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 Manchester-by-the-Sea

is authorized to discharge from the facility located at

Manchester-by–the-Sea Wastewater Treatment Plant
12 Church Street
Manchester-by-the-Sea, MA 01944

to receiving water named

Manchester Bay

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

This permit shall become effective on the date of signature.

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

This permit supersedes the permit issued on December 9, 2004.

This permit consists of 13 pages in Part I including effluent limitations, monitoring requirements, Attachment A (Toxicity Protocol) and Attachment B (Summary of Reports to be Submitted) and Part II including General Conditions and Definitions.

Signed this 28th day of June, 2011

Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

Director
MA Wastewater Management Program
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

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

	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE[3] TYPE**
Flow: Annual Ave. Monthly Ave. (June - November) Monthly Ave. (December - May)	0.67 MGD [1,2] 0.67 MGD 1.2 MGD	******** ******** ********	Report MGD Report MGD Report MGD	Continuous Continuous Continuous	Recorder Recorder Recorder
BOD_5 [4]	30 mg/l 165 lbs/Day	45 mg/l 252 lbs/Day	Report mg/l[1]	2/Week	24-Hour Composite[5]
TSS [4]	30 mg/l 165 lbs/Day	45 mg/l 252 lbs/Day	Report mg/l[1]	2/Week	24-Hour Composite[5]
pH Range[1]	6.5 - 8.5 SU SEE PERMIT PAGE 5 OF 13, PARAGRAPH I.A.1.b.			1/Day	Grab
Total Chlorine Residual[1,6,7]	Report mg/l	*********	1.0 mg/l	3/Day	Grab
Fecal Coliform[1,6]	88 cfu/100 ml	*********	260 cfu/100 ml	1/Week	Grab
Enterococci[6]	35 cfu/100 ml	*********	276 cfu/100 ml	1/Week	Grab
Total Kjeldahl Nitrogen (TKN)	*******	********	Report mg/l	1/Quarter	24-Hour Composite[5]
Total Nitrate + Nitrite	*******	********	Report mg/l	1/Quarter	24-Hour Composite[5]
Total Ammonia Nitrogen as N	*******	********	Report mg/l	1/Quarter	24-Hour Composite[5]
Whole Effluent Toxicity See Footnotes 8,9 and 10	Acute $LC_{50} \geq 50\%$			2/Year	24-Hour Composite[5]

Effluent samples for BOD and TSS shall be collected after the flow meter but before the chlorination chamber. Samples for TRC, pH, Fecal coliform, Enterococci, and Toxicity shall be collected at the effluent wet well after chlorination.

Footnotes:

1. Required for State Certification.

2. Report annual average, monthly average, and the maximum daily flow. The limit is an annual average, which shall be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months.

3. All required effluent samples shall be collected at the point specified on page 2. A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report.

   All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136.

4. Sampling required for influent and effluent.

5. A 24-hour composite sample will consist of at least twenty four (24) grab samples taken over a continuous 24 hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.

6. Fecal coliform discharges shall not exceed a monthly geometric mean of 88 colony forming units (cfu) per 100 ml, nor shall they exceed 260 cfu per 100 ml as a daily maximum and no more than 10 percent of the fecal coliform samples in any calendar month shall exceed 260 organisms per 100 ml. Enterococci discharges shall not exceed a monthly geometric mean of 35 cfu per 100 ml, nor shall they exceed 276 cfu per 100 ml as a daily maximum. Monitoring shall be conducted year round concurrently with a total residual chlorine sample. **See Part I.E** for the compliance schedule for attaining the enterococci limits.

7. The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G. One of these methods must be used to measure total residual chlorine. Sample results of 20 ug/l or less shall be reported as zero on the discharge monitoring report.

8. The permittee shall conduct definitive 48 hour acute toxicity tests two times per year. The permittee shall test the Inland Silverside (Menidia beryllina). Toxicity test samples

shall be collected during the months of June and September. The test results shall be submitted by the last day of the month following the completion of the test. The results are due July 31st and October 31st, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit

Test Dates Second Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**
June September	July 31st October 31st	Inland Silverside See Attachment A	$\geq$ 50%

After submitting **two years** 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_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 50% limit means that a sample of 50% effluent shall cause no more than a 50% mortality rate.

10. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in **Attachment A (Toxicity Test Procedure and Protocol) Section IV., DILUTION WATER** in order to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found on the EPA, Region I web site at http://www.epa.gov/region1/enforcementandassistance/dmr2005.pdf. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A**. Any modification or revocation to this guidance will be transmitted to the permittees. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

Part I.A.1. (Continued)

a. The discharge shall not cause a violation of the water quality standards of the receiving water.

b. The pH of the effluent shall not be less than 6.5 nor greater than 8.5 at any time.

c. The discharge shall not cause objectionable discoloration of the receiving water.

d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand. The percent removal shall be based on monthly average values.

f. If the average annual flow in any calendar year exceeds 80 percent of the facility's design flow, the permittee shall submit a report to MassDEP by March 31 of the following calendar year describing its plans for further flow increases and describing how it will maintain compliance with the flow limit and all other effluent limitations and conditions.

g. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control.

h. The results of sampling for any parameter done in accordance with EPA approved methods above its required frequency must also be reported.

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

a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and

b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For purposes of this paragraph, adequate notice shall include information on:

(1) the quantity and quality of effluent introduced into the POTW; and

(2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

3. Prohibitions Concerning Interference and Pass Through:

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.

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 continue to implement a plan to control infiltration and inflow (I/I) to the separate sewer system. An updated plan shall be submitted to EPA and MassDEP **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 MassDEP annually, **by March 31**. 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 and 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, including EPA regulations promulgated at 40 CFR Part 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to § 405(d) of the CWA, 33 U.S.C. § 1345(d).

2. If both state and federal requirements apply to the permittee's sludge use and/or disposal practices, the permittee shall comply with the more stringent of the applicable requirements.

3. The requirements and technical standards of 40 CFR Part 503 apply to the following sludge 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 requirements of 40 CFR Part 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 CFR Part 503.4. These requirements also do not apply to facilities which do not use or 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 Part 503.6.

5. The 40 CFR Part 503 requirements including the following elements:

   - General requirements
   - Pollutant limitations
   - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
   - Management practices
   - Record keeping
   - Monitoring
   - Reporting

   Which of the 40 CFR Part 503 requirements apply to the permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 Guidance document, "EPA Region 1 - NPDES Permit Sludge Compliance Guidance" (November 4, 1999), may be used by the permittee to assist it in determining the applicable requirements.[1]

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods), pathogen reduction and vector attraction reduction (land application and surface disposal) 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 than1500	1 /quarter
1500 to less than 15000	6 /year
15000 +	1 /month

   Sampling of the sewage sludge shall use the procedures detailed in 40 CFR Part 503.8.

7. Under 40 CFR Part 503.9(r), the permittee is a "person who prepares sewage sludge" because it "is … the person who generates sewage sludge during the treatment of domestic sewage in a treatment works …." If the permittee contracts with *another* "person who prepares sewage sludge" under 40 CFR Part 503.9(r) – i.e., with "a person

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1 This guidance document is available upon request from EPA Region 1 and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

who derives a material from sewage sludge" – for use or disposal of the sludge, then compliance with Part 503 requirements is the responsibility of the contractor engaged for that purpose. If the permittee does not engage a "person who prepares sewage sludge," as defined in 40 CFR Part 503.9(r), for use or disposal, then the permittee remains responsible to ensure that the applicable requirements in Part 503 are met (40 CFR Part 503.7). If the ultimate use or disposal method is land application, the permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 CFR Part 503 Subpart B.

8. The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements ((Part 503.18 (land application)), Part 503.28 (surface disposal), or Part 503.48 (incineration)) by **February 19** (*see also* "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted to the address contained in the reporting section of the permit. If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:

   - Name and address of contractor(s) responsible for sludge preparation, use or disposal
   - Quantity of sludge (in dry metric tons) from the POTW that is transferred to the sludge contractor(s), and the method(s) by which the contractor will prepare and use or dispose of the sewage sludge.

E. COMPLIANCE SCHEDULE

The permittee shall achieve compliance with the effluent limits for enterococci **within one year** of the effective date of the permit. During the interim period, the limits for enterococci will not be in effect, but sampling and reporting will be required at the frequency required in Part I.A.1.

F. MONITORING AND REPORTING

1. **For a period of one year from the effective date of the permit**, the permittee may either submit monitoring data and other reports to EPA in hard copy form, or report electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. **Beginning no later than one year after the effective date of the permit**, the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting all DMRs and reports. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

a. Submittal of Reports Using NetDMR

NetDMR is accessed from: http://www.epa.gov/netdmr. Within one year of the effective date of the Permit, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt out request").

DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA, including the MassDEP Monthly Operations and Maintenance Report, as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees shall continue to send hard copies of reports other than DMRs (including Monthly Operation and Maintenance Reports) to MassDEP until further notice from MassDEP.

b. Submittal of NetDMR Opt Out Requests

Opt out requests must be submitted in writing to EPA for written approval at least sixty (60) days prior to the date a facility would be required under the Permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the permittee submits a renewed opt out request and such request is approved by EPA. All opt out requests should be sent to the following addresses:

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

And

Massachusetts Department of Environmental Protection
Northeast Regional Office- Bureau of Resource Protection
205B Lowell Street
Wilmington, MA 01887

c. Submittal of Reports in Hard Copy Form

Hard copy DMR submittals shall be completed and postmarked no later than the 15th day of the month following the completed reporting period. MassDEP Monthly Operation and Maintenance Reports shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports required herein, shall be submitted to the appropriate State addresses and to the EPA address listed below:

U.S. Environmental Protection Agency
Water Technical Unit
5 Post Office Square, Suite 100 (OES04-SMR)
Boston, MA 02109-3912

The State Agency addresses are:

Massachusetts Department of Environmental Protection
Northeast Regional Office- Bureau of Resource Protection
205B Lowell Street
Wilmington, MA 01887

And

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

G. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are (i) a federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§1251 et seq.; and (ii) an identical state surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

Attachment B

Summary of Required Report Submittals*

Required Report	**Date Due**	**Submitted By:**	**Submitted To:** **(see bottom of page for key)**
Discharge Monitoring Report (DMR)	Monthly, postmarked by the 15th of the month following the monitoring month (e.g. the March DMR is due by April 15th.	Town of Manchester	1, 2, 3
Whole Effluent Toxicity (WET)Test Report (Part I.A.1)	July 31 and October 31 of each year	Town of Manchester	1, 2, 3
I/I Control Plan (Part I.C.3)	Within 6 months of permit effective date	Town of Manchester	1,2
I/I Annual Report (Part I.C.3)	By March 31	Town of Manchester	1,2
Annual Sludge Report (Part I.D.8.)	February 19 each year	Town of Manchester	1,2

*This Table is a summary of reports required to be submitted under this NPDES permit as an aid to the permittee. If there are any discrepancies between the permit and this summary, the permittee shall follow the permit requirements.

**The addresses are for the submittal of hard copies. When the permittee begins reporting using NetDMR, submittal of hard copies of many of the required reports will not be necessary. See permit conditions for details.

1. Environmental Protection Agency
   Water Technical Unit (OES04-SMR)
   5 Post Office Square – Suite 100
   Boston, Massachusetts 02109 - 3912

2. Massachusetts Department of Environmental Protection
   Bureau of Resource Protection
   Northeast Regional Office
   205B Lowell Street
   Wilmington, MA 01887

3. Massachusetts Department of Environmental Protection
   Division of Watershed Management
   Surface Water Discharge Permit Program
   627 Main Street, 2nd Floor
   Worcester, Massachusetts 01608

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

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

NPDES PERMIT NO.: MA0100871

NAME AND ADDRESS OF APPLICANT:

Board of Selectman
Town Hall Building
10 Central Street
Manchester by-the-Sea, MA 01944

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Manchester Wastewater Treatment Plant
12 Church Street
Manchester-by-the-Sea, Massachusetts 01944

RECEIVING WATER: Manchester Bay, North Coastal Basin - 93.

CLASSIFICATION: SB

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

The above named applicant has requested that the U.S. Environmental Protection Agency reissue its NPDES permit to discharge into the designated receiving water. The facility is engaged in collection and treatment of domestic wastewater. The discharge is from a secondary wastewater treatment plant. See **Attachments A and B** for facility location and treatment process diagrams respectively. Manchester's outfall is approximately 8,700 feet long and discharges through a 10 port diffuser into Manchester Bay, about 1000 feet northeast of Sauli's Rock, at a depth of about 40 feet.

A water quality designation for Manchester Bay is not included in the Tables in Part 4.06 of the Massachusetts Surface Water Quality Standards. EPA requested clarification from MassDEP, and was informed that Manchester Bay is classified in the Massachusetts Surface Water Quality Standards as a Class SB waterway. The designated uses for a

Class SB water are 1) the protection and propagation of fish, other aquatic life and wildlife, 2) for primary and secondary contact recreation and 3) Shell fish harvesting with depuration in designated areas. Manchester Bay is designated for shelfishing.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on recent DMRs from December 2008 to November 2010 is shown on **Attachment C.** A review of this data shows that the facility generally complies with its current NPDES permit for all parameters.

III. Limitations and Conditions

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

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The permittee owns and operates a 1.2 million gallon per day (MGD) secondary activated sludge wastewater treatment facility (WWTF), which was upgraded in 1999. Effluent is discharged to Manchester Bay through an extended outfall, as previously described. Sludge trucked off-site to the Upper Blackstone WWTF for incineration.

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 Act. Under Section 301(b)(1)(B) of the CWA, publicly owned treatment works (POTWs) must have achieved effluent limitations based upon secondary treatment by July 1, 1977. The secondary treatment requirements are set forth at 49 CFR Part 133.

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 Clean Water Act (CWA), discharges are subject to effluent limitations based on Water Quality Standards. The Massachusetts Surface Water Quality Standards include the requirements for the regulation and control of toxic constituents and also establish that EPA criteria developed pursuant to Section 304(a) of the CWA shall be used as water quality criteria unless site specific criteria have been established.

Pursuant to 40 CFR 122.44(d)(1)(i), 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, has reasonable potential to cause, or contributes to an excursion above any water quality criterion. 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, the dilution of the effluent in the receiving water.

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 requirement of the CWA.

EPA's anti-backsliding provisions, found in Sections 402(o) and 303(d)(4) of the Clean Water Act and 40 CFR 122.44(l), restrict the relaxation of permits, standards, and conditions. Therefore, the effluent limits in the reissued permit must be at least as stringent as those of the previous permit, except under certain limited conditions.

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

A. Conventional Pollutants

Flow

The WWTF is designed for an average flow of 1.2 mgd with a maximum capacity of 3.0 mgd. However, as a condition for approval of the plant expansion under the Ocean Sanctuaries Act, an average annual flow limit of 0.67 MGD was imposed in the previous permit in order to ensure that the permittee limits expansion of the sewer system and continues its program to remove infiltration and inflow. This limit is included in the draft permit. The previous permit and the draft permit also include a monthly average limit of 0.67 MGD during the months of June through November and a monthly average limit of 1.2 MGD during the months of December through May.

The permit application shows that over the past two years the annual average flow has increased from 0.448 MGD to 0. 647 MGD. The maximum daily discharge has decreased from 3.986 MGD to 3.73 MGD over the same time period.

The draft permit requires the permittee to implement an I/I control program adequate to ensure that I/I does not cause overflows of the collection system or violations at the WWTF. These requirements are standard requirements of NPDES permits issued to publicly owned treatment works in Massachusetts. Since the permit has already developed an I/I removal program, the additional activities necessary to comply with the permit condition should be minimal.

BOD and TSS

The effluent limitations and monitoring requirements for BOD and TSS are the same as those found in the previous permit. These limits are in accordance with the secondary treatment requirements at 40 CFR 133.102.

Bacteria and pH

The numerical limitations for enterococci, fecal coliform, and pH are based on state certification requirements under Section 401(a)(1) of the CWA, as described in 40 CFR 124.53 and 124.55. These limitations are also in accordance with the Massachusetts Surface Water Quality Standards. .

Since the issuance of the current permit, MassDEP has revised the criteria for bacteria in the Massachusetts Surface Water Quality Standards for protecting recreational uses. The bacteria criteria for the protection of recreational uses in salt water were revised from fecal coliform bacteria to enterococci (fecal coliform remains the criteria for protecting shell-fishing use). The criteria for enterococci for Class SB waters are a monthly geometric mean of 35 cfu/100ml and single sample maximum (SSM) of 104 cfu/100ml. MassDEP views the use of the 90% upper confidence level of 276 cfu/100ml as appropriate for setting the maximum daily limit for enterococci in the draft permit. Accordingly, these limitations have been included in the draft permit. **See Part I.E** of the draft permit for the compliance schedule for attaining the enterococci limits.

The current permit has a fecal colifom monthly average limit of 200 cfu/100ml and a maximum daily limit of 400 cfu/100 ml. However, the criteria for SB waters designated for shellfishing are a geometric mean of 88 colony forming units (cfu) per 100 ml and that no more than 10 percent of the fecal coliform samples in any calendar month exceed 260 cfu/100 ml. Accordingly, the daft permit includes a monthly average geometric mean limit of 88 cfu/100 ml, a maximum day limit of 260 cfu/100 ml, and a requirement that no more than 10 percent of samples in a month shall exceed 260 cfu per 100 ml.

A review of the DMRs from 12/31/2008 through 12/1/2010 shows that the monthly average discharge of fecal coliform varies from 2 cfu/100ml to 45 cfu/100ml, and the maximum daily discharge varies from 4 cfu/100 ml to 228 cfu/100 ml. It does not appear that permittee should have difficulty complying with the new limits..

B. Toxic Pollutants

Under Section 301 (b) (1) (C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The State Surface Water Quality Standards, 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:

> Waters shall be free from pollutants in concentrations or combinations that
>
> (a) Exceed the recommended limits on the most sensitive receiving water use;
>
> (b) Injure, are toxic to, or produce adverse physiological or behavioral responses in humans or aquatic life; or

(c) Exceed site-specific safe exposure levels determined by bioassay using sensitive species.

Whole Effluent Toxicity

National studies conducted by the Environmental Protection Agency (EPA) have demonstrated that domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others.

Therefore, based on the potential for toxicity from domestic contributions, water quality standards and in accordance with EPA regional policy, the draft permit includes acute effluent toxicity limitations and monitoring requirements (LC50). (See, e.g., "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants: 50 Fed. Reg. 30, 784 (July 24, 1985).

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

The frequency and the type of WET test depends on dilution ratio and risk factor. The dilution ratio of the effluent with the receiving water was modeled at 201:1 (i.e a dilution factor of 202) by EPA in 1994, during the development of a previous permit. Pursuant to EPA Region I policy and the Massachusetts Implementation Policy for the Control of Toxic Pollutants, dated February 23, 1990, discharges having dilution factors greater than 100 require acute toxicity testing two times per year with a LC - 50 limit of 50%.

The present permit requires that the permittee conduct acute WET testing for the Outfall 001 effluent two times per year and that each test include the use of Inland Silverside (Menidia beryllina). The draft permit requires the permittee to continue to test the Inland Silverside two times per year in accordance with 40 CFR Part 36 methods, and the EPA Region I protocol, included as permit Attachment A.

Chlorine

Chlorine and chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The receiving water may not provide sufficient dilution of these compounds discharged by the WWTF to meet the EPA recommended in-stream criteria for acute and chronic toxicity levels specified in the water quality criteria document. The National Recommended Water Quality Criteria: 2002 states that the average total residual chlorine (TRC) in the receiving water should not exceed 7.5 ug/l and the maximum TRC should not exceed 13 ug/l to protect marine aquatic life.

The following is a calculation of the chlorine limits:

Acute Chlorine WQC = 13 ug/l
Chronic Chlorine WQC = 7.5 ug/l
Dilution Ratio = 201:1 [The data used to calculate the dilution was taken from the Salem Harbor Study done by U-Mass-Boston and the Manchester Outfall Study. During May of 1994, EPA model UMERGE was used to calculate the dilution ratio using a design flow of 1.2 mgd.]

Dilution Factor = (201 + 1) / 1 = 202
Daily Maximum Chlorine Limit = (202) x (13 ug/l) = 2625 ug/l = 2.625 mg/l
Average Monthly Chlorine Limit = (202) x (7.5 ug/l) = 1515 ug/l = 1.515 mg/l

The calculated limits are less stringent than the maximum chlorine effluent limitation of 1 mg/l allowed by the Massachusetts Implementation Policy for the Control of Toxic Pollutants. Therefore, the draft permit includes a maximum daily discharge limit of 1 mg/l, consistent with the Massachusetts policy.

Metals

Certain metals like copper, lead, cadmium and zinc can be toxic to aquatic life. EPA has evaluated (see below) the reasonable potential for toxicity in the receiving water from metals in the effluent. Based on this evaluation EPA has determined that there is no reasonable potential for adverse impacts on the aquatic life, and no need to monitor and limit these metals.

Calculation of reasonable potential for copper, lead, zinc and cadmium:

All effluent metals data are taken from the Toxicity Test Reports from the period June 2007 to September 2009. The applicable criteria are from National Recommended Water Quality Criteria: 2002:

Allowable Effluent Concentration, C = Criteria /CF x DF

Where, Criteria = the saltwater water quality criteria in ug/l
CF = conversion factor from dissolved to total recoverable metal
DF = Dilution Factor

Copper:	Chronic	C = 3.1/0.83 x 202 = 754 ug/l which is greater than the effluent concentration range of 15-28 ug/l. So there is no reasonable potential.
	Acute	C = 4.8/0.83 x 202 = 1168 ug/l which is greater than the maximum effluent concentration of 28 ug/l. So, there is no reasonable potential.

Lead	Chronic	C = 8.1/0.951 x 202 = 1720 ug/l which is greater than the effluent concentration range of 1-2 ug/l. So, there is no reasonable potential
	Acute	C = 210/0.951 x 202 = 44605 ug/l which is far greater than the maximum effluent concentration of 2 ug/l. So, there is no reasonable potential
Zinc	Chronic	C = 81/0.946 x 202 = 17296 ug/l which is far greater than the effluent concentration range of 123 - 231 ug/l. So, there is no reasonable potential.
	Acute	C = 90/0.946 x 202 = 19218 ug/l which is far greater than the maximum effluent concentration of 231 ug/l. So, there is no reasonable potential.
Cadmium	Chronic	C = 8.8/0.994 x 202 = 1788 ug/l which is greater than the average effluent concentration of 1 ug/l. So, there is no reasonable potential.
	Acute	C = 40/0.994 x 202 = 8128 ug/l which is far greater than the maximum effluent concentration of 1 ug/l. So, there is no reasonable potential.

C. Non Conventional Pollutants

Nitrogen

The current permit requires monitoring of nitrogen compounds (total kjeldahl nitrogen, total nitrate and nitrite and total ammonia as nitrogen). The draft permit continues those requirements.

V. Sludge

Sludge generated by the Manchester Wastewater Treatment Facility is digested and thickened by rotary drum. Stabilized thickened sludge is hauled off-site to Upper Blackstone Water Pollution Abatement District facility in Millbury, Massachusetts for incineration. Approximately 53.8 dry metric tons of sludge is generated per year.

Section 405(d) of the Clean Water Act requires that sludge conditions be included in all POTW permits. Technical sludge standards required by Section 405 of the Clean Water Act (CWA) were finalized on November 25, 1992 and were published on February 19, 1993. The regulations went into effect on March 21, 1993 (see 40 CFR part 503).

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the Act's Section 405(d) Technical Standards. In addition, EPA-New England prepared a 72-page document entitled "EPA Region I NPDES Permit Sludge Compliance Guidance" for use by the permittee in determining their appropriate sludge conditions for their chosen method of sewage sludge use or disposal practices. This guidance document is available upon request from EPA Region 1 and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf .

VI. Pretreatment

The permittee does not have any major industries contributing industrial wastewater to the WWTF. Pollutants introduced into POTWs by a non-domestic source shall not pass through the POTW or interfere with the operation or performance of the treatment works.

VII. Antidegradation

This draft permit is being reissued with an allowable wasteload identical to the current permit and no change in outfall location. The State 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.

VIII. Essential Fish Habitat (EFH)

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 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). Adversely impact means any impact which reduces the quality and/or quantity of EFH. 50CFR.§ 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.

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

A review of the relevant essential fish habitat information provided by NMFS indicates that the wastewater outfall exists within designated EFH for 25 federally managed species. (**See Attachment D**).

The outfall discharges at a depth of 40 feet of water, approximately 1,000 feet northeast of Sauli Rock in Manchester Bay. This area is subjected to currents associated with a semi-diurnal tidal exchange. The substrate in this area is predominantly hard, as depicted

on nautical charts, indicative of an erosional environment. The effluent, which is discharged through a 10 port diffuser, mixes with a high volume of receiving water, with an EPA estimated dilution ratio of 201:1. The effluent discharged consists entirely of domestic, non-industrial wastewater, minimizing the likelihood of any toxic pollutants in the wastewater.

The limitations in the draft permit are not changed from the previous permit. There is no documented evidence of environmental degradation from the current discharge. An annual average flow limit of .67 MGD will continue in order to satisfy the requirements of the Ocean Sanctuaries Act.

Limits on total residual chlorine are more stringent than would be required to meet water quality standards, so there will be no effluent toxicity due to chlorine use. Monitoring requirements and limitations are also established on whole effluent toxicity. Such testing will detect any toxicity which occurs in the effluent. In addition, the permit also requires that the discharge shall not violate the state surface water quality standards.

EPA believes that the conditions and limitations contained within the draft permit adequately protect all aquatic life, including those species with EFH designation. Impacts associated with issuance of this permit to the EFH species, their habitat and forage, have been minimized to the extent that no significant adverse impacts are expected. Further mitigation is not warranted.

IX. Endangered Species

The Endangered Species Act of 1973, as amended (ESA), imposes requirements on Federal agencies related to the potential effects of their actions on endangered or threatened species of fish, wildlife, or plants (listed species) and their designated "critical habitat."

Section 7 of the ESA requires, in general, that Federal agencies insure that any actions they authorize, fund, or carry out, in the United States or upon the high seas, are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated "critical habitat" for those species. Federal agencies carry out their responsibilities under the ESA in consultation with, and assisted by, the Departments of Interior (DOI) and/or Commerce (DOC), depending on the species involved. The United States Fish & Wildlife Service (USFWS) of the DOI administers Section 7 consultations for freshwater species, while the National Oceanic and Atmospheric Administration (NOAA) of DOC does so for marine species and anadromous fish.

The federal action being considered in this case is EPA's proposed draft NPDES permit to the Manchester Wastewater Treatment Facility. The draft permit is intended to replace the existing NPDES permit in governing wastewater discharges from the Town's WWTF, as discussed above.

The permittee owns and operates a secondary activated sludge wastewater treatment facility (WWTF), which was upgraded in 1999. Effluent is discharged to Manchester Bay through an extended outfall. The WWTF is designed for an average flow of 1.2 mgd with a maximum capacity of 3.0 mgd. However, as a condition for approval of the plant expansion under the Ocean Sanctuaries Act, an average annual flow limit of 0.67 MGD was imposed in the previous permit in order to ensure that the permittee limits expansion of the sewer system and continues its program to remove infiltration and inflow. This limit is included in the draft permit. The previous permit and the draft permit also include a monthly average limit of 0.67 MGD during the months of June through November and a monthly average limit of 1.2 MGD during the months of December through May.

Manchester's outfall is approximately 8,700 feet long and discharges through a 10 port diffuser into Manchester Bay, about 1000 feet northeast of Sauli's Rock, at a depth of about 40 feet. The substrate in this area is predominantly hard, as depicted on nautical charts, indicative of an erosional environment. The effluent mixes with a high volume of receiving water, with an EPA estimated dilution ratio of 201:1. The effluent discharged consists entirely of domestic, non-industrial wastewater, minimizing the likelihood of any toxic pollutants in the wastewater

As the federal agency charged with authorizing the discharges from this facility, EPA has reviewed available information and determined that a number of federally listed species inhabit (seasonally) waters in the broad general area of the relevant discharges and further analysis is necessary with regard to these species.

The species in question are as follows: fish (shortnose sturgeon - endangered); mammals (whales: North Atlantic Right, Humpback, Fin, Sei, Sperm, Blue – all endangered); reptiles (sea turtles: Kemp's Ridley, Leatherback, Green – all endangered; Loggerhead – Threatened but proposed for listing as endangered). As discussed below, while some of these species are unlikely to be present in the areas affected by the discharges authorized by the permit, others may well occur in such areas on an intermittent basis during certain seasons. No designated critical habitat for any of these listed species lies within the areas impacted by WWTF.

NOAA administers the ESA for all of the above-listed species. Because certain of these species may be affected by the discharges authorized by the proposed permit, EPA must consult with NOAA under Section 7 of the ESA. EPA has evaluated the potential impacts of the permit action on these species. On the basis of this evaluation, which is discussed below, EPA's preliminary determination is that this action "is not likely to adversely affect listed species or critical habitat."[1] 16 C.F.R. § 402.13(a). As a result, EPA will, in a separate letter, request NOAA's written concurrence with EPA's determination

[1] A project can be considered "unlikely to adversely affect" a listed species "when direct or indirect effects of the proposed project on listed species are expected to be discountable, insignificant or completely beneficial." August 20, 2009, Letter from Patricia A. Kurkul, Regional Administrator, NOAA, National

conclusion in order to complete the consultation with NOAA on an "informal" basis. *See* 16 C.F.R. § 402.13(a). If NOAA does not concur, then "formal consultation" will be necessary.

Discussion of ESA Listed Species in the Vicinity of the Outfall

Fish - The only listed species of fish that might conceivably be found in the general area of the discharges to be authorized by the Manchester WWTF NPDES permit is the shortnose sturgeon. An anadromous species of fish, the shortnose sturgeon is present in many large rivers in the Northeast (Dadswell , Et Al., 1984). The closest known population to the Manchester discharge, however, is in the Merrimack River (Kiefer and Kynard, 1989).

The only record of this species in Massachusetts Bay is recorded in Bigelow and Schroeder (1953) as having been taken at Rockport, Massachusetts. Therefore, shortnose sturgeons are unlikely to be present in the area of the WWTF[2]

After considering the relevant information, EPA's preliminary determination is that the proposed permitting action is unlikely to have an adverse effect on the shortnose sturgeon or its critical habitat. First, there is no designated critical habitat for shortnose sturgeon in the area of any of the discharges covered by the new permit. Second, as explained above, shortnose sturgeons are unlikely to occur in the areas affected by the discharge to be authorized by the proposed permit. Third, any shortnose sturgeon that did occur in the area of the discharge would be anomalous and would likely be only a short-term, transient visitor to the area. Fourth, the shortnose sturgeon is primarily a benthic species,

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Marine Fisheries Service, Northeast Region, to Melville P. Cote, EPA Region 1 ("NOAA's August 20, 2009, Rockport Consultation Letter") (addressing ESA issues concerning EPA's proposed NPDES permit for the Rockport, MA, POTW).

[2] In its Biological Opinion concerning licensing of the Neptune offshore Liquefied Natural Gas import terminal, which lies approximately 16 miles east of Manchester-by-the-Sea, NOAA stated the following:

> In Massachusetts, the federally endangered shortnose sturgeon (*Acipenser brevirostrum*) is only known to occur in the Merrimack and Connecticut Rivers (NMFS 1998a), neither of which are in the vicinity of the buoy locations. As such, shortnose sturgeon are not likely to be present in the action area and will not be considered further in this BO.

National Marine Fisheries Service, Endangered Species Act Section 7 Consultation, Biological Opinion, Issuance of License to Neptune LNG by MARAD to construct, own, and operate an LNG deepwater port (Jan. 12, 2007) ("2007 NOAA BO for Neptune"), p. 21. In a letter regarding prior CSO abatement work by Gloucester, NOAA stated that "[w]hile several species of endangered and threatened whales and sea turtles are known to occur in the coastal waters of Massachusetts, no federally listed or proposed threatened or endangered species and/or critical habitat for listed species under the jurisdiction of the National Marine Fisheries Service (NOAA Fisheries) are known to exist in near-by Gloucester Harbor." December 9, 2004, letter from Mary A. Colligan, Assistant Regional Administrator for Protected Resources, National Marine Fisheries Service, Northeast Region, to Aaron Weieneth, Metcalf & Eddy ("NOAA's December 2004 Gloucester CSO Letter"). Furthermore, NOAA did not include the shortnose sturgeon as a species that might be present in its review of EPA's proposed NPDES permit for Rockport, MA. *See* NOAA's August 20, 2009, Rockport Consultation Letter.

whereas the WWTF discharge plume is positively buoyant and has limited, if any, direct contact with the bottom. Therefore, even if a sturgeon was in the area of the outfall, it would be especially unlikely to have any significant contact with the Town's pollutant discharges. Fifth, the WWTF's outfall discharges at a depth of 40 feet and uses a multi-port diffuser, achieving a high dilution factor of 201:1. All of these factors should contribute to precluding any marine organisms, including any shortnose sturgeon, from coming into contact with a concentrated discharge plume.

Finally, the draft permit proposes protective effluent limits based on secondary treatment. An annual average flow limit of .67 MGD will continue in order to satisfy the requirements of the Ocean Sanctuaries Act. Limits on total residual chlorine are more stringent than would be required to meet water quality standards, so there will be no effluent toxicity due to chlorine use. Monitoring requirements and limitations are also established on whole effluent toxicity. Such testing will detect any toxicity which occurs in the effluent. In addition, the permit also requires that the discharge shall not violate the state surface water quality standards.

Mammals – Whales - A number of whale species listed as endangered are or may be present in marine waters offshore of Manchester-by-the-Sea. *See* 2007 NOAA BO for Neptune at 20-21. *See also* Jeffreys Ledge Information Page (found at http://www.jeffreysledge.org) (c. Whale Center of New England) (Jeffreys Ledge Information Page). Indeed, the near-by City of Gloucester is home to an active commercial whale watch fleet. *See* 2007 NOAA BO for Neptune at 69.

Still, endangered whales would typically be expected to be found in waters relatively far offshore, such as in the areas of the Stellwagen Bank National Marine Sanctuary or Jeffreys Ledge,[3] or even farther offshore. *See* 2007 NOAA BO for Neptune at 84. Endangered species of whale that seasonally appear in some numbers in and around Stellwagen Bank and Jeffreys Ledge include the Humpback whale, the Fin whale, and the North Atlantic Right whale. *See* 2007 NOAA BO for Neptune at 25, 29-30, 32, 84. *See also* NOAA's August 20, 2009, Rockport Consultation Letter at 2. The waters around Stellwagen Bank and Jeffreys Ledge are important feeding grounds for these species because upwelling in these areas tends to produce abundant food supplies. Other endangered species of whale that could potentially be found in the waters of Stellwagen Bank and Jeffreys Ledge include the Sei, Blue and Sperm whales. These species, however, would be far less common because of their preference for either deeper water (Sperm and Sei whales) or more northern waters (Blue whales). *See* 2007 NOAA BO for Neptune at 34-41, 84. *See also* NOAA's August 20, 2009, Rockport Consultation Letter at 2; Jeffreys Ledge Information Page (separate pages on North Atlantic Right, Humpback, Fin, Sei, Blue and Sperm whales).

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[3] The Stellwagen Bank NMS encompasses a southeastern portion of Jeffrey's Ledge. *See Map of Gerry E. Studds Stellwagen Bank National Marine Sanctuary* (found at http://sanctuaries.noaa.gov/pgallery/atlasmaps/sb.html). *See also* Jeffreys Ledge Information Page.

Looking closer to shore, it is unlikely that any of the above-discussed whale species would be present in the vicinity of the Manchester WWTF outfall and, therefore, these species will be unaffected by the permit action. Furthermore, it is unlikely that Sei, Sperm, Blue or Fin whales would be present in the 40 foot waters in the vicinity of the WWTF diffuser because of their preference for deeper and/or more northerly waters. *See* 2007 NOAA BO for Neptune at 34-41, 84. *See also* NOAA's August 20, 2009, Rockport Consultation Letter at 2. Therefore, these species should also be unaffected by the WWTF discharge.

With regard to Humpback and North Atlantic Right whales, while these species are typically found farther offshore, such as around Stellwagen Bank, they are known to venture into nearer-shore waters on occasion. In such cases, the whales are most likely transient visitors on their way to another destination, such as an offshore feeding ground. *See* 2007 NOAA BO for Neptune at 84. *See also* NOAA's August 20, 2009, Rockport Consultation Letter at 2.

Having considered the relevant information, EPA's preliminary determination is that the proposed permit action is unlikely to adversely affect any of the endangered whale species at issue here because (a) none are likely to occur in the vicinity of the WWTF discharge, (b) individual North Atlantic Right and Humpback whales may come into the vicinity of the WWTF discharge, but these species are only present in Massachusetts Bay on a seasonal basis and would be unlikely to enter waters near the WWTF discharge on other than a temporary basis, most likely while transiting the area, and (c) the treatment and other controls required to meet the stringent limits of the proposed permit, coupled with the outfall's location, depth and use of a diffuser, should preclude any adverse effects upon whales, their prey or their habitat.

As discussed above, the draft permit proposes protective effluent limits based on secondary treatment. An annual average flow limit of .67 MGD will continue in order to satisfy the requirements of the Ocean Sanctuaries Act. Limits on total residual chlorine are more stringent than would be required to meet water quality standards, so there will be no effluent toxicity due to chlorine use. Monitoring requirements and limitations are also established on whole effluent toxicity. Such testing will detect any toxicity which occurs in the effluent. In addition, the permit also requires that the discharge shall not violate the state surface water quality standards. The WWTF's outfall discharges at a depth of 40 feet and uses a multi-port diffuser, achieving a high dilution factor of 201:1. All of these factors should contribute to precluding any marine organisms, including any marine mammal, from coming into contact with a concentrated discharge plume.

Reptiles – Turtles - The following listed species of sea turtle are known to occur in the waters of Massachusetts Bay: Kemp's Ridley, Green, Leatherback (all endangered), Loggerhead (listed as threatened but recently proposed for listing as endangered).[4] *See* NOAA Website at - http://www.nmfs.noaa.gov/pr/species/turtles/; and at

[4] Hawksbill sea turtles would not be expected to be present in the area of the discharges covered by the proposed NPDES permit. *See* 2007 NOAA BO for Neptune, at 21.

http://www.nmfs.noaa.gov/pr/pdfs/species/turtle_loggerhead proposed_dps.pdf." As explained below, however, EPA's preliminary determination is that the proposed permit action is unlikely to adversely affect any of these listed species of sea turtle. Each of these sea turtle species has a wide range and tends to occupy a different type of habitat during different stages of its life history. In connection with its review of EPA's proposed NPDES permit for the Town of Rockport, MA, POTW, NOAA explained that:

> Four species of federally threatened or endangered sea turtles under the jurisdiction of NMFS may be found seasonally in the coastal waters of Massachusetts, typically when water temperatures are higher than 15ºC. The highest concentrations of sea turtles are normally present from June – October.
>
> The sea turtles in northeastern nearshore waters are typically small juveniles with the most abundant being the federally threatened loggerhead (*Caretta caretta*), followed by the federally endangered Kemp's ridley (*Lepidochelys kempi*). Federally endangered green sea turtles (*Chelonia mydas*) also occur in these waters. The three species of chelonid turtles found in the Northeast remain very briefly in open ocean waters, spending most of their time during the summer months in harbors and estuarine waters. The Federally endangered leatherback sea turtles (*Dermochelys coriacea*) may also be found in the waters of Massachusetts during the warmer months, however this species is unlikely to occur in the action area for this project as it is typically found in deeper, more offshore waters.

See also NOAA's August 20, 2009, Rockport Consultation Letter at 3. Thus, while all four species of sea turtle could potentially be present in the waters in the vicinity of the WWTF's discharge, the leatherback is particularly unlikely to be present because it favors deeper, more offshore waters. A more detailed discussion of each of these four species is presented below.

Loggerhead Sea Turtle

In the Atlantic Ocean, the loggerhead turtle's range extends from Newfoundland to as far south as Argentina. *See* NOAA Website at - http://www.nmfs.noaa.gov/pr/species/turtles/. More specifically, the loggerhead's range includes the area of the Atlantic in the vicinity of the discharges covered by the proposed NPDES permit. Although more common in waters south of this area, the northern reach of the loggerhead's foraging range extends into the Gulf of Maine during the summer (warmer water) months. *See* 2007 NOAA BO for Neptune at 44. Loggerheads can appear in the Gulf of Maine as early as June, with "the large majority leav[ing] the Gulf of Maine by mid-September," though some may remain into late fall. *Id.* Their presence or absence from an area is influenced by, among other things, water temperature. *Id.*

Some data suggests that loggerheads are most common in waters "from 22 to 49 meters deep" – which is deeper than the area where the Manchester WWTF outfall is located, at

a depth of approximately 12 meters (40 feet) – but they can inhabit areas "from the beach to waters beyond the continental shelf." *Id.*[5] Somewhere between the ages of 7 and 12 years, oceanic juveniles are thought to migrate to nearshore coastal areas (neritic zone) where they continue maturing until adulthood. *See* NOAA Website at: http://www.nmfs.noaa.gov/pr/species/turtles/.

On its website, NOAA explains that:

> [i]n addition to providing critically important habitat for juveniles, the neritic zone also provides crucial foraging habitat, inter-nesting habitat, and migratory habitat for adult loggerheads in the western North Atlantic. To a large extent, these habitats overlap with the juvenile stage, the exception being most of the bays, sounds, and estuaries along the Atlantic and Gulf coasts of the U.S. from Massachusetts to Texas, which are infrequently used by adults. …
> The predomina[nt] foraging areas for western North Atlantic adult loggerheads are found throughout the relatively shallow continental shelf waters of the U.S., Bahamas, Cuba, and the Yucatán Peninsula, Mexico.

Leatherback Sea Turtle
Leatherback sea turtles have a particularly wide range and can tolerate relatively low water temperatures. *See* 2007 NOAA BO for Neptune at 50. Leatherbacks inhabit waters as far north as Manchester and beyond. *See id.* at 52. After nesting, female leatherbacks migrate from tropical waters to more temperate latitudes which support high densities of their jellyfish prey in the summer. *Id.* While they "are predominantly a pelagic species …, [l]eatherbacks may come into shallow waters if there is an abundance of jellyfish nearshore."

Id. at 53. *See also* http://www.nmfs.noaa.gov/pr/species/turtles/leatherback.htm. Thus, leatherbacks are unlikely to be found in the area of the discharge covered by the permit, because they would typically be expected to be found in waters well offshore of this area. *See* NOAA's August 20, 2009, Rockport Consultation Letter at 3.

Kemp's Ridley Sea Turtle
The range of the Kemp's Ridley sea turtle extends northward from the Gulf of Mexico to New England along the Atlantic seaboard of the United States. *See* http://www.nmfs.noaa.gov/pr/species/turtles/kempsridley.htm. Adult Kemp's Ridley turtles "primarily occupy 'neritic' habitats," *id.*, and "[t]heir diet consists mainly of swimming crabs, but may also include fish, jellyfish, and an array of mollusks." *Id.* Thus, Kemp's Ridley turtles could be present in the vicinity of the discharge covered by the proposed permit.

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[5] NOAA has also noted that "Loggerhead sea turtles are a cosmopolitan species, found in temperate and subtropical waters and inhabiting pelagic waters, continental shelves, bays, estuaries and lagoons." 2007 NOAA BO for Neptune at 43,

Green Sea Turtle
The range of Green sea turtles in the western Atlantic Ocean extends (from as far south as Argentina) to the waters of Massachusetts. *See* 2007 NOAA BO for Neptune at 59. Juvenile Green sea turtles occupy pelagic habitat, but when they reach a certain length the juveniles leave these habitats and "enter benthic foraging areas, shifting to a chiefly herbivorous diet but may also consume jellyfish, salps, and sponges." *Id.* at 58. Thus, Green turtles could occur in the vicinity of the discharge covered by the proposed permit.

Having considered the relevant information, EPA's preliminary determination is that the proposed permit action is unlikely to adversely affect any of the listed species of sea turtle, and will not affect any of their designated critical habitats.

To begin with, no critical habitat will be affected because none has been designated in the vicinity of the areas affected by the WWTF discharge. In addition, EPA has three additional important reasons for concluding that the species are not likely to be adversely affected by the proposed permit action.

First, the permit contains environmentally protective conditions that should preclude adverse effects on sea turtles. More specifically, there are protective effluent limits based on secondary treatment. An annual average flow limit of .67 MGD will continue in order to satisfy the requirements of the Ocean Sanctuaries Act. Limits on total residual chlorine are more stringent than would be required to meet water quality standards, so there will be no effluent toxicity due to chlorine use. Monitoring requirements and limitations are also established on whole effluent toxicity. Such testing will detect any toxicity which occurs in the effluent. In addition, the permit also requires that the discharge shall not violate the state surface water quality standards.

Second, given that the WWTF's outfall discharges at a depth of 40 feet and uses a multi-port diffuser, achieving a high dilution factor of 201:1, neither sea turtles nor their food sources would come into contact with a concentrated discharge plume.[6] Indeed, except for leatherbacks, which are unlikely to be in the area, the turtles in question here are primarily benthic feeders. The discharge is positively buoyant and has little or no contact with the bottom.

Third, while individuals of the various species could be seasonally present in the areas around the WWTF discharge, they would not be expected to be present in large numbers or for lengthy periods of time. They would, instead, be more likely to be occasional, solitary, transient visitors. *See* NOAA's December 2004 Gloucester CSO Letter ("no

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[6] While EPA is proposing that the new permit contain environmentally protective conditions, the Agency also notes that in its 2007 NOAA BO for Neptune, at 126, NOAA explained that:

> [t]urtles are relatively hardy species and are not easily affected by changes in water quality or increased suspension of sediments in the water column. However, if these changes persist, they can cause habitat degradation or destruction, eventually leading to foraging difficulties, which may in turn lead to long term avoidance or complete abandonment of the polluted area by the affected species (Ruben and Morreale 1999).

federally listed or proposed threatened or endangered species and/or critical habitat for listed species under the jurisdiction of the National Marine Fisheries Service (NOAA Fisheries) are known to exist in near-by Gloucester Harbor.”). Leatherback turtles primarily inhabit offshore pelagic environments. *See* NOAA’s August 20, 2009, Rockport Consultation Letter at 3.

The other listed species discussed here might visit the affected near-shore waters, but still would only be expected to venture into this area on a temporary basis during the warmer months. It seems unlikely that this area represents particularly good turtle habitat given the relatively cold water temperatures along the coast of Manchester. Again, however, even if sea turtles do occasionally forage in proximity to the outfall, it is EPA’s preliminary determination that they are not likely to be adversely affected by the discharges.

X. 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 draft permit. EPA has requested permit certification by the state pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

XI. Public Comment Period, Public Hearing, And Procedures For Final Decision

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and a supporting material for their arguments in full by the close of the public comment period, to Suprokash Sarker, U.S. EPA, MA Office of Ecosystem Protection, 5 Post Office Square, Suite 100 , Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and MassDEP for a public hearing to consider the draft permit. 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 draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston Office. Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

XII. EPA Contact

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

Suprokash Sarker, P.E.
Municipal Permits Branch
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP 6-1)
Boston, MA 02109-3912
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627 Main Street, Floor # 2
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Date

Stephen Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency
Boston, MA

List of Attachments:

A - Facility Location
B - Treatment Process Diagram
C - DMR Data
D - EFH