suite 1100  
Boston, MA 02114  
(617) 918-1734

Glen Haas  
Division of Watershed Protection  
Massachusetts Department of Environmental Protection  
One Winter Street  
Boston, MA 02108

  
\_\_\_\_\_  
Jason R. Taleran

239259/SCIT/0001



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

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

*FW COPIES RETURN*

November 23, 2004

Anthony Antonello  
Director, Dept. of Public Works  
600 Chief Justice Cushing Highway  
Scituate, MA 02066

Re: NPDES Permit No. MA0102695

Dear Mr. Antonello:

Enclosed is your [redacted] (NPDES) permit issued pursuant to the Clean Water Act (the "Federal Act"), as amended, and the Massachusetts Clean Waters Act (the "State Act"), 21 M.G.L. §§43-45, as amended. The Environmental Permit Regulations, at 40 C.F.R. §124.15, 48 Fed. Reg. 14271 (April 1, 1983), require this permit to become effective on the date specified in the permit.

Also enclosed is a copy of the Massachusetts State Water Quality Certification for your final permit, the Agency's response to the comments received on the draft permit, Massachusetts State Coastal Zone Management consistency concurrence, and information relative to appeals and stays of NPDES permits. Should you desire to contest any provision of the permit, your petition should be submitted to the Environmental Appeals Board as outlined in the enclosure and a similar request should also be filed with the Director of the Office of Watershed Management in accordance with the provisions of the Massachusetts Administrative Procedures Act, the Division's Rules for the Conduct of Adjudicatory Proceedings and the Timely Action Schedule and Fee Provisions (see enclosure).

We appreciate your cooperation throughout the development of this permit. Should you have any questions concerning the permit, feel free to contact Doug Corb at (617) 918-1565.

Sincerely,

*Doug A. Corb*

[redacted] Director  
Municipal Permits Branch

Enclosures

cc: MADEP, Division of Watershed Management  
All Interested Parties



EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MITT ROMNEY  
Governor

KERRY HEALEY  
Lieutenant Governor

*John Giorgio*

ELLEN ROY HERZFELDER  
Secretary

ROBERT W GOLLEDGE, Jr.  
Commissioner

November 2, 2004

Brian Pitt, Chief  
Massachusetts NPDES Permit Program Unit  
USEPA - New England  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

Re: **Water Quality Certification**  
**NPDES Permit MA0102695**  
**Town of Scituate Wastewater Treatment Plant**

Dear Mr. Pitt:

Your office has requested the Massachusetts Department of Environmental Protection to issue a water quality certification pursuant to Section 401(a) of the Federal Clean Water Act ("the Act") and 40 CFR 124.53 for the above referenced NPDES permit. The Department has reviewed the proposed draft permit and has determined that the conditions of the permit will achieve compliance with sections 208(e), 301, 302, 303, 306, and 307 of the Federal Act, and with the provisions of the Massachusetts Clean Waters Act, M.G.L. c. 21, ss. 26-53, and regulations promulgated thereunder. The permit conditions are sufficient to comply with the antidegradation provisions of the Massachusetts Surface Water Quality Standards [314 CMR 4.04] and the policy [October 6, 1993] implementing those provisions.

The Massachusetts Department of Environmental Protection is requiring the following conditions in the permit as state certification requirements:

1. Infiltration/Inflow Control Plan [Part I.C.3; page 7-8]: the provision is established pursuant to the authority in 314 CMR 12.04(8&9) [Operation and Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers- "proper operation and preventive maintenance program"]
2. 12 month rolling average for flow [Part I.A.1- footnote 2; page 3]: the limit is established pursuant to the authority in 314 CMR 12.03(4) [Operation and Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers- "approval of wastewater treatment facility by Department"]

This information is available in alternate format. Call Debra Doherty, ADA Coordinator, at 1-617-392-5565. TDD Service - 1-800-298-2297.

DEP on the World Wide Web: <http://www.state.ma.us/dep>

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## EPA New England NPDES Permitting Staff

Listed below are the names and telephone numbers for EPA New England NPDES permitting staff. If you have questions on the enclosed permit, please call the permit writer indicated below. If you have a question on a specific permitting issue, feel free to contact the appropriate permit specialist.

Toll Free Number: (888) 372-7341  
ask for extension number listed below

Questions on your permit? Please contact the permit writer.

### Senior Managers

Roger Janson, Associate Director,  
Surface Water Branch (617) 918-1621

Brian Pitt, NPDES Permit Unit Team  
Leader (617) 918-1875

### NPDES Permit Writers

Victor Alvarez (617) 918-1572  
Michele Barden (617) 918-1539  
Jon Britt (617) 918-1563  
Hosur Chikkalingaiah (617) 918-1574  
Doug Corb (617) 918-1565  
Betsy Davis (617) 918-1576  
Austine Frawley (617) 918-1065  
Fred Gay (617) 918-1297  
John Paul King (617) 918-1295  
Janet LaBonte (617) 918-1667

Mike O'Brien (617) 918-1649  
George Papadopoulos (617) 918-1579  
Soupy Sarker (617) 918-1693  
Bill Wandlé (617) 918-1605

### Power Plant Permits

Damien Houlihan (617) 918-1054  
John Nagle, Biologist (617) 918-1054  
George Papadopoulos (617) 918-1579  
Sharon Zaya (617) 918-1995

### Specialists

#### Alternative Dilution Water

Joy Hilton (617) 918-1877

#### Analytical - Minimum Levels Reporting

Doug Corb (617) 918-1565

#### DMR Reporting

Diane Boisclair (617) 918-1762

#### General Permits & Exclusions

John Hackler (617) 918-1551

#### Permit Applications

Olga Vergara (MA) (617) 918-1519  
Shelley Puleo (NH) (617) 918-1545

#### Permit Modifications

Contact The Individual Permit Writer

#### Public Notice of Draft Permits

Olga Vergara (MA) (617) 918-1519  
Shelley Puleo (NH) (617) 918-1545

#### Pretreatment Issues

Jay Pimpore (617) 918-1531

#### Sludge Guidance

Thelma Murphy (617) 918-1615

#### Stormwater General Permits

Thelma Murphy (617) 918-1615  
David Gray (617) 918-1577

#### Total Maximum Daily Load (TMDL)

Alison Simcox (617) 918-1684

#### Toxicity Test Protocol & Procedures

Joy Hilton (617) 918-1877

#### Water Quality Issues

Dave Pincumbe (617) 918-1695



THE COMMONWEALTH OF MASSACHUSETTS  
 EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
 OFFICE OF COASTAL ZONE MANAGEMENT  
 251 Causeway Street, Suite 900, Boston, MA 02114-2135  
 (617) 626-1200 fax (617) 626-1240

November 9, 2004

Anthony Antonello  
 Director of Public works  
 Town of Scituate  
 600 Chief Justice Cushing Way  
 Scituate, MA 02066

RE: CZM Federal Consistency Review: Scituate Wastewater Treatment Plant, NPDES permit #MA0102695; Scituate

Dear Mr. Antonello:

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the Scituate Wastewater Treatment Plant discharge to a tidal creek leading to Herring River.

We concur with your certification and find that the activity as proposed is consistent with the CZM enforceable program policies.

If the above-referenced proposal, which has received this concurrence from CZM, is modified in any manner or is noted to be having effects on the coastal zone or its uses that are substantially different than originally proposed, please submit an explanation of the nature of the change to this Office pursuant to 301 CMR 21.17 and 15 CFR 930.66.

Thank you for your cooperation with CZM.

Sincerely,

Susan Snow-Cotter  
 Acting Director

SSC/tpc  
 czm#1575

cc: Brian Pitt, Chief  
       MA NPDES Permit Unit, EPA  
 Paul Hogan,  
       DEP Worcester  
 Jason Burtner  
       CZM South Shore Regional Coordinator



## 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),

**Town of Scituate  
Department of Public Works**

is authorized to discharge from the facility located at

**Scituate Wastewater Treatment Plant  
161 Driftway  
Scituate, MA 02066**

to receiving water named

**Tidal creek to Herring River  
(South Coastal Watershed - MA 94-07)**

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

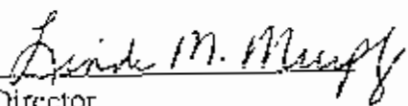
This permit shall become effective sixty (60) days from the date of signature.

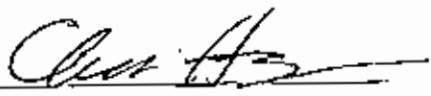
This permit and the authorization to discharge expire at midnight five years from the effective date.

This permit supersedes the permit issued on January 30, 1997.

This permit consists of 11 pages in Part I including effluent limitations and monitoring requirements, Attachment A, Sludge Guidance Attachment, and 35 pages in Part II including General Conditions and Definitions.

Signed this 22 day of November, 2004

  
Director  
Office of Ecosystem Protection  
Environmental Protection Agency  
Boston, MA

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



NPDES Permit No. MA0102695  
PART 1

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 the tidal creek tributary to Herring River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS						MONITORING REQUIREMENTS	
	AVERAGE MONTHLY	AVERAGE WEEKLY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE	
FLOW	*****	*****	1.6 MGD <sup>2</sup>	*****	Report MGD	CONTINUOUS	RECORDER	
CBOD <sub>5</sub> <sup>4</sup>	133 lbs/day	*****	10 mg/l	*****	Report mg/l <sup>1</sup>	1/WEEK	24-HOUR COMPOSIT	
TSS <sup>1</sup>	133 lbs/day	*****	10 mg/l	*****	Report mg/l <sup>1</sup>	1/WEEK	24-HOUR COMPOSIT	
pH RANGE <sup>1</sup>	6.5 - 8.5 SU SEE PERMIT PAGE 5, PARAGRAPH 1.A.1.b.						1/DAY	GRAB
FECAL COLIFORM <sup>1,6</sup>	*****	*****	14 cfu/100ml	*****	43 cfu/100ml	3/WEEK	GRAB	
DISSOLVED OXYGEN	*****	*****	≥ 6.0 mg/l	*****	Report mg/l	1/WEEK	GRAB	
TOTAL NITROGEN	53 lbs/day <sup>1</sup>	*****	4.0 mg/l <sup>11</sup>	*****	Report mg/l	1/WEEK	24-HOUR COMPOSIT	
TOTAL COPPER <sup>7</sup>	*****	*****	4 ug/l	*****	6 ug/l	1/MONTH	24-HOUR COMPOSIT	
TOTAL NICKEL <sup>7</sup>	*****	*****	8 ug/l	*****	Report ug/l	1/MONTH	24-HOUR COMPOSIT	
TOTAL ZINC	*****	*****	86 ug/l	*****	95 ug/l	1/MONTH	24-HOUR COMPOSIT	
WHOLE EFFLUENT TOXICITY	Acute LC <sub>50</sub> ≥ 100%; Chronic NOEC = ≥ 100% SEE FOOTNOTES 8, 9, & 10						4/YEAR	24-HOUR COMPOSIT

## Footnotes:

1. Required for State Certification.
2. 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 that is calculated from that month and the previous 11 months.
3. All required effluent samples, except pH, dissolved oxygen and fecal coliform bacteria shall be collected from the automatic sampler located after the UV disinfection unit. The samples for pH, dissolved oxygen and fecal coliform bacteria shall be collected after the Parshall plume. Any change in sampling locations must be reviewed and approved in writing by EPA and DEP. All samples shall be tested using the analytical methods found in 40 CFR Part 136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR Part 136. All samples shall be 24 hour composites unless specified as a grab sample in 40 CFR Part 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 (e.g., 0700 Monday to 0700 Tuesday).
6. Fecal coliform monitoring will be conducted year-round. This is also a State certification requirement. Fecal coliform discharges shall not exceed a monthly geometric mean of 14 most probable number (MPN) or Colony Forming Units (CFU) per 100 ml, nor shall the daily maximum exceed 43 MPN or CFU per 100 ml.
7. The permittee shall analyze for total copper and total nickel using the Furnace Atomic Absorption analytical method, EPA Method 220, or Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> Edition, Method 3113 B. The concentration of the minimum level (ML) shall be lower than the permit limits for total copper and total nickel, where the ML is the lowest point on the curve used to calibrate the analytical equipment for the pollutant of concern.
8. The permittee shall conduct acute and chronic toxicity tests four times per year. The permittee shall use the test species, Abacia punctualia for acute tests and Menidia beryllina for chronic tests. 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 <sub>50</sub>	Chronic Limit C-NOEC
January	February 28 <sup>th</sup>	<i>Abacia punctualta</i>	*****	≥ 100%
April	May 31 <sup>st</sup>	<i>Menidia beryllina</i> (see Attachment A)	≥ 100%	≥ 100%
July	August 31 <sup>st</sup>			
October	November 30 <sup>th</sup>			

After submitting one year and a minimum of 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 WET testing requirements. 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 LC<sub>50</sub> 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. The C-NOEC is ≥ 100%, the inverse of the dilution factor.
10. 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 to be direct attachment to this permit. Any modification or revocation to this "Guidance Document" will be transmitted to the permittee 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.
11. The nitrogen limit is an annual average limit, which shall be reported as a rolling average. The first value will be calculated using the monthly average mass or concentration for the first full month ending after the effective date of the permit and the eleven previous monthly averages. Each subsequent month's DMR will report the annual average that is calculated from that month and the previous 11 months.

### 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.

## 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 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).

### C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

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

#### 1. Maintenance Staff

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

#### 2. Preventative Maintenance Program

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

#### 3. Infiltration/Inflow Control Plan:

The permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The 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.

**4. 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).

**D. 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 (e.g., 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

NPDES Permit No. MA0102695

Page 10 of 11

**E. MONITORING AND REPORTING****1. Reporting**

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

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



**F. 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 this permit or 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 or any portion of 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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**PERMIT ATTACHMENT A**  
**MARINE CHRONIC**  
**TOXICITY TEST PROCEDURE AND PROTOCOL**

**I. GENERAL REQUIREMENTS**

The permittee shall conduct acceptable silverside chronic (and modified acute) and sea urchin chronic toxicity tests in accordance with the appropriate test protocols described below:

- Inland Silverside (Menidia beryllina) Larval Growth and Survival Test.
- Sea Urchin (Arbacia punctulata) 1 Hour Fertilization Test.

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

**II. METHODS**

Methods to follow are those recommended by EPA in:

Klemm, D.J. et al. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters To Marine and Estuarine Organisms, Second Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, July 1994, EPA/600/4-91/003.

Any exceptions are stated herein.

**III. SAMPLE COLLECTION**

For each sampling event involving the Menidia beryllina, three discharge samples shall be collected. Fresh samples are necessary for Days 1, 3, and 5 (see Section V. for holding times). A single sample is necessary for the Arbacia punctulata test. The sample shall be analyzed chemically (see Section VI). The initial sample (Day 1) is used to start the tests, and for test solution renewal on Day 2.

The second sample is collected for use at the start of Day 3, and for renewal on Day 4. The third sample is used on Days 5, 6, and 7. The initial (Day 1) sample will be analyzed chemically (see Section VI). Day 3 and 5 renewal samples will be held until test completion. If either the Day 3 or 5 renewal sample is of sufficient potency to cause lethality to 50 percent or more test organisms in any of the dilutions for either species, then a chemical analysis shall be performed on the appropriate sample(s) as well.

Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for the chemical and physical analyses. The remaining sample shall be dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual oxidants (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1 mg/L chlorine. A thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) should also be run.

All samples held overnight shall be refrigerated at 4°C.

#### IV. DILUTION WATER

Grab samples of receiving water used for chronic toxicity testing shall be collected from one or several distances away from the discharge. It may be necessary to test receiving water at several distances in a separate chronic test to determine the extent of the zone of toxicity. Avoid collecting near areas of obvious road or agricultural runoff, storm sewers or other point source discharges. An additional control (0% effluent) of a standard laboratory water of known quality shall also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a conductivity, salinity, total suspended solids, organic carbon, and pH similar to that of the receiving water may be substituted AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S). Written requests for use of an alternative dilution water should be mailed with supporting documentation to the following address:

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

It may prove beneficial to the permittee to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support..... acceptable performance as outlined in the 'test acceptability' section of the protocol.

#### V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

EPA New England requires that tests be performed using four replicates of each control and effluent concentration because the on-parametric statistical tests cannot be used with data from fewer replicates. Also, if a reference toxicant test was being performed concurrently with an effluent or receiving water test and fails, both tests must be repeated.

The following tables summarize the accepted Menidia and Arbacia toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND RECOMMENDED TEST CONDITIONS FOR THE SEA URCHIN,  
ARRACIA PUNCTULATA, FERTILIZATION TEST<sup>2</sup>

1. Test type	Static, non-renewal
2. Salinity	30 o/oo $\pm$ 2 o/oo by adding dry ocean salts
3. Temperature	20 $\pm$ 1°C
4. Light quality	Ambient laboratory light during test preparation
5. Light intensity	10-20 uE/m <sup>2</sup> /s, or 50-100 ft-c (Ambient Laboratory Levels)
6. Test vessel size	Disposal (glass) liquid scintillation vials (20 ml capacity), presoaked in control water
7. Test solution volume	5 ml
8. Number of sea urchins	Pooled sperm from four males and pooled eggs from four females are used per test
9. Number of egg and sperm cells per chamber	About 2000 eggs and 5,000,000 sperm cells per vial
10. Number of replicate chambers per treatment	4
11. Dilution water	Uncontaminated source of natural seawater or deionized water mixed with artificial sea salts
12. Dilution factor	Approximately 0.5
13. Test duration	1 hour and 20 minutes
14. Effects measured	Fertilization of sea urchin eggs

**PERMIT ATTACHMENT A**  
**MARINE CHRONIC**  
**TOXICITY TEST PROCEDURE AND PROTOCOL**

**I. GENERAL REQUIREMENTS**

The permittee shall conduct acceptable silverside chronic (and modified acute) and sea urchin chronic toxicity tests in accordance with the appropriate test protocols described below:

- **Inland Silverside (Menidia beryllina) Larval Growth and Survival Test.**
- **Sea Urchin (Arbacia punctulata) 1 Hour Fertilization Test.**

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

**II. METHODS**

Methods to follow are those recommended by EPA in:

Klema, D.J. et al. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters To Marine and Estuarine Organisms, Second Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, July, 1994, EPA/600/4-91/003.

Any exceptions are stated herein.

**III. SAMPLE COLLECTION**

For each sampling event involving the Menidia beryllina, three discharge samples shall be collected. Fresh samples are necessary for Days 1, 3, and 5 (see Section V. for holding times). A single sample is necessary for the Arbacia punctulata test. The sample shall be analyzed chemically (see Section VI). The initial sample (Day 1) is used to start the tests, and for test solution renewal on Day 2..

The second sample is collected for use at the start of Day 3, and for renewal on Day 4. The third sample is used on Days 5, 6, and 7. The initial (Day 1) sample will be analyzed chemically (see Section VI). Day 3 and 5 renewal samples will be held until test completion. If either the Day 3 or 5 renewal sample is of sufficient potency to cause lethality to 50 percent or more test organisms in any of the dilutions for either species, then a chemical analysis shall be performed on the appropriate sample(s) as well.

Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for the chemical and physical analyses. The remaining sample shall be dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual oxidants (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1 mg/L chlorine. A thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) should also be run.

All samples held overnight shall be refrigerated at 4°C.

#### IV. DILUTION WATER

Grab samples of receiving water used for chronic toxicity testing shall be collected from one or several distances away from the discharge. It may be necessary to test receiving water at several distances in a separate chronic test to determine the extent of the zone of toxicity. Avoid collecting near areas of obvious road or agricultural runoff, storm sewers or other point source discharges. An additional control (0% effluent) of a standard laboratory water of known quality shall also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a conductivity, salinity, total suspended solids, organic carbon, and pH similar to that of the receiving water may be substituted AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S). Written requests for use of an alternative dilution water should be mailed with supporting documentation to the following address:

Director  
Office of Ecosystem Protection  
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One Congress Street  
Suite 1100 - CAA  
Boston, MA 02114-2023

It may prove beneficial to the permittee to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

#### V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

EPA New England requires that tests be performed using four replicates of each control and effluent concentration because the on-parametric statistical tests cannot be used with data from fewer replicates. Also, if a reference toxicant test was being performed concurrently with an effluent or receiving water test and fails, both tests must be repeated.

The following tables summarize the accepted Menidia and Arbacia toxicity test conditions and test acceptability criteria:



EPA NEW ENGLAND RECOMMENDED TEST CONDITIONS FOR THE SEA URCHIN,  
ARBACTIA PUNCTULATA, FERTILIZATION TEST<sup>1</sup>

1. Test type	Static, non-renewal
2. Salinity	30 o/oo $\pm$ 2 o/oo by adding dry ocean salts
3. Temperature	20 $\pm$ 1°C
4. Light quality	Ambient laboratory light during test preparation
5. Light intensity	10-20 $\mu$ E/m <sup>2</sup> /s, or 50-100 ft-c (Ambient Laboratory Levels)
6. Test vessel size	Disposal (glass) liquid scintillation vials (20 ml capacity), presoaked in control water
7. Test solution volume	5 ml
8. Number of sea urchins	Pooled sperm from four males and pooled eggs from four females are used per test
9. Number of egg and sperm cells per chamber	About 2000 eggs and 5,000,000 sperm cells per vial
10. Number of replicate chambers per treatment	4
11. Dilution water	Uncontaminated source of natural seawater or deionized water mixed with artificial sea salts
12. Dilution factor	Approximately 0.5
13. Test duration	1 hour and 20 minutes
14. Effects measured	Fertilization of sea urchin eggs

15. Number of treatments per test<sup>2</sup> 5 and a control. An additional dilution at the permitted effluent concentration (% effluent) is required.
16. Acceptability of test Minimum of 70% fertilization in controls. Effluent concentrations exhibiting greater than 70% fertilization, flagged as statistically significantly different from the controls, will not be considered statistically different from the controls for NOEC reporting.
17. Sampling requirements For on-site tests, samples are to be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection.
18. Sample volume required Minimum 1 liter
- 

Footnotes:

1. Adapted from EPA/600/4-91/003, July 1994.
2. When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

EPA NEW ENGLAND RECOMMENDED TEST CONDITIONS FOR THE INLAND SILVERSIDE, MENIDIA BERYLLINA, GROWTH AND SURVIVAL TEST<sup>1</sup>

1.	Test type	Static, renewal
2.	Salinity	5 o/oo to 32 o/oo $\pm$ 2 o/oo by adding artificial sea salts.
3.	Temperature	25 $\pm$ 1°C
4.	Light quality	Ambient laboratory light
5.	Light intensity	10-20 $\mu$ E/m <sup>2</sup> /s, or 50-100 ft-C (Ambient Laboratory Levels)
6.	Photoperiod	16 hr light, 8 hr darkness
7.	Test vessel size	600 - 1000 mL beakers or equivalent (glass test chambers should be used)
8.	Test solution volume	500-750 mL/replicate loading and DO restrictions must be met)
9.	Renewal of test solutions	Daily using most recently collected sample.
10.	Age of test organisms	Seven to eleven days post hatch; 24 hr range in age.
11.	Larvae/test chamber	15 (minimum of 10)
12.	Number of replicate chambers	4 per treatment
13.	Source of food	Newly hatched and rinsed <u>Artemia</u> nauplii less than 24 hr old
14.	Feeding regime	Feed once a day 0.10 g wet wt <u>Artemia</u> nauplii per replicate on days 0-2; feed 0.15 g wet wt <u>Artemia</u> nauplii per replicate on days 3-6

15. Cleaning Siphon daily, immediately before test solution renewal and feeding
16. Aeration<sup>2</sup> None
17. Dilution water Uncontaminated source of natural seawater; or deionized water mixed with artificial sea salts.
18. Effluent concentrations<sup>3</sup> 5 and a control. An additional dilution at the permitted effluent concentration (% effluent) is required.
19. Dilution factor  $\geq 0.5$
20. Test duration 7 days
21. Effects measured Survival and growth (weight)
22. Acceptability of test The average survival of control larvae is a minimum of 80%, and the average dry wt of unpreserved control larvae is a minimum of 0.5 mg, or the average dry wt of preserved control larvae is a minimum of 0.43 mg if preserved not more than 7 days in 4% formalin or 70% ethanol.
23. Sampling requirements For on-site tests, samples are collected daily and used within 24 hours of the time they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection.
24. Sample Volume Required Minimum of 6 liters/day.
-

Footnotes:

- <sup>1</sup> Adapted from EPA/600/4-91/003, July 1994.
- <sup>2</sup> If dissolved oxygen (D.O.) falls below 4.0 mg/L, aerate all chambers at a rate of less than 100 bubbles/min. Routine D.O. checks are recommended.
- <sup>3</sup> When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

**VI. CHEMICAL ANALYSIS**

As part of each daily renewal of the Meridia test, pH, dissolved oxygen, salinity, and temperature must be measured at the beginning and end of each 24 hour period in each dilution and in the controls. It must also be done at the start of the Arbacia test. The following chemical analyses shall be performed for each sampling event.

<u>Parameter</u>	<u>Effluent</u>	<u>Diluent</u>	<u>Minimum Quantification Level (mg/L)</u>
pH	x	x	---
Salinity	x	x	PPT (o/oo)
Total Residual Oxidants <sup>1</sup>	x	x	0.05
Total Solids and Suspended Solids	x	x	---
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
<u>Total Metals</u>			
Cd	x		0.001
Cr	x		0.005
Pb	x		0.005
Cu	x		0.0025
Zn	x		0.0025
Ni	x		0.004
Al	x		0.02

Superscripts:\*1 Total Residual Oxidants

Either of the following methods from the 18th Edition of the APHA (1992) Standard Methods for the Examination of Water and Wastewater must be used for these analyses:

- Method 4500-CL E the Amperometric Titration Method (the preferred method);
- Method 4500-CL G the DPD Photometric Method.

or use USEPA Manual of Methods Analysis of Water or Wastes, Method 330.5.

## VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

## Methods of Estimation:

- Probit Method
- Spearman-Karber
- Trimmed Spearman-Karber
- Graphical

See flow chart on page 56 of EPA/600/4-91/003 for appropriate point estimation method to use on a given data set.

Chronic No Observed Effect Concentration (C-NOEC)

## Methods of Estimation:

- Dunnett's Procedure
- Bonferroni's T-Test
- Steel's Many-One Rank Test
- Wilcoxin Rank Sum Test

Reference flow charts on pages 191, 192, and 321 of EPA/600/4-91/003 for the appropriate method to use on a given data set.

In the case of two tested concentrations causing adverse effects but an intermediate concentration not causing a statistically significant effect, report the C-NOEC as the lowest concentration where there is no observable effect. The definition of NOEC in the EPA Technical Support Document only applies to linear dose-response data.

### VIII. TOXICITY TEST REPORTING

A report of results will include the following:

- Description of sample collection procedures, site description;
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody; and
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

2003 Reissuance

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND  
ONE CONGRESS STREET  
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.: MA0102695

NAME AND ADDRESS OF APPLICANT:

Department of Public Works  
Town of Scituate  
600 Chief Justice Cushing Way  
Scituate, MA 02066

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Scituate Wastewater Treatment Plant  
161 Driftway  
Scituate, MA 02066

RECEIVING WATER: Tidal creek to Herring River  
(South Shore Coastal Watershed - MA 94-07)

CLASSIFICATION: SA

PUBLIC NOTICE DATE: 12/22/03

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

The above named applicant has requested that the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) reissue its NPDES permit to discharge into the designated receiving water, a tidal creek which is tributary to the Herring River (Figure 1). The facility is engaged in the collection and treatment of primarily municipal wastewater. The existing permit expired on March 31, 2002 and was administratively continued. This permit, after it becomes effective, will expire in 2008.



**2003 Reissuance**

The Town of Scituate Wastewater Treatment Plant (WWTP) (Figure 2) is a 1.6 million gallon per day (MGD) advanced treatment facility providing treatment primarily to domestic and commercial wastewater. The wastewater treatment facility was initially put in operation in 1965 and upgraded in 1980 and 2000. The wastewater treatment facility, sewer system and other relevant components of the overall wastewater program are outlined below (information supplied by the Town of Scituate- Robert Rowland, Chief Operator; June 5, 2002):

***Treatment Plant Components:***

- \* mechanical bar screen
- \* aerated grit tank
- \* activated sludge with fine bubble aeration
- \* clarification
- \* down flow filters (for nitrogen removal)
- \* ultraviolet disinfection
- \* post aeration

***Sludge Treatment:***

- \* aerobic digestion
- \* two belt filter presses
- \* sludge cake taken off-site under contract with Soil Preparation, Plymouth, ME

***Chemicals used in the treatment process include:***

- \* soda ash for pH adjustment
- \* methanol to provide a carbon source for nitrogen removal

***Flow:***

- \* measured at the influent, the return and waste activated sludge lines and at the final effluent using a Parshall flume with an ultrasonic sensor
- \* average annual design = 1.6 MGD
- \* daily peak = 2.36 MGD
- \* hourly maximum = 4.34 MGD

***Septage:***

- \* the facility receives septage from the town only; in 2001, the monthly average amount was 0.25 million gallons per month

***Sewerage System:***

- \* three pump stations all which are equipped with emergency generators; the system is a separate system with an on-going program to reduce inflow/infiltration
- \* service area is comprised of a population of 5,110

A quantitative description of the discharge in terms of significant effluent parameters based on recent monitoring data is shown in Fact Sheet Table 1.

## 2003 Reissuance

### II. Limitations and Conditions

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

### III. Permit Basis and Explanation of Effluent Derivation

The Clean Water Act (CWA or the Act) prohibits the discharge of pollutants to waters of the United States without an NPDES permit unless such a discharge is otherwise authorized by the Act. An NPDES permit is used to implement technology based and water quality based effluent limitations as well as other requirements including monitoring and reporting. This draft NPDES permit was developed in accordance with statutory and regulatory authorities established pursuant to the Act. The regulations governing the NPDES program are found in 40 CFR 122, 124, and 125.

#### *Waterbody Classification and Usage*

The Scituate Wastewater Treatment Plant discharges to an approximately 2,000 foot tidal creek which runs through a salt marsh and empties into the Herring River which is tributary to the North River which in turn empties into Massachusetts Bay.

The Herring River is classified as an SA water body by the Massachusetts Surface Water Quality Standards [314 CMR 4.06(2)(b)]. *Class SA waters are designated as an excellent 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 without depuration (Open Shellfish Areas). These waters shall have excellent aesthetic value.* [314 CMR 4.05(4)(a)]

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 Herring and North Rivers are on the 1998, CWA 303(d) list for pathogens.

The effluent tidal creek is closed to shellfishing. The Massachusetts Department of Marine Fisheries establishes a mandatory "closure safety zone" in the vicinity of all wastewater treatment facilities which discharge to marine waters. The entire length of the effluent tidal creek has been designated as the closure zone. In addition, the Herring River (into which the tidal creek flows) is closed to shellfishing due to poor water quality in the river which is not related to the discharge from the Scituate WWTP.

#### *Municipal Wastewater Treatment Facility [also referred to as "Publicly Owned Treatment Works" (POTW Discharges)] Effluent Limits Regulatory Basis*

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 CFR 125 Subpart A).

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve federal or state water quality standards.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limits based on water quality standards. The Massachusetts Surface Water Quality Standards (314 CMR 4.00) include 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 a site-specific criteria is established. The state will limit or prohibit discharge of pollutants to surface waters to assure that water quality of the receiving waters are protected and maintained, or attained.

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that caused, or has reasonable potential to cause, or contributes to an excursion above any water quality criterion [40 CFR 122.44(d)(1)]. An excursion occurs if the projected or actual instream concentrations exceed the applicable criterion. In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and where appropriate, and the dilution of the effluent in the receiving water.

#### *Dilution Calculation*

Water quality based limits are calculated based on available dilution. The current permit, issued on January 30, 1997, established water quality based limits for total copper and whole effluent toxicity using a dilution ratio of 13:1, as calculated at the Herring River. The 13:1 dilution ratio allows a 2,000 foot mixing zone within the tidal creek that drains to the Herring and then North Rivers. The point where dilution is measured for toxic pollutants has been re-evaluated by EPA during this permit reissuance in recognition of the absence of dilution water in the tidal creek during low tide.

The point of dilution measurement for non conservative, non toxic pollutant loading calculations (BOD<sub>5</sub>, TSS, and nitrogen) was not re-evaluated and shall remain at the confluence of the tidal creek with the Herring River as their point of influence will occur after mixing.

DEP established the original mixing zone from information derived from the Final Facilities Plan and Environmental Impact Report (EIR) prepared by Metcalf and Eddy<sup>1</sup>. Contained within the report were results of modeling of the wastewater treatment plant effluent in the tidal creek and the Herring River. The report acknowledges a lack of dilution during portions of the tidal cycle. The report states that: *...at low tide, the effluent would account for most of the flow in the tidal ditch. There would be little, if any, dilution of the effluent entering the ditch. Therefore, the level of treatment must meet or exceed the water quality criteria for Class SA waters.*

The permit was written prior to both the completion of (except for nutrient removal) the treatment plant in October of 2000 and the drinking water system corrosion control program, which was completed in phases between 1992-2000. Based on reasonable assumptions generated with the best data available, Metcalf and Eddy, anticipated greater metals reductions in the effluent than were subsequently realized. M&E's report stated:

*Copper. Copper levels measured during the study period ranged from 17 ug/l (June) to 50 ug/l (Day 4 of March sampling). Data collected during March exhibited daily variability, with a similar range documented during the 7-day sampling period. The Federal acute and chronic criteria for saltwater are both 2.9 ug/l (U.S. EPA, 1992). Copper concentrations were 6 to 17 times the criteria for receiving waters.*

*Copper levels were likely attributable to copper leachate from plumbing systems due to the aggressive nature of the public water supply. Well water supplies typically exhibit pH values in the range of 6.3 to 6.5 (Kenney, 1989). Existing plans to implement corrosion control practices to raise the pH may effectively reduce copper concentrations in the WPCP effluent. These plans include a monitoring program, adjustment of pH in the well water as needed, and possibly the installation of an optimal corrosion control treatment process (Diercks, 1991). Corrosion control practices implemented in Boston in 1977 resulted in a mean reduction in copper concentrations of 71 percent in drinking water (Karalekas et al., 1983). Should similar reduction be achieved with corrosion controls in the Scituate water supply, the highest measured copper concentrations would be reduced to approximately 14 ug/l. Facilities Plan and EIR, page II-7-8.*

Recent Discharge Monitoring Report (DMR) data submitted by the permittee demonstrates higher concentrations of copper (and other metals) than were predicted prior to the implementation of corrosion control (see the table below).

## 2003 Reissuance

EFFLUENT TOTAL COPPER CONCENTRATIONS			
DMR Reporting Period End Date	Maximum Concentration ug/l	DMR Reporting Period End Date	Maximum Concentration ug/l
05/31/01	56	05/31/02	39
06/30/01	47	06/30/02	26
07/31/01	75	07/31/02	38
08/31/01	<25	08/31/02	39
09/30/01	31	09/30/02	<25
10/31/01	86	10/31/02	26
11/30/01	45	11/30/02	25
12/31/01	45	12/31/02	17
01/31/02	43	01/31/03	17
02/28/02	25	02/28/03	<25
03/31/02	32	03/31/03	27
04/30/02	43	04/30/03	<25

The average total effluent copper concentration for 24 months was 37 ug/l, almost twice the 14 ug/l concentration anticipated with the implementation of drinking water system corrosion control. The highest reported copper value for this period was 18 times the Acute criteria (4.8 ug/l) and 28 times the chronic criteria (3.1 ug/l).

The EIR/Facilities Plan included discussion of options to move the outfall to the open ocean to insure greater dilution. The decision not build an extended outfall pipe was predicated on no exhibited acute toxicity within the tidal creek mixing zone. The dilution ratio at the edge of the mixing zone was determined by a model to be 13:1. This was supported by early acute whole effluent toxicity test results conducted prior to the upgrade of the treatment plant.

The current permit has a requirement for quarterly testing for whole effluent toxicity (WET), with a  $LC_{50}$  concentration limit of  $\geq 100$ , where the  $LC_{50}$  is the concentration of wastewater which causes mortality to 50% of the test organisms. The permit also has a monitoring requirement for the chronic no observable effects concentration or C-NOEC. The C-NOEC is defined as the highest effluent concentration at which no chronic observed effect will occur at continuous exposure to test organisms.

## 2003 Reissuance

Quarterly WET test results submitted by the Town of Scituate from calendar year 2001 to the present were reviewed by EPA. Tests prior to 2001 were excluded in order to focus on the period after the implementation of corrosion control in the drinking water system. All LC<sub>50</sub> WET results were in compliance with the  $\geq 100\%$  permit limit.

The May 2002, Acute WET test reported an acute no observable effects concentration (A-NOEL) of 50%. All other LC<sub>50</sub> and A-NOEL data reported for that period were at 100%. The State's mixing zone policy states that: *One way to prevent acute exposure is to prohibit acute concentration at the outfall structure or within a short distance from it.* This is consistent with EPA's Technical Support Document for Water Quality Based Toxics Control<sup>4</sup>.

The C-NOEC monitoring data collected during the same period indicates episodic chronic toxicity within the mixing zone

DMR End Date	Species	C-NOEC
09/30/01	Arbacia punctulata	12.5%
06/30/02	Arbacia punctulata	6.25%
03/31/01	Menidia beryllina	6.25%
12/31/02	Menidia beryllina	50%

Even though the available WET data shows only one exceedance of the acute water quality criterion, the chronic WET data, coupled with the large exceedances of the water quality criteria for copper and the large size of the impacted area, EPA has determined that the dilution for toxic pollutants (metals and WET) shall be measured at the point of initial dilution to conform with 314 CMR 4.05(5)(e), which states that: *All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.* The State Water Quality Criteria for toxic pollutants shall be applied directly as limits without dilution. The limits for total copper and whole effluent toxicity shall be reduced accordingly. New limits for total zinc and total nickel shall be added to the draft permit. The calculations for all of the limits are presented later in this fact sheet.

EPA recognizes that the discontinuance of the mixing zone for toxic pollutants is a significant departure from the conditions found in the current permit. A 2,000' mixing zone with no dilution for a portion of each tidal cycle, where both the acute and chronic criteria are exceeded many fold, clearly covers far too great an area to meet the intent for which such zones are created.

There is insufficient information provided in the Facilities Plan/EIR to determine if the absence of dilution occurs throughout the length of the tidal creek, or just in the immediate area of the discharge. In the absence of further dilution modeling within the creek, EPA finds it necessary to take a conservative approach and eliminate the "toxic mixing zone". The Town may wish to explore additional dilution modeling. The Town may also wish to discuss compliance options with EPA's Water Technical Unit and the DEP regarding the achievability of the new and more stringent limits.

Footnotes:

- 1) Final Facilities Plan and Environmental Impact Report for Wastewater Management (BOEA # 5512: March 1, 1995)
- 2) Massachusetts Water Quality Standards Implementation Policy for the control of Toxic Pollutants in Surface Waters, February 23, 1990.
- 3) Massachusetts Water Quality Standards Implementation Policy for Mixing Zones, January 8, 1993.
- 4) Technical Support Document for Water Quality Based Toxics Control, EPA/505/2-90-001, March 1991.

**Conventional Pollutants and Non-Conventional Pollutants**

The design flow of the plant is 1.6 MGD. The flow limit will be reported as an annual average flow, using monthly average flows from the previous eleven months. Flow shall be monitored in accordance with 40 CFR §122.44(i)(1)(ii), which requires monitoring of *the volume of effluent discharged from each outfall*. During the period from May 2000 to April 2002, the monthly average plant flow was 1.13 MGD (see Table 1). The facilities planning threshold in Part I.A.I.f is based on monthly average plant flows.

The draft permit includes proposed average monthly and average weekly *carbonaceous biochemical oxygen demand (CBOD) and total suspended solids (TSS)* concentrations are based upon the previous permit which was a result of the previously referenced facility plan study (1995). The CBOD and TSS limits in the model (the model used was WQONN: Water Quality of Networks/Nutrient Version; reference: Harleman et al 1977) used in the facility planning effort evaluated a limit of 10 mg/l monthly average. The percent removal BOD and TSS limitations are based on the 85 % removal requirements found at 40 CFR §133.102(b)(3).

The draft permit also includes average monthly and average weekly mass limitations based upon design flow (e.g. 1.6 MGD X 8.34 X 10 mg/l = 133 lbs/day) and a maximum daily reporting requirement (mg/l only) which are based on current state water quality certification requirements. The frequency of monitoring for CBOD and TSS remains at 1/week. DEP evaluated flow in NPDES permits which was traditionally determined by the design flow [the average annual flow] being applied as a monthly average. At DEP's request, EPA changed its designation of flow from a monthly average to an annual average [12 month rolling average] in order to account for seasonal flow variations, particularly that associated with high flow and high groundwater which commonly occur in the spring time. In order to maintain loadings to the receiving water which are consistent with the anti-backsliding and anti-degradation provisions of the Massachusetts Surface Water Quality Standards [314 CMR 4.00], DEP determined that mass limits should be imposed as well as limitations for mg/l. The pounds per day are applied using the annual average design flow for both the monthly and weekly averages. DEP also requested implementation of a more comprehensive inflow/infiltration requirements in order that high seasonal flows which are impacted by excessive *LI* are addressed.

The *pH* limits are based on state water quality standards for Class SA waters [314 CMR 4.05(4)(a)(3)].

**NPDES Fact Sheet No. MA 0102695  
2003 Reissuance**

Page 9 of 18

The *fecal coliform* limits are based on state water quality standards for Class SA waters [314 CMR 4.05(4)(a)(4)]. These limits are year-round.

*Settleable solids* monitoring requirements have been removed from the draft permit, as these are no longer state certification requirements.

***Total Copper, Total Zinc, and Total Nickel***

EPA is required to limit any pollutant that is or may be discharged at a level that causes, or has reasonable potential to cause, or contribute to an excursion above any water quality criterion (40 CFR §122.44(d)). These metals are toxic to aquatic life at low concentrations. Recent effluent monitoring data was evaluated against the criteria and available dilution to determine if there is a reasonable potential for metals in the effluent to cause or contribute to a violation of water quality standards.

The criteria found in EPA's *National Recommended Water Quality Criteria* was published in the Federal Register on December 10, 1998 (63 FR 68354) and updated November 2002 (EPA-822-R-02-047). Pollutant specific conversion factors (CF) are used for converting a metal criterion expressed as a total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. The equations and constants for determining the water quality criteria for each metal and the conversion factors and equation parameters are listed in the Federal Register notice and subsequent correction. 40 CFR §122.45(c) requires that permit limits be expressed as total recoverable metal.

*National Recommended Water Quality Criteria (63 FR 68354, December 10, 1998) as updated November 2002 (EPA-822-R-02-047), based on Interim Final National Toxics Rule (60 FR 22233, May 4, 1995):*

Parameter	Maximum Reported Effluent Discharge Concentration ug/l	Dissolved Criteria CMC ug/l	Dissolved Criteria CCC ug/l	Translator	Total Criteria CMC ug/l	Total Criteria CCC ug/l
<b>Total Copper</b>	86 <sup>1</sup> (50) <sup>2</sup>	4.8	3.1	0.83	5.8	3.7
<b>Total Nickel</b>	30 <sup>3</sup>	74	8.2	0.990	74.7	8.3
<b>Total Zinc</b>	108 <sup>4</sup> (60) <sup>2</sup>	90	81	0.946	95	86

(note: conversion factor for CCC is not available; EPA uses CMC factor for both CCC & CMC)

- 1) October 2001 Discharge Monitoring Report and 2001 Permit Application
- 2) Highest reported value indicated in the Final Facilities Plan and Environmental Impact Report for Wastewater Management (EOEA # 5512: March 1, 1995 Pages, II-7-(8-10))
- 3) March 7-9, 2001 2001 whole effluent toxicity test
- 4) May 13, 2002 whole effluent toxicity test



NPDES Fact Sheet No. MA 0102695  
2003 Reissuance

Page 10 of 18

The calculations for the criteria and limits are as follows:

- ▶ Chronic criteria (CCC) for dissolved copper = 3.1 ug/l
- ▶ conversion factor for dissolved versus total recoverable copper = 0.83
- ▶  $3.1 \text{ ug/l} / 0.83$  equivalent value to total recoverable copper is = 3.7 ug/l  $\approx$  4 ug/l
  
- ▶ Acute criteria (CMC) for dissolved copper = 4.8 ug/l
- ▶ conversion factor for dissolved versus total recoverable copper = 0.83
- ▶  $4.8 \text{ ug/l} / 0.83$  equivalent value to total recoverable copper is = 5.8 ug/l  $\approx$  6 ug/l

The average monthly limit for total recoverable copper based on the chronic water quality criteria will be 4 ug/l and the maximum daily limit, based on the acute criteria, will be 6 ug/l. These limits are changed from the existing permit based upon the revised criteria.

The M&E Report<sup>1</sup> stated that: *Zinc was reported in concentrations ranging from 11 to 60 ug/l, and present in all effluent samples. Its concentration was below the marine chronic criterion of 86 ug/l (U.S. EPA, 1986) in all samples. More recent zinc samples collected as part of the WET Protocol requirements have reported concentrations as high as 107 ug/l. The acute and chronic criteria for zinc are 90 ug/l and 81 ug/l, respectively. Similarly, recent data for nickel shows concentrations as high as 96 ug/l. The acute and chronic criteria for nickel are 74 ug/l and 8.2 ug/l, respectively.*

- ▶ Chronic criteria (CCC) for dissolved zinc = 81 ug/l
- ▶ conversion factor for dissolved versus total recoverable zinc = 0.946
- ▶  $81 \text{ ug/l} / 0.946$  equivalent value to total recoverable zinc is = 86 ug/l
  
- ▶ Acute criteria (CMC) for dissolved zinc = 90 ug/l
- ▶ conversion factor for dissolved versus total recoverable zinc = 0.946
- ▶  $90 \text{ ug/l} / 0.946$  equivalent value to total recoverable zinc is = 95 ug/l

The average monthly limit for total recoverable zinc based on the chronic water quality criteria will be 86 ug/l and the maximum daily limit, based on the acute criteria, will be 95 ug/l.

- ▶ Chronic criteria (CCC) for dissolved nickel = 8.2
- ▶ conversion factor for dissolved versus total recoverable nickel = 0.990
- ▶  $8.2 \text{ ug/l} / 0.990$  equivalent value to total recoverable nickel is = 8.3 ug/l  $\approx$  8 ug/l
  
- ▶ Acute criteria (CMC) for dissolved nickel = 74 ug/l
- ▶ conversion factor for dissolved versus total recoverable nickel = 0.990
- ▶  $74 \text{ ug/l} / 0.990$  equivalent value to total recoverable nickel is = 74.7  $\approx$  75 ug/l

The average monthly limit for total recoverable nickel based on the chronic water quality criteria will be 8 ug/l and with no maximum daily limit.

NPDES Fact Sheet No. MA 0102695  
2003 Reissuance

Page 11 of 18

*Whole Effluent Toxicity Testing*

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)], include the following narrative statements and require 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. Where the State determines that a specific pollutant not otherwise listed in 314 CMR 4.00 could reasonably be expected to adversely affect 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)(1-4)."*

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents to POTWs above those which may be contributed from industrial users. These pollutants include metals, chlorinated solvents, aromatic hydrocarbons and other constituents.

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 analysis; (2) bioavailability of pollutants after discharge is measured by toxicity testing including any synergistic effect of pollutants; and (3) pollutants for which there are inadequate analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in connection with pollutant-specific control procedures to control the discharge of toxic pollutants.

In order to evaluate the toxicity of the WWTP discharge, acute and chronic toxicity tests are required using marine test species *Arbacia punctulata* (chronic) and *Menidia beryllina* (acute and chronic) four times per year in keeping with *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters*. Additionally, the two species are retained in this draft because they have historically exhibited toxicity when exposed to the plants effluent. The months that toxicity tests are to be conducted are January, April, July, and October to be consistent with other facilities in the South Coastal and the Massachusetts Watershed Initiative. See Permit Attachment A, Toxicity Test Procedure and Protocol, for a description of the testing requirements. The chronic no observed effects concentration (C-NOEC) is the inverse of the receiving water dilution. The limit in the draft permit has been recalculated as  $\geq 100\%$  based on the absence of dilution at low tide.

NPDES Fact Sheet No. MA 0102695  
2003 Reissuance

Page 12 of 18

### *Disinfection*

The WWTP has two parallel ultra-violet disinfection units consisting of two 36-foot channels with three lamp banks each. Each channel is designed to provide an energy dose level of approximately 64,000 uW-sec/cm<sup>2</sup> at peak flow with a 45 second retention time at peak flow. The power supply is automatically varied in direct proportion to plant flow.

### *Nitrogen*

The draft permit limits nitrogen in the effluent based upon studies conducted as part of the facility planning effort in the 1990's. The draft permit limits total inorganic nitrogen (TIN) to 4.0 mg/l and 53 pounds per day. The existing permit has a limit 39.5 lbs/day of total nitrogen (TN). The new limit will be an 12 month rolling annual average. The TIN is more bioavailable to aquatic organisms than organic nitrogen portion of the total nitrogen which has gone through extensive reduction in the treatment process. Wastewater treatment facilities designed for nitrogen tend to have a residual organic nitrogen of 1.0- 2.0 mg/l which cannot be removed without more advanced treatment such as carbon absorption. See the Anti-degradation (Section V) of this Fact Sheet for more detail.

### *Dissolved Oxygen (DO)*

The limit of  $\geq 6.0$  mg/l of dissolved oxygen is carried forward in this draft permit from the current permit. The Final Facilities Plan and EIR indicates that seasonally, the 6.0 mg/l Class SA Water Quality Standard (WQS) for dissolved oxygen is not met in the estuary. Sampling locations in the estuary, but away from the discharge, indicate that this may be a naturally occurring phenomenon common to New England estuaries, and not as a result of the POTW discharge. Denitrifying plants tend to have low effluent dissolved oxygen unless effluent reaeration occurs prior to discharge. The limit is in place to insure that the POTW does not cause or contribute to an exceedance (depression) of the State WQS for DO.

### *Monitoring*

The effluent monitoring requirements have been specified in accordance with 40 CFR 122.41(j), 122.44(i), and 122.48 to yield data representative of the discharge.

### *Anti-backsliding*

A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA. The anti-backsliding provisions found in 40 CFR 122.44(l) prohibit the relaxation of permit limits, standards, and conditions. Therefore, the technology-based effluent limits in a reissued permit must be at least as stringent as those in the previous permit. Relaxation is only allowed when cause for permit modification is met (see 40 CFR 122.62).

Effluent limits based on BPJ, water quality, and state certification requirements must also meet the anti-backsliding provisions found under Section 402(0) and 303(d)(4) of the CWA, as described in 40 CFR 122.44(l).

**NPDES Fact Sheet No. MA 0102695  
2003 Reissuance**

Page 13 of 18

Effluent limits based on water quality and state certification requirements must also meet the anti-backsliding provisions found under Section 402(o) and 303(d)(4) of the CWA, as described in 40 CFR 122.44(i). The relaxation of the limits may be allowed under the anti-backsliding regulations in 40 CFR 122.44(l), when new information is available that was not available at the time of the previous permit issuance or a technical mistake has been made.

Anti back-sliding does not apply to the discontinuance of settleable solids monitoring as the need to monitor this parameters is better measured by other means.

Nitrogen limits are now expressed in terms of total inorganic nitrogen rather than total nitrogen due to review of technical information about nutrient treatability and biological responses to nutrient addition. Research and treatment operations manuals indicate that following nitrification and denitrification, there remains some low level amount of organic nitrogen which is in refractory form and is not removed in the treatment process but is also significantly less bioavailable to aquatic plants thus not providing additional available nitrogen loading to the receiving water. Total inorganic nitrogen is the most bioavailable form of nitrogen. Engineering texts support these positions (e.g. "Design and Retrofit of Wastewater Treatment Plants for Biological Nutrient Removal [1992- Randall, Barnard and Stensel]"). The new limit for nitrogen is not backsliding but is now aimed at controlling the proper form of nitrogen.

**IV. Operation and Maintenance of the Sewer System**

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 MA DEP maintain that these programs are an integral component of ensuring permit compliance under both of these provisions.

***Infiltration/Inflow Requirements***

The draft permit includes requirements for the permittee 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.

**NPDES Fact Sheet No. MA 0102695  
2003 Reissuance**

Page 14 of 18

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.

DEP has stated that the inclusion of the I/I 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).

**V. Anti-degradation Review**

The Massachusetts Anti-degradation Provisions are found at 314 CMR 4.04. All existing uses of the Herring River must be protected. This draft permit is being reissued with allowable discharge limits as or more stringent than the current permit with the exception of the limitations for settleable solids and total nitrogen (now included as total inorganic nitrogen). All such changes are allowable under the regulations of both regulatory agencies (see above discussions). There is no change in the outfall location. The Commonwealth of Massachusetts has indicated that there will be no lowering of water quality and no loss of existing water uses and that no additional anti-degradation review is warranted. The following is excerpted from the March 24, 2003 MEDEP anti-degradation review statement:

*The current permit limits the amount of nitrogen which can be discharged into the Herring River and North River due to nutrient enrichment problems in those water bodies. The permit contains an effluent limit of 39.5 pounds per day [lbs/day] for total nitrogen. The limit is a 12 month moving average limit [moving average is the arithmetic mean of the monthly average values for the preceding 12 months]. The draft permit will contain a total nitrogen limit of 53 lbs/day based upon the following:*

*The wastewater treatment process which converts nitrogen to nitrogen gas uses "down-flow" denitrification filters which treat effluent from the secondary settling tanks and use methanol as a carbon source; during the treatment process, a residual organic nitrogen portion of 1.0-1.5 mg/l remains as it is highly refractive and resistant to conversion; this portion of the total nitrogen load is less available to aquatic species than the inorganic portion.*

*The inorganic nitrogen portion is the nutrient which is most bio-available to aquatic species thus it is this portion which is the element of needed control*

*The permit limit will be raised from 39.5 lbs/day to 53.0 lbs/day total nitrogen [which includes approximately 1.0-1.5 mg/l of low reactive, less available soluble, organic nitrogen].*

*It is the opinion of the Department that the change from 39.5 lbs/day to 53.0 lbs/day will not result in a lowering of water quality [due to the low availability of the organic nitrogen] and is acceptable within the anti-degradation provisions of 314 CMR 4.04*

NPDES Fact Sheet No. MA 0102695  
2003 Reissuance

Page 15 of 18

#### VI. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection, with jurisdiction over the receiving waters, certifies 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 Massachusetts Department of Environmental Protection 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.

#### VII. National Marine Fisheries Service: 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 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" 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). The U.S. Department of Commerce on March 3, 1999 approved EFH designations for New England.

NPDES Fact Sheet No. MA 0102695  
2003 Reissuance

Page 16 of 18

Summary of Essential Fish Habitat (EFH) Designation for the Herring River

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod ( <i>Gadus morhua</i> )	X	X	X	X
haddock ( <i>Melanogrammus aeglefinus</i> )	X			
pollock ( <i>Pollachius virens</i> )	X	X	X	X
whiting ( <i>Merluccius bilinearis</i> )	X	X	X	X
red hake ( <i>Urophycis chuss</i> )	X	X	X	X
white hake ( <i>Urophycis tenuis</i> )	X	X	X	X
redfish ( <i>Sebastes fasciatus</i> )	n/a			
winter flounder ( <i>Pleuronectes americanus</i> )	X	X	X	X
yellowtail flounder ( <i>Pleuronectes ferruginea</i> )	X		X	X
windowpane flounder ( <i>Scophthalmus aquosus</i> )	X	X	X	X
American plaice ( <i>Hippoglossoides platessoides</i> )	X	X	X	X
ocean pout ( <i>Macrozoarces americanus</i> )	X	X	X	X
Atlantic halibut ( <i>Hippoglossus hippoglossus</i> )	X	X	X	X
Atlantic sea scallop ( <i>Placopecten magellanicus</i> )	X	X	X	X
Atlantic sea herring ( <i>Clupea harengus</i> )		X	X	X
monkfish ( <i>Lophius americanus</i> )	X	X		X
bluefish ( <i>Pomatomus saltatrix</i> )			X	X
long finned squid ( <i>Loligo pealei</i> )	n/a	n/a	X	X
short finned squid ( <i>Illex illecebrosus</i> )	n/a	n/a	X	X
Atlantic butterfish ( <i>Peprillus triacanthus</i> )	X	X	X	X
Atlantic mackerel ( <i>Scomber scombrus</i> )	X	X	X	X
summer flounder ( <i>Paralichthys dentatus</i> )				X
scup ( <i>Stenotomus chrysops</i> )	n/a	n/a	X	X
black sea bass ( <i>Centropristus striata</i> )	n/a		X	X
surf clam ( <i>Spisula solidissima</i> )	n/a	n/a	X	X
ocean quahog ( <i>Arctica islandica</i> )	n/a	n/a		
spiny dogfish ( <i>Squalus acanthias</i> )	n/a	n/a		X
bluefin tuna ( <i>Thunnus thynnus</i> )			X	X



**NPDES Fact Sheet No. MA 0102695  
2003 Reissuance**

The Herring River is designated essential fish habitat (EFH) for the above listed species of finfish and mollusks. Based on the 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.

**VIII. 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 permittee is required submit a letter 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.

**IX. Public Comment Period and Procedures for Final Decision**

All persons, 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 Doug Corb, U.S. EPA, 1 Congress Street, Suite 1100 (CPE), Boston, Massachusetts 02114-2023 and Paul Hogan, Department of Environmental Protection, Division of Watershed Management, 627 Main Street, 2<sup>nd</sup> Floor, Worcester, MA 01608. 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.

A similar request for a hearing should also be filed with the Department of Environmental Protection's Docket Clerk in accordance with the provisions of the Massachusetts Administrative Procedures Act, the Division's Rules for the Conduct of Adjudicatory Proceedings, and the Timely Action Schedule and Fee Provisions. The hearing request should be sent to the Docket Clerk at:

Docket Clerk  
Massachusetts Department of Environmental Protection  
1 Winter Street  
Boston, MA 02108



**NPDES Fact Sheet No. MA 0102695  
2003 Reissuance**

and a valid check for \$100 payable to the Commonwealth of Massachusetts must be mailed by the end of the comment period to:

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

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

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

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator of EPA and the Director of DEP/DWM 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.

**X. EPA and MA DEP Contacts**

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

Doug Corb  
US Environmental Protection Agency  
1 Congress Street  
Suite 1100 (CPE)  
Boston, Massachusetts 02114-2023  
Telephone: (617) 918-1565  
Fax: 617-918-0565  
e-mail: corb.doug@epa.gov

and Paul Hogan  
MA Department of Environmental Protection  
Division of Watershed Management  
627 Main Street, 2<sup>nd</sup> floor  
Worcester, MA 01608  
Telephone: (508) 767-2796  
Fax: 508-791-4131  
email: paul.hogan@state.ma.us

November 19, 2003 Linda M. Murphy, Director\*  
Date Office of Ecosystem Protection  
U.S. Environmental Protection Agency

\* Please address all comments to Doug Corb and Paul Hogan at the addresses above

## RESPONSE TO PUBLIC COMMENTS

### Scituate Wastewater Treatment Plant

On December 22, 2003, the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) released for public notice and comment a draft National Pollutant Discharge Elimination System (NPDES) permit developed pursuant to an application from the Scituate Wastewater Treatment Plant, for the reissuance of a permit to discharge 1.6 million gallons per day of municipal wastewater to the designated receiving water, a tidal creek which is tributary to the Herring River. The public comment period for this draft permit expired on January 20, 2004. Comments were received from Alvin C. Firmin, P.E. Vice President, Camp Dresser & McKee Inc. (CDM), on behalf of the Town of Scituate, in a letter dated January 20, 2004.

After a review of the comments received, EPA has made a final decision to issue the permit authorizing this discharge. The following are the comments and EPA's response to those comments, including changes that have been made to the final permit from the draft as a result of the comments. The comment letter is part of the administrative record and is paraphrased herein. A copy of the final permit may be obtained by writing or by calling Doug Corb, EPA Massachusetts NPDES Permits Program (CMP), 1 Congress Street, Suite 1100, Boston, MA 02114-2023; telephone: (617) 918-1565.

#### Comment 1

*The subject draft NPDES permit was sent to Anthony Antonello, Director of Public Works dated December 18, 2003. Comments, issues, arguments, and supporting materials must be submitted by January 20, 2004. The first page of the cover letter accompanying the draft permit recommended "You are encouraged to closely review all terms and conditions contained in this draft". The town feels that the timing of the draft permit did not allow adequate time to fully review the conditions and terms of the proposed permit. The review period, December 19, 2003 through January 20, 2004, contains 23 weekdays. However, this period had three holidays. The effect of Christmas and New Years falling on a Thursday effectively eliminated three work days during each of these weeks. The impact of the holidays effectively reduced the available review time to 16 days. The town feels that this is inadequate time and not within the spirit of the 30 day review period. On behalf of the town, CDM inquired about obtaining an extension of the review time to account for the holiday period. EPA staff responses were negative. These comments are being submitted in order to maintain compliance with the January 20, 2004 date. However, the Town respectfully requests that this draft permit be reissued to allow for the full 30 day review period.*

Response 1

Doug Corb (EPA) met with the Scituate Wastewater Treatment Plant Operator, Robert P. Rowland, at the Treatment Plant on November 1, 2002 to discuss the new permit. In particular, EPA's concerns about the apparent absence of dilution and possible effects on water quality based permit limits were raised during that initial meeting.

A follow-up meeting regarding the new permit was held at the EPA New England Office on April 9, 2003. In attendance were: Richard H. Agnew (Scituate Town Administrator), Robert P. Rowland (Plant Operator), Anthony Antionello (Scituate DPW Director), Paul Hogan (DEP), Alvin C. Firmin, (P.E. Vice President CDM), Doug Corb (EPA Permits), Brian Pitt (EPA Permits), and Stephen Couto (EPA Compliance). The principal topic of this meeting was the recalculation of the effluent dilution and resulting effect on the water quality based limits.

On September 8, 2003, Doug Corb faxed a pre-draft permit to Mr. Antionello to review for correctness. Mr. Agnew responded to the pre-draft in a letter dated September 30, 2003.

Mr. Antionello received the draft permit on December 18, 2003. The public notice began December 22, 2003, and ended on January 20, 2004.

The EPA remains convinced that the Town was given sufficient time to comment on this permit, particularly since the town had been given a pre-draft permit and notice of the major issues prior to the 30 day comment period.

Moreover, Mr. Firmin contacted Mr. Corb on the afternoon of January 15, 2004 to request an extension of the public notice. Messrs. Pitt and Corb explained to Mr. Firmin that afternoon that there would not be sufficient time to publish an extension of the public notice in the paper prior to the January 20<sup>th</sup> close of the comment period.

Mr. Firmin's comments, dated January 20, 2004, also incorporated other materials by reference. Doug Corb left a voice mail message for Mr. Firmin on January 28, 2004 explaining that some the materials referenced in his January 20<sup>th</sup> comment letter were not in the administrative record and must be submitted to EPA to be entered into the Administrative Record for the permit reissuance. A letter from Roger Janson, Director of the EPA, Reg. I NPDES Permit Program gave the Town until February 9, 2004 to submit the referenced material. Mr. Firmin submitted the material with a letter dated February 3, 2004, thus the Town was in effect given an extension to supplement its comments.

EPA's position relative to the key points raised in Mr. Firmin's comments has been consistent throughout our meetings and correspondence even prior to the comment period. Mr. Corb's understanding was that the Town was researching and gathering material to comment on EPA's position throughout this lengthy process. The loss of several working days to holidays during the public notice comment period should not have had a significant effect on the Town's ability to respond.

Comment 2

*The draft permit contains concentration and mass limits for BOD, TSS, and TN. The mass limits are based on the concentration limits and the average plant flow (1.6 mgd). The TN mass limits are based on an annual rolling average. The BOD and TSS mass limits are monthly limits based on the average annual flow and the 10 mg/l average monthly limits.*

*This results in the concentration limits governing at flows of 1.6 mgd or less and the mass limits governing at flows in excess of 1.6 mgd. This could be problematic as the plant approaches design flows. For example, the current peak month flow is about 1.6 times the annual average. At design flows, the peak month flow should be in the range of 2.6 mgd. Under these conditions effluent TSS and BOD must be 6 mg/l. The reasoning presented in the Fact Sheet more appropriately leads to the conclusion that mass limits should be based on a annual rolling average, similar to the TN limits. The town is not requesting, or suggesting, that the monthly concentration limits be based on an annual rolling average. The mass limits should be adjusted to an annual rolling average or eliminated from the permit. The concentration limits provide adequate protection to the receiving waters. Weekly mass limits should be eliminated.*

Response 2

Regulations found at 40 CFR Section 133.102 require that BOD and TSS limitations be expressed as concentrations. However, the regulations found at 40 CFR Section 122.45 allow for mass limits where appropriate, 40 CFR Section 122.45 (f)(1) and (2). Expressing limitations in terms of both concentration and mass encourages proper operation of a treatment facility. Concentration limits discourage the reduction in treatment efficiency during low discharge flow periods, and mass limits discourage higher loads being discharged into the receiving water during periods of high discharge flow.

USEPA and MADEP believe that it is necessary to include mass limitations for BOD and TSS, as well as for total nitrogen, in order to satisfy water quality anti-degradation requirements. For example, if mass limits are not included, the permit would authorize a significant increase in the mass discharge of BOD and TSS over the mass authorized in the previous permit. The previous permit contained a monthly average flow of 1.6 MGD and monthly average BOD and TSS limits of 10 mg/l which if discharged at those maximum allowable flow and concentration limits would result in a monthly average mass of 133 lbs/day).

If an annual average flow is used to calculate mass limits, a peak flow which is 1.6 times the design flow could result in a discharge of 213 lbs/day or a 62% increase in BOD or TSS loading which is inconsistent with Massachusetts anti-degradation requirements. In addition, the discharge of BOD and TSS results in impacts on water quality which are immediate (e.g. low dissolved oxygen) in the receiving water.

The Facilities Plan/EIR does not establish permit limits, and the permit does not establish the outfall location (but rather specifies what permit limits apply at a particular location). While the tighter permit limits may be difficult to meet at the current outfall location, it is unreasonable to interpret a facilities plan approval as prejudging what the MADEP as EPA may do in setting future permit limits.

Additionally, as is made clear in both the prior and new permits, the Town's NPDES permit is independently issued under federal law by the EPA and under State law by the MADEP. Thus even if the MADEP's approval of the Facilities Plan precluded it from setting tighter permit limits (which it does not), this would have no effect on the federal permit as issued by the EPA.

The EPA recognizes that meeting the tighter toxic limits will be difficult. However, under the CWA, the permit limits must be set at the level required to meet the water quality standards. Setting the tighter standards in this case also is consistent with what EPA Region I has done in other similar cases (e.g., setting toxic limits for Saco and Biddeford Maine based on no dilution, for discharges to mud flats at low tide; setting toxic limits based on very low or no dilution for Brockton, Upper Blackstone, Milford, Gardner and Ipswich, MA and Hampton, NH). In addition, the Region has a program in place for working with POTWs to address the task of meeting toxic metals limitations in low (or no) dilution streams in a reasonable manner, through the issuance of Administrative Compliance Orders. The EPA urges the Town to consult with it about pursuing such a problem-solving approach, rather than contesting permit limits that are legally required.

Finally, as noted by the EPA in discussions with the Town, construction of a longer outfall to the Herring River is one possible solution to the problem. While moving the outfall would not significantly change the water quality in the River, it would solve the problem of toxics accumulation in the tidal creek. However, the EPA was not making any specific final recommendation as to how the Town should comply. The EPA recommends that the Town explore a range of alternatives. On the other hand, it is certainly premature for the Town to decide now that building a longer outfall should be ruled out because of other environmental impacts. The Town could, if necessary seek permits for such construction, which would involve only a temporary disturbance of the wetlands area which could be followed by restoration, while continuing to discharge high levels of toxic metals to that area poses an ongoing environmental problem.

#### Comment 4

*The requirement under 1/1 "Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of infiltration and inflow to the system" is ambiguous. Quantifying recharge benefits from 1/1 reduction may be a substantial undertaking, placing an undue burden on the Town and providing little in return.*

Response 4

The Massachusetts Department of Environmental Protection (the Department) requires that the operation of a sewer system in conjunction with the wastewater treatment facility be in such a manner that proper operation of the treatment facility is maintained and that discharges into the treatment facility and from the facility do not cause violations of the water quality standards of the receiving water. These requirements are based upon the regulations found at 314 CMR 12.00: "*Operation and Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers*".

The permit does not specify an amount of recharge but outlines a requirement to include that element in the I/I Program and to determine where and to what degree increased recharge is available and feasible.

The Massachusetts Water Resources Commission report, "Stressed Basins in Massachusetts" Id at Page 24, makes specific recommendations that greater emphasis should be placed on reducing infiltration/inflow to decrease the amount of rainwater and storm water which enters sewerage pipes, that would otherwise normally infiltrate and recharge local aquifers.

The requirement for the Infiltration/Inflow Control Plan will remain in the Town's NPDES final permit as a condition of the section 401 water quality certification required by the Clean Water Act. The Department will work with the Town to assure that an efficient program is developed and implemented and that it will not be duplicative to work on-going and will be conducted in a cost effective manner.

Additional Comment: In addition to the changes made in response to the Town's comments, the EPA has made some changes to final permit to correct minor grammatical and technical errors. These changes are a logical outgrowth from the draft permit and response and as such, no new comment period is necessary.

Information for Filing an Adjudicatory Hearing Request with  
the Commonwealth of Massachusetts  
Department of Environmental Protection

Within thirty days of the receipt of this letter the adjudicatory hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of \$100 must be mailed to:

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

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

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

**CONTENTS - PART II**  
(September 1, 1993)

Page  
2

**SECTION A. GENERAL REQUIREMENTS**

1. Duty to Comply
2. Permit Actions
3. Duty to Provide Information
4. Reopener Clause
5. Oil and Hazardous Substance Liability
6. Property Rights
7. Confidentiality of Information
8. Duty to Reapply
9. Right of Appeal
10. State Laws
11. Other Laws

**SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS**

1. Proper Operation and Maintenance
2. Need to Halt or Reduce Not a Defense
3. Duty to Mitigate
4. Bypass
5. Upset

**SECTION C. MONITORING AND RECORDS**

1. Monitoring and Records
2. Inspection and entry

**SECTION D. REPORTING REQUIREMENTS**

1. Reporting Requirements
  - a. Planned changes
  - b. Anticipated noncompliance
  - c. Transfers
  - d. Monitoring reports
  - e. Twenty-four hour reporting
  - f. Compliance schedules
  - g. Other noncompliance
  - h. Other information
2. Signatory Requirements
3. Availability of Reports

**SECTION E. OTHER CONDITIONS**

1. Definitions for Individual NPDES Permits including Storm Water Requirements
2. Definitions for NPDES permit Sludge Use and Disposal Requirements
3. Abbreviations



## PART II

authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Permit modification or revocation will be conducted according to 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

- (1) The name and address of any permit applicant or permittee;
- (2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(e)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the

a. Definitions

## PART II

- (1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d of this section.

c. Notice(1) Anticipated bypass

If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(2) Unanticipated bypass

If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

d. Prohibition of bypass

- (1) Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:
  - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
  - (b) There were no feasible alternatives to the by-pass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
  - (c)
    - (i) The permittee submitted notices as required under Paragraph 4.c of this section.
    - (ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator

data submitted

## PART II

- (3) in the DMR or sludge reporting form specified by the Regional Administrator.
- (4) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Regional Administrator in the permit.

e. Twenty-four hour reporting.

- (1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

- (2) The following shall be included as information which must be reported within 24 hours under this paragraph.
- Any unanticipated bypass which exceeds any effluent limitation in the permit. (See §122.41(g).)
  - Any upset which exceeds any effluent limitation in the permit.
  - Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See §122.44(g).)
- (3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e if the oral report has been received within 24 hours.

- f. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

g. Other noncompliance.

The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d, D.1.e and D.1.f of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e of this section.

h. Other information.

Where the permittee becomes aware that it failed to submit any relevant facts in a permit

## PART II

Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

Best Management practices (BMPs) means schedules of activities, prohibitions of practices; maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Professional Judgement (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT) or other appropriate technology based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Class I Sludge Management Facility means any POTW identified under 40 CFR §403.8(a) as being required to have an approved pretreatment program (including such POTWs located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10(e)) and any other treatment works treating domestic sewage classified as a "Class I sludge Management Facility" by the Regional Administrator, or, in the case of approved State programs, the Regional Administrator in conjunction with the State Director, because of the potential for its sludge use or disposal practices to adversely affect public health and the environment.

Coal pile runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample A sample consisting of a minimum of eight grab samples collected at equal intervals during a 24-hour period (lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample continuously collected proportionally to flow over that same time period.

Construction Activities The following definitions apply to construction activities.

- (a) Commencement of Construction is the initial disturbance of soil associated with clearing, grading, or excavating activities or other construction activities.
- (b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.
- (c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

for which it does not have a permit; an any offshore or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the regional Administrator in the

## PART II

issuance of a final permit to be an area of biological concern. In determining whether an area is an area of biological concern, the regional Administrator shall consider the factors specified in 40 CFR §§ 125.122.(a)(1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

New Source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced:

- (a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or
- (b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means "National Pollutant Discharge Elimination System."

Owner or operator means the owner operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge which exists the POTW into Waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved State."

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point source means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrate animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff. (See §122.2)

Pollutant means dredge spoil, solid waste, incinerator residue, filter back wash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)) heat, wrecked or discarded

- (ii) are listed as a hazardous substance pursuant to section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
- (iii) are pollutants for which EPA has published acute or chronic water quality criteria.

## PART II

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system; or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to solids removed during primary, secondary, or advance wastewater treatment, scum, septage, portable toilet pumping, Type III Marine Sanitation Device pumping (33 CFR part 159), and sewage sludge products. Sewage sludge does not include grit or screening, or ash generated during the incineration of sewage sludge.

Sewage sludge use or disposal practices means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to EPCRA; any chemical the facility is required to report pursuant to EPCRA Section 313; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (see 40 CFR §110.10 and CFR §117.21) or Section 102 CERCLA (see 40 CFR §302.4).

Sludge-only facility means any "treatment works treating domestic sewage: whose methods of sewage sludge use or disposal are subject regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

Storm Water means storm water runoff, snow melt runoff, and surface runoff drainage.

Storm Water discharge associated with industrial activity means the discharge from any conveyance with is use for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. (See 40 CFR §122.24(b)(14) for specifics of this definition).

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants means any pollutant listed as toxic under Section 307(s)(1) or, in the case of "sludge use or disposal practices", any pollutant identified in regulations implementing Section 405(d) of the CWA.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

## PART II

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequently and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

## 2. DEFINITIONS FOR NPDES PERMIT SLUDGE USE AND DISPOSAL REQUIREMENTS.

Active sewage sludge unit is a sewage sludge unit that has not closed.

Aerobic digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

- (1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and
- (2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

A restaurant.

Domestic Sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e., essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with

## PART II

respect to strata on the other side.

Feed crops are crops produced primarily for consumption by animals

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to fruits, vegetables, and tobacco.

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all measurements, taken during an hour. At least two measurements must be taken during the hour.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Industrial wastewater is wastewater generated in a commercial or industrial process.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and a reclamation site located in a populated area (e.g., a construction site located in a city).

Land with a low potential for public exposure is the land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a



combination of organic and inorganic substances, or pathogenic organism, after discharge and upon exposure, ingestion, inhalation or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirement) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to unit area of land (e.g., kilogram per hectare); or the volume of a material that can be applied to a unit area of land (e.g., gallons per acre).

## PART II

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, canteens, plant nurseries, turf farms, and golf courses.

Qualified ground-water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground-water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgement regarding ground-water monitoring, pollutant fate and transport, and corrective action.

Rough land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of the site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of land surface and runs off the land surface.

Seismic impact zone is an area that has a 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.01 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage, slurry or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

organisms capable of transporting infectious agents.

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degree Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. THE COMMONLY USED ABBREVIATIONS ARE LISTED BELOW

PART II

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
COD	Chemical oxygen demand
CFS	Cubic feet per second
Chlorine	Total residual chlorine
Cl <sub>2</sub>	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc)
TRC	Total residual chlorine in marine water; where halogen compounds are present FAC Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
TRO	
Coliform	Total fecal coliform bacteria
Coliform, Fecal	Total coliform bacteria
Coliform, Total	Continuous recording of the parameter being monitored, i.e.: flow, temperature, pH, etc.
Cont. (Continuous)	Cubic Meters per day
Cu. M/day or M <sup>3</sup> /day	Dissolved Oxygen
DO	Kilograms per day
kg/day	Pounds per day
lb/day	Milligram(s) per liter
mg/l	

WET

"Whole Effluent Toxicity" is the total effect of an effluent measured directly with a toxicity test.

C-NOEC

"Chronic (Long-term Exposure Test)-No Observed Effect Concentration". The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation.

A-NOEC

"Acute (Short-term Exposure Test)-No Observed Effect Concentration", See C-NOEC definition.

LC-50

LC-50 is the concentration of a sample that causes mortality

#### PART II

Of 50% of the test population at a specific time of observation. The LC-50 = 100% is defined as a sample of undiluted effluent.

ZID

Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

## APPEALING/CONTESTING NPDES PERMITS

If you wish to contest any of the provisions of this permit, you must petition the Environmental Appeals Board, (EAB), within thirty days of receipt of this letter. You may request the EAB to review any condition of the permit decision. In order to be eligible to petition, you must have filed comments on the draft permit or participated in any public hearing that may have been held pertaining to this permit. Any person who failed to file comments or failed to participate in any public hearing on the draft permit may petition for administrative review only to the extent of the changes from the draft to the final permit decision. Procedures for appealing permits can be found at 40 CFR §124.19 and §124.21. Copies of the regulations are posted below. The EAB website location is <http://www.epa.gov/eab>.

## STAYS OF NPDES PERMITS

The effects of a properly filed appeal of an NPDES permit on the conditions and effective date of the permit can be found at 40 CFR §124.16 and §124.60. Copies of the regulations are posted below.

## FREQUENTLY ASKED QUESTIONS

**What is the Environmental Appeals Board?** The Environmental Appeals Board (EAB) of the U.S. Environmental Protection Agency is the final Agency decision maker on administrative appeals under all major environmental statutes that EPA administers. It is an impartial, four-member body which is independent of all Agency components outside the immediate Office of the Administrator. It was created in 1992 in recognition of the growing importance of EPA adjudicatory proceedings as a mechanism for implementing and enforcing the environmental laws. The EAB sits in panels of three and makes decisions by majority vote.

The EAB's caseload consists primarily of appeals from permit decisions and civil penalty decisions. The EAB has authority to hear permit and civil penalty appeals in accordance with regulations delegating this authority from the EPA Administrator. Appeals from permit decisions made by EPA's Regional Administrators (and in some cases, state permitting officials) may be filed either by permittees or other interested persons. A grant of review of a permit decision is at the EAB's discretion. Permit appeals are governed primarily by procedural regulations at 40 C.F.R. Part 124. Appeals of civil penalty decisions made by EPA's administrative law judges may be filed, as a matter of right, either by private parties or by EPA. Penalty appeals are governed primarily by procedural regulations at 40 C.F.R. Part 22.

A substantial additional portion of the EAB's caseload consists of petitions for reimbursement of costs incurred in complying with cleanup orders issued under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The EAB decides these matters pursuant to a delegation of authority from the Administrator. The EAB is also authorized to hear appeals from various administrative decisions under the Clean Air Act's acid rain program at 40 C.F.R. Part 72 and appeals of federal Clean Air Act Title V operating permits issued pursuant to 40 C.F.R. Part 71.

**How can I contact the Board?** The Board's telephone number is (202) 501-7060. The Board's fax number is (202) 501-7580.

**Where should I file a pleading in a matter before the Board?**

a. **EAB Mailing Address** - All documents that are sent through the U.S. Postal Service (except by Express Mail) MUST be addressed to the EAB's mailing address, which is:

U.S. Environmental Protection Agency  
Clerk of the Board, Environmental Appeals Board (MC 1103B)  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460-0001

Documents that are sent to the EAB's hand-delivery address (below) through the U.S. Postal Service (except by Express Mail) will be returned to the sender and shall not be considered as filed. (Express Mail is hand-delivered by the U.S. Postal Service and must be delivered as outlined in part b below).

b. **Hand Delivery Address** - Documents that are hand-carried in person, delivered via courier, mailed by Express Mail, or delivered by a non-U.S. Postal Service carrier (e.g., Federal Express or UPS) MUST be delivered to:

achieve the discharger's proposed alternative conditions.  
(c) In addition to the requirements of Sec. 124.16(c)(2), when an appeal is filed under Sec. 124.19 on an application for a renewal of an existing permit and upon written request from the applicant, the Regional Administrator may delete requirements from the existing permit which unnecessarily duplicate uncontested provisions of the new permit. [65 FR 30912, May 15, 2000]