In Re:

CITY OF GLOUCESTER, MASSACHUSETTS, PUBLICLY OWNED TREATMENT WORKS, APPLICATION FOR A MODIFICATION OF SECONDARY TREATMENT REQUIREMENTS PURSUANT TO SECTION 301(h) OF OF THE CLEAN WATER ACT	))))))	FINAL DECISION OF THE REGIONAL ADMINISTRATOR UNDER 40 CFR PART 125, SUBPART G (NPDES Permit No. MA 0100625)

It is my final decision to deny the City of Gloucester, Massachusetts' (Gloucester) application pursuant to Section 301(h) of the Clean Water Act, 33 U.S.C. § 1311(h), seeking effluent limits for its National Pollutant Discharge Elimination System (NPDES) permit based on a modification of the generally applicable secondary treatment provisions of the Clean Water Act, as amended. *See* 33 U.S.C. § 1311(b)(1)(B). This office previously had issued a Tentative Decision to deny the requested modification. This Tentative Decision, and Draft Permit with Fact Sheet and other attachments, were publicly noticed for comment from November 5, 2010, through January 18, 2011, with an extension granted to February 2, 2011. *See* "Tentative Decision of the Regional Administrator Pursuant to 40 C.F.R. Part 125, Subpart G." Another extension was later granted and additional comments were accepted from February 14, 2011, through March 31, 2011. EPA also held a public hearing on the Tentative Decision and Draft Permit on March 24, 2011. EPA received and subsequently responded to all significant public comments regarding the draft documents. *See* Region 1's Responses to Comments issued in conjunction with the Final Permit. EPA received no comments, however, that resulted in changing its earlier "Tentative Decision" to deny Gloucester's application for a modification under Section 301(h) of the Clean Water Act. Therefore, based on the analysis set forth in the "Tentative Decision" and the Responses to Comments, it is my Final Decision to deny Gloucester's application for modified treatment limits under Section 301(h). A Final Permit imposing secondary treatment effluent limits and other pertinent conditions is being issued, along with the "Response to Comments" document setting forth responses to the significant comments received on the Draft Permit.

Date: 7/2/22

DEBORAH SZARO

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Date: 2022.07.01 13:11:06 -04'00'

Deb Szaro
Acting Regional Administrator
Environmental Protection Agency
Region I

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

If you have any questions on the Final Permit or Response to Comments
for the City of Gloucester, MA0100625
please contact:

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AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.; the"CWA", and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

The City of Gloucester
Dale Avenue
Gloucester, MA 01930

is authorized to discharge from the facility located at:

Gloucester Water Pollution Control Facility
50 Essex Avenue, Gloucester, MA 01930
and from four (4) Combined Sewer Overflows (CSOs)(see Page 15 of this Final Permit for locations to receiving waters named):

OUTFALLS	RECEIVING WATERS	BASINS	CLASS
WPCF outfall (outfall 001)	Massachusetts Bay	USGS HUC Code - 01090001	Class SA
4 CSOs (outfalls 002, 004, 005, 006A)	Gloucester Harbor	North Coastal Basin – MA93-18	Class SB

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein. This permit shall become effective on September 1, 2022, the first day of the calendar month immediately following 60 days after signature.[1]

This permit and the authorization to discharge expire at midnight, August 31, 2027.

This permit supersedes the permit signed on August 28, 2001 and which became effective on October 27, 2001.

This permit consists of 24 Pages in Part I including effluent limitations, monitoring requirements, etc.; Attachments A (Acute Marine Toxicity Test Procedure and Protocol, July 2012), B (Industrial Pretreatment Annual Report), C (Reassessment of Technically Based Local Limits), and D (Nine Minimum Controls Guidance); and Part II (NPDES Part II Standard Conditions, April 2018).

Signed this 30th day of June , 2022

KENNETH MORAFF Digitally signed by KENNETH MORAFF Date: 2022.06.30 08:12:56 -04'00'

Ken Moraff, Director
Water Division
Environmental Protection Agency
Boston, MA

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

[1] Procedures for appealing EPA's Final Permit decision may be found at 40 CFR § 124.19.

PART I.

A. 1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge treated wastewater through outfall serial number **001** to Massachusetts Bay. Such discharges shall be limited and monitored by the Permittee as specified below.

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[3,4,5]	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample[6] Type**
Rolling Average Effluent Flow[2]	5.15 MGD	---	---	Continuous	Recorder
Rolling Average Effluent Flow[2] (This limit becomes effective when footnote 2 conditions are met)	7.24 MGD	---	---	Continuous	Recorder
Effluent Flow[2]	---	---	Report MGD	Continuous	Recorder
BOD_5	1811 lbs/day 30 mg/L	2717 lbs/day 45 mg/L	Report mg/L	3/week	Composite
BOD_5 Removal	≥ 85 %	---	---	1/month	Calculation
TSS	1811 lbs/day 30 mg/L	2717 lbs/day 45 mg/L	Report mg/L	3/week	Composite
TSS Removal	≥ 85 %	---	---	1/month	Calculation
pH Range[1]	6.5 – 8.5 SU. (See Part I.A.1.b.)			1/day	Grab
Total Residual Chlorine [7]	0.48 mg/L	0.83 mg/L		3/day	Grab
Fecal Coliform[1,8]	14 MPN/100 mL	---	28 MPN/100 mL	3/week	Grab
Enterococci Bacteria[1,8]	35 MPN/100 mL	---	130 MPN/100 mL	3/week	Grab
Oil and Grease[9]	---	---	Non-detect mg/L	1/week	Grab
Total Petroleum Hydrocarbons[9]	---	---	Non-detect mg/L	1/week	Grab

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[3,4,5]	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample[6] Type**
Ammonia Nitrogen[1]	Report mg/L Report lb/day	---	Report mg/L	1/Month	Composite
Total Kjeldahl Nitrogen[1]	Report mg/L	---	Report mg/L	1/Month	Composite
Nitrate + Nitrite[1]	Report mg/L	---	Report mg/L	1/Month	Composite
Total Nitrogen[1,10]	Report mg/L Report lb/day	---	Report mg/L	1/Month	Composite
Perfluorohexanesulfonic acid (PFHxS) [1,11]	Report ng/L	---	---	1/Quarter	Composite
Perfluoroheptanoic acid (PFHpA) [1,11]	Report ng/L	---	---	1/Quarter	Composite
Perfluorononanoic acid (PFNA) [1,11]	Report ng/L	---	---	1/Quarter	Composite
Perfluorooctanesulfonic acid (PFOS) [1,11]	Report ng/L	---	---	1/Quarter	Composite
Perfluorooctanoic acid (PFOA) [1,11]	Report ng/L	---	---	1/Quarter	Composite
Perfluorodecanoic acid (PFDA) [1,11]	Report ng/L	---	---	1/Quarter	Composite

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[3,4,5]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample[6] Type
Whole Effluent Toxicity (WET) Testing [12,13,14]					
LC_{50}	---	---	≥ 100%	1/quarter	Composite
Salinity	---	---	Report ppt	1/quarter	Composite
Ammonia Nitrogen	---	---	Report mg/L	1/quarter	Composite
Total Aluminum	---	---	Report mg/L	1/quarter	Composite
Total Cadmium	---	---	Report mg/L	1/quarter	Composite
Total Copper	---	---	Report mg/L	1/quarter	Composite
Total Nickel	---	---	Report mg/L	1/quarter	Composite
Total Lead	---	---	Report mg/L	1/quarter	Composite
Total Zinc	---	---	Report mg/L	1/quarter	Composite
Total Organic Carbon	---	---	Report mg/L	1/quarter	Composite

Ambient Characteristic[15] (WET testing)	Reporting Requirements			Monitoring Requirements[3,4,5]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[6]
Salinity	---	---	Report ppt	1/quarter	Grab
Ammonia Nitrogen	---	---	Report mg/L	1/quarter	Grab
Total Aluminum	---	---	Report mg/L	1/quarter	Grab
Total Cadmium	---	---	Report mg/L	1/quarter	Grab
Total Copper	---	---	Report mg/L	1/quarter	Grab
Total Nickel	---	---	Report mg/L	1/quarter	Grab
Total Lead	---	---	Report mg/L	1/quarter	Grab
Total Zinc	---	---	Report mg/L	1/quarter	Grab
Total Organic Carbon	---	---	Report mg/L	1/quarter	Grab
pH[16]	---	---	Report S.U.	1/quarter	Grab
Temperature[16]	---	---	Report °C	1/quarter	Grab

Influent Characteristic	Reporting Requirements			Monitoring Requirements[3,4,5]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[6]
BOD_5	Report mg/L	---	---	2/month	Composite
TSS	Report mg/L	---	---	2/month	Composite
Perfluorohexanesulfonic acid (PFHxS) [1,11]	---	---	Report ng/L	1/Quarter[17]	Composite
Perfluoroheptanoic acid (PFHpA) [1,11]	---	---	Report ng/L	1/Quarter[17]	Composite
Perfluorononanoic acid (PFNA) [1,11]	---	---	Report ng/L	1/Quarter[17]	Composite
Perfluorooctanesulfonic acid (PFOS) [1,11]	---	---	Report ng/L	1/Quarter[17]	Composite
Perfluorooctanoic acid (PFOA) [1,11]	---	---	Report ng/L	1/Quarter[17]	Composite
Perfluorodecanoic acid (PFDA) [1,11]	---	---	Report ng/L	1/Quarter[17]	Composite

Sludge Characteristic	Reporting Requirements			Monitoring Requirements[3,4,5]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[6]
Perfluorohexanesulfonic acid (PFHxS) [1,18]	---	---	Report ng/g	1/Quarter[17]	Composite[19]
Perfluorononanoic acid (PFNA) [1,18]	---	---	Report ng/g	1/Quarter[17]	Composite[19]
Perfluorooctanesulfonic acid (PFOS) [1,18]	---	---	Report ng/g	1/Quarter[17]	Composite[19]
Perfluorooctanoic acid (PFOA) [1,18]	---	---	Report ng/g	1/Quarter[17]	Composite[19]
Perfluoroheptanoic acid (PFHpA) [1,18]	---	---	Report ng/g	1/Quarter[17]	Composite[19]
Perfluorodecanoic acid (PFDA) [1,18]	---	---	Report ng/g	1/Quarter[17]	Composite[19]

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.

   The annual average flow limit is 5.15 MGD until such time as the City has completed construction of the secondary treatment facilities and a flow increase to 7.24 MGD: 1) is deemed appropriate by a state antidegradation review, 314 CMR 4.04, 2) is supported by a comprehensive wastewater management plan (CWMP), 301 CMR 11.00, and 3) is supported by a Massachusetts Environmental Policy Act (MEPA) review, M.G.L. c. 30 § 61, *et seq.* No variance under the Massachusetts Ocean Sanctuaries Act, M.G.L. c. 132A § 12A, *et seq.,* is necessary as long as the annual average flow does not exceed 7.24 MGD and the maximum design flow does not exceed 15 MGD.

   The City shall notify EPA at RINPDESReporting@epa.gov and MassDEP at massdep.npdes@mass.gov **at least 60 days in advance of the expected date for completing the 7.24 MGD secondary treatment facility**.

3. All required effluent samples shall be collected at a representative point prior to mixing with the receiving water. Any change from the current sampling location must be reviewed and approved in writing by EPA and MassDEP. 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. The permittee is required to submit the results to EPA and MassDEP of any additional testing done that is required in the permit, if it is conducted in accordance with EPA approved methods, consistent with the provisions of 40 CFR §122.41(l)(4)(ii).

   A routine sampling program shall be developed in which samples are taken at the same location, time and days of the week each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented as an electronic attachment to the applicable discharge monitoring report.

4. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is "sufficiently sensitive" when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term "minimum level" refers either to the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in the following ways: they may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.

5. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For reporting an average based on a mix of values detected and not detected, assign a value of "0" to all non-detects for that reporting period and report the average of all the results.

6. A "grab" sample is an individual sample collected in a period of less than 15 minutes.

   A "composite" sample is a composite of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.

7. Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection, or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

8. Enterococci samples shall be taken concurrently with fecal coliform samples. Each bacterium sampling event will also be conducted concurrent with a required total residual chlorine sample.The monthly average limit for fecal coliform and enterococci are expressed as geometric means.

9. Both total petroleum hydrocarbons (TPH) and oil and grease shall be tested using EPA Method 1664- n-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated n-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry Revision A or Method 1664 Revision B.

   The Permittee shall have no detectable discharge of oil and grease or TPH. Compliance shall be measured at the minimum level (ML) of detection for the EPA approved test methods (i.e., test results measured below the EPA-approved test method's ML will be considered in compliance with this permit limit). The oil and grease and TPH ML is 5 mg/l using EPA Method 1664 (Revisions A and B), where the ML is the lowest point on the curve used to calibrate the test equipment for the pollutant of concern. If EPA approves a method under 40 CFR Part 136 for either, oil and grease or TPH that has a ML lower than 5 mg/l, the Permittee shall be required to use the improved method.

10. Total Kjeldahl nitrogen, nitrate, and nitrite shall be collected concurrently. The results of these analyses shall be used to calculate both the concentration and the mass loadings of total nitrogen, as follows:

    Total Nitrogen (mg/L) = Total Kjeldahl Nitrogen (mg/L) + Nitrate + Nitrite (mg/L).

    Total Nitrogen (lb/day) = [(average monthly Total Nitrogen (mg/L) * total monthly effluent flow (Millions of Gallons (MG)) / # of days in the month] * 8.34

11. Report in nanograms per liter (ng/L). This reporting requirement for the listed PFAS parameters takes effect the first full calendar quarter following 6 months after EPA notifies the Permittee that an EPA multi-lab validated method for wastewater is available, or two (2) years after the effective date of this Permit, whichever is earlier, and the permittee shall conduct monitoring of the influent and effluent for PFAS compounds as detailed in Part I.A.1. of this Permit. If EPA's multi-lab validated method is not available by twenty (20) months after the effective date of this Permit, the permittee shall contact MassDEP at massdep.npdes@mass.gov for guidance on an appropriate analytical method. Monitoring results shall be reported to EPA using NetDMR and to MassDEP electronically at massdep.npdes@mass.gov within 30 days after the permittee receives the sampling results.

12. The Permittee shall conduct four acute WET tests per year. The tests use two aquatic species, mysid shrimp (*Mysidopsis bahia* or *America mysis bahia*) and inland silverside (*Menidia beryllina*) in a definitive 48-hour test.

Toxicity test samples shall be collected during the same weeks of each of the months of March, June, September, and December. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

Test Dates Same Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**
March June September December	April 30th July 31st October 31st January 30th	Mysid shrimp (*Mysidopsis bahia*) or (*America mysis bahia*) Inland silverside (*Menidia beryllina*) *See* **Attachment A**	≥ 100%

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.

13. The LC_{50} 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 morethan a 50% mortality rate.

14. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in Attachment A, Part VI. CHEMICAL ANALYSIS for the effluent sample. If toxicity test(s) using the 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. Minimum levels and test methods are specified in Attachment A, Part VI. CHEMICAL ANALYSIS.

15. For Part I.A.1., Ambient Characteristic, the Permittee shall conduct the analyses specified in Attachment A, Part VI. CHEMICAL ANALYSIS for the receiving water sample collected as part of the WET testing requirements. Such samples shall be taken from the receiving water at a point immediately outside of the permitted discharge's zone of influence at a reasonably accessible location, as specified in Attachment A. Minimum levels and test methods are specified in Attachment A, Part VI. CHEMICAL ANALYSIS.

16. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection and the results reported on the appropriate DMR. These pH and temperature measurements are independent from any pH and temperature measurements required by the WET testing protocols.

17. Quarters are defined as January to March, April to June, July to September, and October to December. Samples shall be taken during the same month each quarter and shall be taken 3 months apart (e.g., a sampling schedule could be February, May, August, and November).

18. Report in nanograms per gram (ng/g). This reporting requirement for the listed PFAS parameters takes effect the first full calendar quarter following 6 months after EPA notifies the Permittee that an EPA multi-lab validated method for sludge is available. or two (2) years after the effective date of this Permit, whichever is earlier, and the permittee shall conduct monitoring of the sludge for PFAS compounds as detailed in Part I.A.1. of this Permit. If EPA's multi-lab validated method is not available by twenty (20) months after the effective date of this Permit, the permittee shall contact MassDEP at massdep.npdes@mass.gov for guidance on an appropriate analytical method. Monitoring results shall be reported to EPA using NetDMR and to MassDEP electronically at massdep.npdes@mass.gov, within 30 days after the permittee receives the sampling results.

19. Sludge sampling shall be as representative as possible based on guidance found at https://www.epa.gov/sites/production/files/2018-11/documents/potw-sludge-sampling-guidance-document.pdf.

Part I.A.1. (Continued)

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

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

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

d. The discharge shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to the receiving water, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of 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. When reporting effluent data as a geometric mean in NetDMR, the permittee will report the maximum value for the day and will use all values within the specified reporting period to calculate and report the geometric mean. An example is provided below. Values of zero cannot be used to calculate a geometric mean. If a bacteria sample result is below the detection limit, use the detection limit value for that sample to calculate the geometric mean. Use the following equation: Geometric Mean = Xg = (X_1 x X_2 x X_3 x … x X_n); where: n = the number of values observed/analyzed; and X_1, X_2,...X_n = the sample results or values.

Sample Calculation:
Given the data collected within a 7-day period: 10, 100, 300, 15, 4
The calculated geometric mean for this data is: $(10 \times 100 \times 300 \times 15 \times 4)^{1/5} = 28.25$
Therefore, the weekly average = **28.25** colonies/100 mL (a geometric mean)
To calculate the monthly geometric mean, use all data collected during the month.

In addition to the sample calculation above, the permittee will report the bacteria data using the following guidelines:

Example Bacteria Data Set		
Result Type	Data Reported	Data for Calculation
No colony growth	< 4	4
# of colonies < 20	15 est.	15
Colonies between 20-60	40	40
Colonies > 60	150 est.	150
Colonies TNTC	> 6000	6000

TNTC = too numerous to count

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

a. Any new introduction of pollutants into that POTW from an indirect discharger in a primary industry category discharging process water; and

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

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

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

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

A.3. Prohibitions Concerning Interference and Pass Through:

a. Pollutants introduced into POTWs by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works. (*See* NPDES Part II, E.1., General Definitions)[2]

B. DEVELOPMENT OF LIMITATIONS FOR INDUSTRIAL USERS:

1. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. **Within 120 days of the effective date of this Permit,** the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to reviselocal limits. As part of this evaluation, the permittee shall assess how the POTW performs with respect to influent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition,worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form, **Attachment C**, with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits analysis in accordance with EPA's Local Limits Development Guidance (July, 2004).

2. **Within 120 days of the effective date of this Permit**, the permittee shall develop and submit to EPA a Maximum Allowable Industrial Headworks Loading (MAIHL) for Oil and Grease. The proposed MAIHL should be submitted to EPA for approval in accordance with 40 CFR 403.18(c). Upon EPA approval, the MAIHL shall be adopted, immediately, into the City's Sewer Use Ordinance. This requirement is in addition to the evaluation of all local limits required by the preceding paragraph.

C. INDUSTRIAL PRETREATMENT PROGRAM

1. The permittee shall implement the Industrial Pretreatment Program in accordance withthe legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR 403.

[2] NPDES Part II of this Final Permit, April 26, 2018 (updated July 17, 2018 to correct typographical errors).

At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program ("IPP"):

a. Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

b. Issue or renew all necessary industrial user control mechanisms within 120 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement; and

d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

2. The permittee shall provide the EPA and the MA DEP with an annual report describing the permittee's pretreatment program activities over the twelve month period ending 60 days prior to the due date in accordance with 403.12(i). **The annual report shall be consistent with the format described in Attachment B of this Permit and shall be submitted no later than March 1, of each year.**

3. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).

4. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published inthe Federal Regulations at 40 CFR 405 et. seq.

5. On October 14, 2005, EPA published in the Federal Register final changes to the General Pretreatment Regulations. 70 Fed. Reg 60134 (codified at 40 CFR Part 403). The final "Pretreatment Streamlining Rule" is designed to reduce the burden to industrial users and provide regulatory flexibility in technical and administrative requirements for industrial users and POTWs. To the extent that the POTW's legal authorities are not consistent with the required changes, they must be revised and submitted to EPA for review within 60 days of the effective date of this permit.

6. The City shall operate a "fats, oil, and grease" (FOG) program to educate private and commercial sewer users about practices to eliminate fats, oils and grease at the source, rather than introducing FOG to the collection system.

7. In accordance with MassDEP's 401 Water Quality Certification dated June 21, 2022, pursuant to 314 CMR 3.11 (2)(a)6., and in accordance with MassDEP's obligation under 314 CMR 4.05(5)(e) to maintain surface waters free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife, beginning six (6) months

after the permittee has been notified that a multi-lab validated method for wastewater is available, or two (2) years after the effective date of this Permit, whichever is earlier, the permittee shall commence annual monitoring of all Significant Industrial Users[3] discharging into the POTW. Monitoring shall be in accordance with the table below. If EPA's multi-lab validated method is not available by twenty (20) months after the effective date of this Permit, the permittee shall contact MassDEP (massdep.npdes@mass.gov) for guidance on an appropriate analytical method. Monitoring results shall be reported to EPA using NetDMR and to MassDEP electronically at massdep.npdes@mass.gov within 30 days after the permittee receives the sampling results.

Parameter	Units	Measurement Frequency	Sample Type
Perfluorohexanesulfonic acid (PFHxS)	ng/L	Annual	24-hour Composite
Perfluoroheptanoic acid (PFHpA)	ng/L	Annual	24-hour Composite
Perfluorononanoic acid (PFNA)	ng/L	Annual	24-hour Composite
Perfluorooctanesulfonic acid (PFOS)	ng/L	Annual	24-hour Composite
Perfluorooctanoic acid (PFOA)	ng/L	Annual	24-hour Composite
Perfluorodecanoic acid (PFDA)	ng/L	Annual	24-hour Composite

D. TOXICS CONTROL

1. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

2. 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.

3. EPA or MassDEP 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.

E. COMBINED SEWER OVERFLOWS (CSO)

1. During wet weather, the permittee is authorized to discharge stormwater/wastewater from the following combined sewer outfalls subject to the following effluent limitations:

[3] Significant Industrial User (SIU) is defined at 40 CFR part 403: All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR chapter I, subpart N; **and** any other industrial user that: discharges an average of 25,000 GPD or more of process wastewater to the POTW, contributes a process waste stream that makes up 5% or more of the average dry weather hydraulic or organic capacity of the POTW, or designated as such by the POTW on the basis that the industrial users has a reasonable potential for adversely affecting the POTW's operation or for violating any Pretreatment Standards or requirement.

CSO Number	Name of CSO	Receiving Water
002	Mansfield Street Drain	Gloucester Harbor
004	Rogers Street CSO	Harbor Cove
005	Main Street CSO	Gloucester Inner Harbor
006A	East Main Street CSO	Gloucester Inner Harbor

a. The discharges shall not cause or contribute to violations of federal or state Water Quality Standards.

b. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgment (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control includes the implementation of Nine Minimum Controls (NMC) specified below and detailed further in Part I.E.2, "Nine Minimum Controls Minimum Implementation Levels" of this permit:

(1) Proper operation of, and regular maintenance programs for, the sewer system and the CSOs.

(2) Maximize the use of the collection system for storage of combined wastewater and stormwater in order to minimize CSO discharges.

(3) Review and, as appropriate, modify the pretreatment program to minimize the adverse effects of CSO discharges.

(4) Maximize the proportion of the system's wastewater, and combined wastewater/stormwater, flow that is conveyed to the POTW for treatment.

(5) Dry weather overflows from CSOs are prohibited and must be eliminated.

(6) Minimize the discharge of solid and floatable materials in CSO discharges.

(7) Implement pollution prevention programs that focus on contaminant reduction activities.

(8) Provide adequate notice to the public of CSO occurrences and CSO impacts.

(9) Monitor to effectively characterize CSO impacts and the efficacy of CSO controls.

2. The permittee shall continue to implement the Nine Minimum Control Program (NMC) as documented as of September, 1996, or as subsequently modified to enhance the effectiveness of the controls. **Within one year of the effective date of the permit, the permittee shall submit to EPA using NetDMR and MassDEP an updated NMC program, including an updated High Flow Management Plan.**

   (1) Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected to ensure that they are in good working condition and adjusted to minimize combined sewer discharges and tidal surcharging. Such inspections shall occur monthly unless EPA approves a site specific inspection program which has been determined by EPA to provide an equal level of effectiveness (NMC #1, 2, and 4).

   (2) The following inspection results shall be recorded: the date and time of the inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The permittee shall maintain all records of inspections for at least three (3) years.

   (3) **Annually, no later than <u>January 15th</u>**, the permittee shall submit a certification to the State and EPA which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained.

   (4) The State and EPA have the right to inspect any CSO related structure or outfall, without prior notification to the permittee.

   (5) Discharges to the combined system of septage, holding tank wastes or other material which may cause a visible oil sheen or containing floatablematerial are prohibited during wet weather when CSO discharges may be active. (NMC# 3, 6, and 7).

   (6) Dry weather overflows (DWOs) are prohibited (NMC# 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and the State within twenty-four (24) hours in accordance with the reporting requirements for plant bypass (Paragraph D.1.e, of the General Requirements of this permit.

   (7) The permittee shall quantify and record discharges from the combined sewer outfalls (NMC# 9). Quantification may be through direct measurement or estimation. When estimating, the permittee shall make reasonable efforts (i.e., gaging, measurements) to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

      (a) Estimated duration (hours) of discharge;

(b) Estimated volume (gallons) of discharge; and
(c) National Weather Service precipitation data from the nearest gage where precipitation is available at daily (twenty-four (24) hour) intervals and the nearest gage where precipitation is available at one-hour intervals.

(8) Cumulative precipitation per discharge event shall be calculated.

(9) The permittee shall maintain all records of discharges for at least six (6) years after the effective date of this Permit, as it is collected, on an ongoing basis.

(10) **Within 3 months of the effective date of this permit**, the permittee shall verify that identification signs are in place for all combined sewer outfall structures. The signs must be located at or near the combined sewer outfall structures and easily readable by the public. These signs shall be a minimum of twelve x eighteen (12 x 18) inches in size, with white lettering against a green background, and shall contain the following information:

WARNING:
WET WEATHER SEWAGE DISCHARGE
GLOUCESTER OUTFALL (No. XXX)

Where easements over property not owned by the permittee must be obtained to meet this requirement, the permittee shall identify the appropriate landowners and obtain the necessary easements, to the extent practicable.

The permittee, to the extent feasible, shall add a universal wet weather sewage discharge symbol to each existing sign, or will place a sign with a universal wet weather sewage discharge symbol that is visible from the land and water, unless there is already a warning sign written in a non-English language.

3. This permit may be reopened to add additional technology-based requirements based on information assembled during Gloucester's development of a Long-Term CSO Control Plan.

4. The permittee may consolidate CSO reports which are on similar reporting schedules.

5. Nine Minimum Controls Reporting Requirement

Annually, no later than March 1st, the Permittee shall submit a report into NetDMR summarizing activities during the previous calendar year relating to compliance with the nine minimum controls. The annual report shall include the CSO outfall monitoring data required by Part I.E.6. of this permit. (See Permit Attachment D – Nine Minimum Controls).

6. Combined Sewer Overflow Outfall Monitoring

For each combined sewer overflow outfall listed in Part I.E.1 of this permit (i.e., 002, 004, 005, 006A), the Permittee must monitor the following:

Parameters	**Reporting Requirements**	**Monitoring Requirements**	
	Total Monthly	**Measurement Frequency**	**Sample Type**
Total Flow	Report Gallons	Daily, when discharging	Continuous
Total Flow Duration (Duration of flow through CSO)	Report Hours	Daily, when discharging	Continuous
Number of CSO Discharge Events	Report Monthly Count	Daily, when discharging	Count

a. For Total Flow, measure the total flow discharged from each CSO outfall during the month. For Total Flow Duration, report the total duration (hours) of discharges for each CSO outfall during the month.

b. For those months when a CSO discharge does not occur, the Permittee must indicate "no discharge" for the outfall for which data was not collected.

This information shall be submitted with the annual report required by Part I.E.5. of this permit.

F. UNAUTHORIZED DISCHARGES

1. This Permit authorizes discharges only from the outfalls listed in Parts I.A.1. and I.E.1, in accordance with the terms and conditions of this Permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) from any portion of the collection system owned and operated by the permittee or co-permittees are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section J. 6. and 8. of the General Requirements of this Permit (Twenty-four hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at: https://www.mass.gov/how-to/sanitary-sewer-overflowbypassbackup-notification.

G. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of this Permit and the Standard Conditions of Part II and the following terms and conditions. The permittee shall meet the following conditions for the collection system:

1. Maintenance Staff

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

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 update and continue to implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The 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 permittees 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 toremoval 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.

The permittee shall require, through appropriate agreements that all member communities develop and implement infiltration and inflow control plans sufficient to ensure that high flows do not cause or contribute to a violation of the permittees effluent limitations, or cause overflows from the permittees collection system.

<u>Reporting Requirements:</u>

A summary report of all actions taken to minimize I/I during the previous calendar year shall by submitted to EPA and the MassDEP 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.

H. ALTERNATIVE POWER SOURCE

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

I. 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 Section 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 § 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 § 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.[4]

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods) and pathogen 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 503.8.

7. Under 40 CFR § 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 § 503.9(r) – i.e., with "a person whoderives 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 § 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 § 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 necessaryinformation 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 (§ 503.18 (land application), § 503.28 (surface disposal),or § 503.48 (incineration)) by **February 19** (*see also* "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted electronically using EPA's Electronic Reporting tool ("NeT") (See "Reporting Requirements" section, below). 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.

[4] This guidance document is available upon request from EPA Region 1 and may also be found at: https://www3.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

J. MONITORING AND REPORTING

Unless otherwise specified in this permit, the Permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of Reports Using NetDMR

The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State electronically using NetDMR no later than the 15th day of the month. When the Permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or the State. Net NetDMR is accessible through EPA's Central Data Exchange at http://cdx.epa.gov/.

2. Submittal of Reports as NetDMR Attachments

Unless otherwise specified in this permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. See Part I.J.7 for more information on State reporting. Because due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a Net DMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the report due date specified in this permit.

3. Submittal of Industrial User and Pretreatment Related Reports

a. Prior to 21 December 2025, all reports and information required of the Permittee in the Industrial Users and Pretreatment Program section of this permit shall be submitted to the Pretreatment Coordinator in EPA Region 1 Water Division (WD). Starting on 21 December 2025, these submittals must be done electronically as NetDMR attachments and/or using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/. These requests, reports and notices include:
   (1) Annual Pretreatment Reports,
   (2) Pretreatment Reports Reassessment of Technically Based Industrial Discharge Limits Form,
   (3) Revisions to Industrial Discharge Limits,
   (4) Report describing Pretreatment Program activities, and
   (5) Proposed changes to a Pretreatment Program

b. This information shall be submitted to EPA WD as a hard copy at the following address:

U.S. Environmental Protection Agency
Water Division
Regional Pretreatment Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912

4. Submittal of Biosolids/Sewage Sludge Reports

By **February 19** of each year, the Permittee must electronically report their annual Biosolids/Sewage Sludge Report for the previous calendar year using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which is accessible through EPA's Central Data Exchange at https://cdx.epa.gov.

5. Submittal of Requests and Reports to EPA Water Division (WD)

a. The following requests, reports, and information described in this permit shall be submitted to the NPDES Applications Coordinator in the EPA Water Division (WD):

(1) Transfer of permit notices;
(2) Request for changes in sampling locations;
(3) Request for reduction in testing frequency;
(4) Report on unacceptable dilution water/request for alternative dilution water for WET testing;
(5) Report of new industrial user commencing discharge;
(6) Report received from existing industrial user.

b. These reports, information, and requests shall be submitted to EPA WD electronically at RINPDESReporting@epa.gov.

6. Submittal of Sewer Overflow and Bypass Reports and Notifications

The Permittee shall submit required reports and notifications under Part II.B.4.c, for bypasses, and Part II.D.1.e, for sanitary sewer overflows (SSOs) electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.

7. State Reporting

Duplicate signed copies of all WET tests reports shall be submitted to the Massachusetts Department of Environmental Protection, Division of Watershed Management, at the following address:

Massachusetts Department of Environmental Protection
Bureau of Water Resources
Division of Watershed Management
8 New Bond Street
Worcester, Massachusetts 01606

8. Verbal Reports and Verbal Notifications

a. Any verbal reports or verbal notifications, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA and to the State. This includes verbal reports and notifications which require reporting within 24 hours (e.g., Part II.B.4.c.(2), Part II.B.5.c.(3), and Part II.D.1.e).

b. Verbal reports and notifications shall be made to:

EPA ECAD at 617-918-1510
And
MassDEP Emergency Response at 888-304-1133

K. STATE 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 surfacewater 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.

4. This Final Permit has received a state water quality certification issued by the State under § 401(a) of the CWA and 40 CFR § 124.53, dated June 21, 2022. EPA has incorporated the State water quality certification requirements into this Final Permit, as follows:

    a. PFAS monitoring of the influent, effluent, and sludge, as detailed in the state's 401 water quality certification, under Part I.A.1.
    b. PFAS monitoring of all Significant Industrial Users discharging into Gloucester's POTW, as detailed in the state's 401 water quality certification, under Part I.C.7.
    c. Nitrogen monitoring of the effluent, as detailed in the state's 401 water quality certification, under Part I.A.1.

MARINE ACUTE

TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable acute toxicity tests in accordance with the appropriate test protocols described below:

- **2007.0 - Mysid Shrimp (Americamysis bahia) definitive 48 hour test.**
- **2006.0 - Inland Silverside (Menidia beryllina) definitive 48 hour test.**

Acute toxicity data shall be reported as outlined in Section VIII.

II. METHODS

The permittee shall use the most recent 40 CFR Part 136 methods. Whole Effluent Toxicity (WET) Test Methods and guidance may be found at:

http://water.epa.gov/scitech/methods/cwa/wet/index.cfm#methods

The permittee shall also meet the sampling, analysis and reporting requirements included in this protocol. This protocol defines more specific requirements while still being consistent with the Part 136 methods. If, due to modifications of Part 136, there are conflicting requirements between the Part 136 method and this protocol, the permittee shall comply with the requirements of the Part 136 method.

III. SAMPLE COLLECTION

A discharge and receiving water sample shall be collected. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any holding time extension. Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine[1] (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate

[1] For this protocol, total residual chlorine is synonymous with total residual oxidants.

prior to sample use for toxicity testing. If performed on site the results should be included on the chain of custody (COC) presented to WET laboratory.

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. If dechlorination is necessary, a thiosulfate control consisting of the maximum concentration of thiosulfate used to dechlorinate the sample in the toxicity test control water must also be run in the WET test.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol. Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6^{o} C.

IV. DILUTION WATER

Samples of receiving water must be collected from a reasonably accessible location in the receiving water body immediately upstream of the permitted discharge's zone of influence. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water is found to be, or suspected to be toxic or unreliable, ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is

species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first case is when repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use by the permittee and toxicity testing laboratory. The second is when two of the most recent documented incidents of unacceptable site dilution water toxicity require ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code OEP06-5
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
Five Post Office Square, Suite 100
Mail Code OES04-4
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

EPA Region 1 requires tests be performed using four replicates of each control and effluent concentration because the non-parametric statistical tests cannot be used with data from fewer replicates. The following tables summarize the accepted Americamysis and Menidia toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE MYSID, AMERICAMYSIS BAHIA 48 HOUR TEST[1]

1. Test type	48hr Static, non-renewal
2. Salinity	25ppt ± 10 percent for all dilutions by adding dry ocean salts
3. Temperature (^{o}C)	20^{o}C ± 1^{o}C or 25^{o}C ± 1^{o}C, temperature must not deviate by more than 3^{o}C during test
4. Light quality	Ambient laboratory illumination
5. Photoperiod	16 hour light, 8 hour dark
6. Test chamber size	250 ml (minimum)
7. Test solution volume	200 ml/replicate (minimum)
8. Age of test organisms	1-5 days, < 24 hours age range
9. No. Mysids per test chamber	10
10. No. of replicate test chambers per treatment	4
11. Total no. Mysids per test concentration	40
12. Feeding regime	Light feeding using concentrated Artemia naupli while holding prior to initiating the test
13. Aeration [2]	None
14. Dilution water	5-30 ppt, +/- 10%; Natural seawater, or deionized water mixed with artificial sea salts
15. Dilution factor	≥ 0.5
16. Number of dilutions [3]	5 plus a control. An additional dilution at the permitted effluent concentration (%

	effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality - no movement of body appendages on gentle prodding
18. Test acceptability	90% or greater survival of test organisms in control solution
19. Sampling requirements	For on-site tests, samples are 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.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters

Footnotes:

[1] Adapted from EPA 821-R-02-012.

[2] If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks are recommended.

[3] When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

EPA NEW ENGLAND TOXICITY TEST CONDITIONS FOR THE INLAND SILVERSIDE, MENIDIA BERYLLINA 48 HOUR TEST[1]

1. Test Type	48 hr Static, non-renewal
2. Salinity	25 ppt ± 10 % by adding dry ocean salts
3. Temperature	20°C ± 1°C or 25°C ± 1°C, temperature must not deviate by more than 3°C during test
4. Light Quality	Ambient laboratory illumination
5. Photoperiod	16 hr light, 8 hr dark
6. Size of test vessel	250 mL (minimum)
7. Volume of test solution	200 mL/replicate (minimum)
8. Age of fish	9-14 days; 24 hr age range
9. No. fish per chamber	10 (not to exceed loading limits)
10. No. of replicate test vessels per treatment	4
11. Total no. organisms per concentration	40
12. Feeding regime	Light feeding using concentrated Artemia nauplii while holding prior to initiating the test
13. Aeration[2]	None
14. Dilution water	5-32 ppt, +/- 10% ; Natural seawater, or deionized water mixed with artificial sea salts.
15. Dilution factor	≥ 0.5
16. Number of dilutions[3]	5 plus a control. An additional dilution at the permitted concentration (% effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality-no movement on gentle prodding.

18. Test acceptability	90% or greater survival of test organisms in control solution.
19. Sampling requirements	For on-site tests, samples must be used within 24 hours of the time they are removed from the sampling device. Off-site test samples must be used within 36 hours of collection.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters.

Footnotes:

[1] Adapted from EPA 821-R-02-012.

[2] If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks recommended.

[3] When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

V.1. Test Acceptability Criteria

If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.2. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

In general, if reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary as prescribed below.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.2.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥3 standard deviations for IC25s and LC50 values and ≥ two concentration intervals for NOECs or NOAECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

VI. CHEMICAL ANALYSIS

At the beginning of the static acute test, pH, salinity, and temperature must be measured at the beginning and end of each 24 hour period in each dilution and in the controls. The following chemical analyses shall be performed for each sampling event.

Parameter	Effluent	Diluent	Minimum Level for effluent[*1] (mg/L)
pH	x	x	---
Salinity	x	x	ppt(o/oo)
Total Residual Chlorine [*2]	x	x	0.02
Total Solids and Suspended Solids	x	x	---
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Metals			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005

Superscript:

[*1] These are the minimum levels for effluent (fresh water) samples. Tests on diluents (marine waters) shall be conducted using the Part 136 methods that yield the lowest MLs.

[*2] Either of the following methods from the 18th Edition of the APHA Standard Methods for the Examination of Water and Wastewater must be used for these analyses:

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration

An estimate of the concentration of effluent or toxicant that is lethal to 50% of the test organisms during the time prescribed by the test method.

Methods of Estimation:

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

See flow chart in Figure 6 on page 73 of EPA 821-R-02-012 for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See flow chart in Figure 13 on page 87 of EPA 821-R-02-012.

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Toxicity Test summary sheet(s) (Attachment F to the DMR Instructions) which includes:
    - Facility name
    - NPDES permit number
    - Outfall number
    - Sample type
    - Sampling method
    - Effluent TRC concentration
    - Dilution water used
    - Receiving water name and sampling location
    - Test type and species
    - Test start date
    - Effluent concentrations tested (%) and permit limit concentration
    - Applicable reference toxicity test date and whether acceptable or not
    - Age, age range and source of test organisms used for testing
    - Results of TAC review for all applicable controls
    - Permit limit and toxicity test results
    - Summary of any test sensitivity and concentration response evaluation that was conducted

Please note: The NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) are available on EPA's website at http://www.epa.gov/NE/enforcementandassistance/dmr.html

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures;
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s);
- Reference toxicity test control charts;
- All sample chemical/physical data generated, including minimum levels (MLs) and analytical methods used;
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis;
- A discussion of any deviations from test conditions; and
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint.

ATTACHMENT B

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 C.F.R. 403.8(f)(2)(i), indicating compliance or noncompliance with the following:
- baseline monitoring reporting requirements for newly promulgated industries
- compliance status reporting requirements for newly promulgated industries
- periodic (semi-annual) monitoring reporting requirements, categorical standards, and local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:
- significant industrial users inspected by POTW (include inspection dates for each industrial user),
- significant industrial users sampled by POTW (include sampling dates for each industrial user),
- compliance schedules issued (include list of subject users),
- written notices of violations issued (include list of subject users),
- administrative orders issued (include list of subject users),
- criminal or civil suits filed (include list of subject users) and,
- penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 C.F.R. 403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for Gloucester's Wastewater Treatment System and effluent sampling results versus water quality standards.

Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling programdescribed in this Permit.

At a minimum, annual sampling and analysis of the influent and effluentof the Gloucester Wastewater Treatment Plant shall be conducted for the following pollutants:

a.) Total Cadmium	f.) Total Nickel
b.) Total Chromium	g.) Total Silver
c.) Total Copper	h.) Total Zinc
d.) Total Lead	i.) Total Cyanide
e.) Total Mercury	j.) Total Arsenic

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flowsreceived by the POTW. The composite shall consist of hourly flow- proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collectedat 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;

7. A thorough description of all investigations into interference and pass-through during the past year;

8. A description of monitoring , sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;

9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the City is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

PERMIT ATTACHMENT C
REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS
(TBLLs)

POTW Name & Address: _

NPDES PERMIT #: _

Date EPA approved current TBLLs :

_____

Date EPA approved current Sewer Use Ordinance:

_____

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.		
	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/I) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/I) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?

If yes, explain.

_____

_____

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain. _

____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Industrial Headwork Loading (MAIHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAIHL value was established, i.e. water quality, sludge, NPDES etc.

Pollutant	Column (1) Influent Data Analyses		Column (2)	
	Maximum (lb/day)	Average (lb/day)	MAHL Values (lb/day)	Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1)		Columns (2A) · (2B)	
	Effluent Data Analyses		Water Quality Criteria (Gold Book)	
	Maximum (ug/1)	Average (ug/1)	From TBLLs (ug/1)	Today (ug/1)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/I- CaC03)

ITEM VII.

In Column (1), identify all pollutants limited in your new/ reis sued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.			
Column (1) NEW PERMIT Pollutants	Limitations (ug/1)	Column (2) OLD PERMIT Pollutants	Limitations (ug/1)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that were used at the time your existing T8LLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (28) what your new biosolids criteria would be and method of disposal.

Column (1) Pollutant 8iosolids Data Analyses	Average (mg/kg)	Columns (2A) Biosolids Criteria From T8LLs (mg/kg)	(28) **New** (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyan ide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

Attachment D
NINE MINIMUM CONTROLS
DOCUMENTATION AND IMPLEMENTATION GUIDANCE

The following guidance is for communities preparing documentation to demonstrate adequate implementation of the nine minimum technology based control measures for combined sewer overflows. For further information see *Combined Sewer Overflows: Guidance for Nine Minimum Controls (EPA MAY 1995)(EPA 832-B-95-003)*.

EPA has made a Best Professional Judgment (BPJ) determination that adequate implementation of technology based requirements, Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants, and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants, must include implementation of the nine minimum controls.

Documentation Requirements

Documentation should provide sufficient information to demonstrate:

- that alternatives were considered for each of the nine minimum control measures.
- the reasoning for the alternatives that were selected.
- that the selected alternatives have been implemented.
- that the permittee has developed a schedule for actions that have been selected but not yet fully implemented.

Nine Minimum Controls (NMC)

The following is a summary of specific information which must be included in the documentation of each of the NMCs.

1. Proper operation and regular maintenance programs for the sewer system and combined sewer overflow points.

a. An organizational chart showing the staff responsible for operation and maintenance (O&M) of the combined sewer system. Document that organization and staffing levels are adequate.

b. The funding allocated for O&M of the combined sewer system. Document that funding is adequate.

c. A list of facilities and structures that are critical to the performance of the combined sewer system, including all regulators, tide gates, pumping stations, and sections of sewer lines which are prone to sedimentation or obstruction. Include an inspection plan which identifies the locations, frequency, procedures, documentation, and reporting of periodic and emergency inspections and maintenance. Document that these facilities are adequately operated and maintained.

d. A summary of safety training and equipment provided to inspection and maintenance personnel. For instance, workers entering sewers must be trained and equipped for confined space entry. Document that training listed is adequate.

e. A summary of technical training and maintenance equipment provided to inspection and maintenance personnel. Document that training and equipment are adequate to maintain the facilities identified in item 1.c. above.

2. Maximum Use of the Collection System for Storage

a. Collection system inspection: This should focus on the identification of maintenance or design deficiencies that restrict the use of otherwise available system capacity. This evaluation should document that inadequate regulators, piping bottlenecks, and pumping deficiencies have been identified and corrected, or scheduled for correction. Where increased inspection and/or maintenance is proposed, this shall be reflected in the inspection plan required in item 1.c.

b. Tide gate maintenance and repair: Tide gates prevent significant volumes of water from entering the conveyance system, thereby freeing up system storage capacity during wet weather periods. Where appropriate, document that tide gate maintenance and repair procedures are adequate.

c. Adjustment of regulator settings: Adjustment of regulating devices can increase in-system storage of CSO flows and maximize transport to the POTW. Care should be taken to ensure that the regulator adjustment will not result in unacceptable surcharging of the system. Document that regulators have been adjusted to optimum settings. The method by which the community determined the optimum regulator setting (e.g. modeling, trial and error) shall be included in the documentation.

d. Removal of obstructions to flow: Document that accumulations of debris which may cause flow restrictions are identified, and debris is removed routinely. Documentation shall include a summary of the locations where sediment is removed, the number of times each year the sediment is removed and the total quantity of material removed each year.

3. Review and Modification of the Industrial Pretreatment Program to assure CSO impacts are minimized.

a. Review legal authority: Review the community's legal authority (i.e. pretreatment program, sewer use ordinance) to regulate non domestic discharges to its collection system. Identify those activities for which the community has or can obtain legal authority to address CSO induced water quality violations. For example, does the community have legal authority to require non domestic dischargers to store wastewater discharges during precipitation events or can the community require non domestic dischargers to implement runoff controls?

b. Inventory non domestic dischargers: Identify those non domestic discharges that may, through quantity of flow or pollutant concentration or loadings, contribute to CSO induced water quality violations,

c. Assess the significance of identified dischargers to CSO control issues: Assess whether the identified non domestic sources cause or contribute to CSO induced water quality standards by using monitoring, dilution calculations or other reasonable methods.

d. Evaluate and propose feasible modifications: Identify, evaluate, and propose site-specific modifications to the pretreatment program which would address the non domestic dischargers identified as significant. Modifications which shall be considered include;
Volume-related controls: Document that detaining wastewater flows (sanitary, industrial, and/or storm water) within the industrial facility until they can be safely discharged to the POTW for treatment was considered and implemented where reasonable.

Pollutant Load-related controls: Document that reduction of concentrations of pollutants that enter the collection system during storm periods was considered and implemented where reasonable. Methods to be considered for reducing pollutant concentrations from storm water runoff controls include structural and non-structural controls such as covering material storage areas, reducing impervious area, detention structures, and good housekeeping.

4. Maximization of flow to the POTW for treatment

It is recognized that most of the actions recommended for maximization of the collection system for storage will also serve to maximize flow to the POTW. In addition to optimizing those controls to maximize flow to the POTW, the following specific controls should be evaluated and implemented where possible;

a. Use of off-line or unused POTW capacity for storage of wet weather flows.

b. Use of excess primary treatment for treatment of wet weather flows. If the use of excess primary capacity will result in violations of the community's NPDES permit limits, the community shall get approval of the proposed bypass from the permitting authority prior to implementation.

5. Prohibition of CSO discharges during dry weather

a. Document that the community's monitoring and inspections are adequate to detect and correct dry weather overflows (DWOs) in a timely manner.

b. Document that DWOs due to inadequate sewer system capacity have been eliminated. If elimination is scheduled but not yet completed, the documentation shall include the schedule.

c. Document that DWOs due to clogging of pipes and regulators or due to other maintenance problems have been eliminated to the maximum extent practicable. Increased inspection and maintenance of problem areas must be considered as well as modification or replacement of existing structures.

6. Control of Solid and Floatable Material in CSO Discharges

Document that low cost control measures have been implemented which reduce solids and floatables discharged from CSOs to the maximum extent practicable. Alternatives which shall be considered include;

a. baffles in regulators or overflow structures.

b. trash racks in CSO discharge structures.

c. static screens in CSO discharge structures.

d. catch basin modifications.

e. end of pipe nets.

f. outfall booms (on surface of receiving water)

7. Pollution prevention programs that focus on contaminant reduction activities.

a. Prevention: through public education or increased awareness. For example, a water conservation outreach effort could result in less dry weather sanitary flow to the POTW and an increase in the volume of wet weather flows that can be treated at the POTW.

b. Control of disposal: through the use of garbage receptacles, more efficient garbage collection, or again, through public education.

c. Anti-litter campaigns: Campaigns through public outreach and public service announcements can be employed to educate the public about the effects of littering, overfertilizing, pouring used motor oil down catch basins, etc.

d. Illegal dumping: Programs such as law enforcement and public education can be used as controls for illegal dumping of litter, tires, and other materials into water bodies or onto the ground. Free disposal of these products at centrally located municipal dump sites can also reduce the occurrence of illegal dumping.

e. Street cleaning

f. Hazardous waste collection days: Communities are encouraged to schedule one or two days a year where household hazardous wastes can be brought to a common collection area for collection and environmentally safe disposal.

8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

The objective of this control element is to ensure that the public receives adequate notification of CSO impacts on pertinent water use areas. Of particular concern are beach and recreational areas that are affected by pollutant discharges in CSOs.

Where applicable, the permittee shall provide users of these types of areas with a reasonable opportunity to inform themselves of the existence of potential health risks associated with the use of the water body (bodies). The minimum control level, found in Section C.2.f. of the permit is posting of CSO discharge points.

9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

As stated in the permit, in Section C.2.f. the minimum requirement is quantification and recording at the outfall. If possible, the permittee shall initiate monitoring, measuring and/or inspection activities above and beyond the minimum control levels specified in the permit. The purpose of these additional monitoring and/or inspection events is to better characterize quality of the CSOs and their impacts on all receiving waters. Examples of such events include CSO monitoring or receiving water monitoring for pollutants of particular concern.

NPDES PART II STANDARD CONDITIONS
(April 26, 2018)[1]

TABLE OF CONTENTS

[1] Updated July 17, 2018 to fix typographical errors.

A. GENERAL REQUIREMENTS

1. Duty to Comply

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA or Act) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

a. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

b. Penalties for Violations of Permit Conditions: The Director will adjust the civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (83 Fed. Reg. 1190-1194 (January 10, 2018) and the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note. See Pub. L.114-74, Section 701 (Nov. 2, 2015)). These requirements help ensure that EPA penalties keep pace with inflation. Under the above-cited 2015 amendments to inflationary adjustment law, EPA must review its statutory civil penalties each year and adjust them as necessary.

(1) Criminal Penalties

(a) *Negligent Violations.* The CWA provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to criminal penalties of not less than $2,500 nor more than $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation or by imprisonment of not more than 2 years, or both.

(b) *Knowing Violations.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both.

(c) *Knowing Endangerment.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he or she is placing another person in imminent danger of death or serious bodily injury shall upon conviction be subject to a fine of not more than $250,000 or by imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing

endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

(d) *False Statement.* The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

(2) *Civil Penalties*. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

(3) *Administrative Penalties*. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty as follows:

(a) *Class I Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

(b) *Class II Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit

condition.

3. Duty to Provide Information

The Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

4. 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).

5. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

6. Confidentiality of Information

a. In accordance with 40 C.F.R. 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 C.F.R. 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.

c. Information required by NPDES application forms provided by the Director under 40 C.F.R. § 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.

7. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit. The Permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Director. (The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

8. State Authorities

Nothing in Parts 122, 123, or 124 precludes more stringent State regulation of any activity

covered by the regulations in 40 C.F.R. Parts 122, 123, and 124, whether or not under an approved State program.

9. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(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 provisions of paragraphs (c) and (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. As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by state law.

(2) *Unanticipated bypass*. The Permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (24-hour notice). As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or required to do so by law.

d. *Prohibition of bypass.*

(1) Bypass is prohibited, and the Director 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 bypass, 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 judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and

(c) The Permittee submitted notices as required under paragraph 4.c of this Section.

(2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 4.d of this Section.

5. Upset

a. *Definition*. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or

improper operation.

b. *Effect of an upset.* An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph B.5.c. of this Section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. *Conditions necessary for a demonstration of upset.* A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the Permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated; and
(3) The Permittee submitted notice of the upset as required in paragraph D.1.e.2.b. (24-hour notice).
(4) The Permittee complied with any remedial measures required under B.3. above.

d. *Burden of proof.* In any enforcement proceeding the Permittee seeking to establish the occurrence of an upset has the burden of proof.

C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records of monitoring information required by this permit related to the Permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 C.F.R. § 503), the Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. Subchapters N or O.

e. The Clean Water Act provides that any person who falsifies, tampers with, or

knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The Permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. *Planned Changes*. The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. § 122.29(b); or

(2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements at 40 C.F.R. § 122.42(a)(1).

(3) The alteration or addition results in a significant change in the Permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. *Anticipated noncompliance*. The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. *Transfers.* This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Clean Water Act. *See* 40 C.F.R. § 122.61; in some cases, modification or revocation and reissuance is mandatory.

d. *Monitoring reports*. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices. As of December 21, 2016 all reports and forms submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by State law.

(2) If the Permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 C.F.R. § 136, or another method required for an industry-specific waste stream under 40 C.F.R. Subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director 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 report shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written report 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 reoccurrence of the noncompliance. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather. As of December 21, 2020 all

reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. *See* 40 C.F.R. § 122.41(g).
(b) Any upset which exceeds any effluent limitation in the permit.
(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. *See* 40 C.F.R. § 122.44(g).

(3) The Director may waive the written report on a case-by-case basis for reports under paragraph D.1.e. of this Section 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. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in paragraph D.1.e. and the applicable required data in Appendix A to 40 C.F.R. Part 127. As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), §122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this Section.

h. *Other information.* Where the Permittee becomes aware that it failed to submit any

relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

i. *Identification of the initial recipient for NPDES electronic reporting data*. The owner, operator, or the duly authorized representative of an NPDES-regulated entity is required to electronically submit the required NPDES information (as specified in Appendix A to 40 C.F.R. Part 127) to the appropriate initial recipient, as determined by EPA, and as defined in 40 C.F.R. § 127.2(b). EPA will identify and publish the list of initial recipients on its Web site and in the FEDERAL REGISTER, by state and by NPDES data group (see 40 C.F.R. § 127.2(c) of this Chapter). EPA will update and maintain this listing.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Director shall be signed and certified. *See* 40 C.F.R. §122.22.

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under paragraph A.6. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Director. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

For more definitions related to sludge use and disposal requirements, see EPA Region 1's NPDES Permit Sludge Compliance Guidance document (4 November 1999, modified to add regulatory definitions, April 2018).

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and federal standards and limitations to which a "discharge," a "sewage sludge use or disposal practice," or a related activity is subject under the CWA, including "effluent limitations," water quality standards, standards of performance, toxic effluent standards or prohibitions, "best management practices," pretreatment standards, and "standards for sewage sludge use or disposal" under Sections 301, 302, 303, 304, 306, 307, 308, 403 and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in

"approved States," including any approved modifications or revisions.

Approved program or *approved State* means a State or interstate program which has been approved or authorized by EPA under Part 123.

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.

Bypass see B.4.a.1 above.

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

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 C.F.R. § 501.2, required to have an approved pretreatment program under 40 C.F.R. § 403.8 (a) (including any POTW located in a State that has elected to assume local program responsibilities pursuant to 40 C.F.R. § 403.10 (e)) and any treatment works treating domestic sewage, as defined in 40 C.F.R. § 122.2, classified as a Class I sludge management facility by the EPA 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 sewage sludge use or disposal practice to affect public health and the environment adversely.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483and Public Law 97-117, 33 U.S.C. 1251 *et seq*.

CWA and regulations means the Clean Water Act (CWA) and applicable regulations promulgated thereunder. In the case of an approved State program, it includes State program requirements.

Daily Discharge means the "discharge of a pollutant" measured during a calendar day or any

other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Direct Discharge means the "discharge of a pollutant."

Director means the Regional Administrator or an authorized representative. In the case of a permit also issued under Massachusetts' authority, it also refers to the Director of the Division of Watershed Management, Department of Environmental Protection, Commonwealth of Massachusetts.

Discharge

(a) When used without qualification, *discharge* means the "discharge of a pollutant."

(b) As used in the definitions for "interference" and "pass through," *discharge* means the introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b), (c) or (d) of the Act.

Discharge Monitoring Report ("DMR") means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by Permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source," or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Director on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under section 304(b) of CWA to adopt or revise "effluent limitations."

Environmental Protection Agency ("EPA") means the United States Environmental Protection

Agency.

Grab Sample means an individual sample collected in a period of less than 15 minutes.

Hazardous substance means any substance designated under 40 C.F.R. Part 116 pursuant to Section 311 of CWA.

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

Indirect discharger means a nondomestic discharger introducing "pollutants" to a "publicly owned treatment works."

Interference means a discharge (see definition above) which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore 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) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

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 application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for agricultural purposes or for treatment and disposal.

LC_{50} means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.

Maximum daily discharge limitation means the highest allowable "daily discharge."

Municipal solid waste landfill (MSWLF) unit means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 C.F.R. § 257.2. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, very small quantity generator waste and industrial solid waste. Such a landfill may be

publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion. A construction and demolition landfill that receives residential lead-based paint waste and does not receive any other household waste is not a MSWLF unit.

Municipality

(a) When used without qualification *municipality* means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of CWA.

(b) As related to sludge use and disposal, *municipality* means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under Section 208 of the CWA, as amended. The definition includes a special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in Section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program."

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants;"

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source;" and

(d) Which has never received a finally effective NPDES permit for discharges at that "site."

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and 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 Director in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Director shall consider the factors specified in 40 C.F.R. §§ 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 or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge (see definition above) which exits 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).

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved State" to implement the requirements of Parts 122, 123, and 124. "Permit" includes an NPDES "general permit" (40 C.F.R § 122.28). "Permit" does not include any permit which has not yet been the subject of final agency action, such as a "draft permit" or "proposed permit."

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

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration measured at 25° Centigrade or measured at another temperature and then converted to an equivalent value at 25° Centigrade.

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, concentrated 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 40 C.F.R. § 122.3).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, 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 equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (*Natural Resources Defense Council et al. v. Train*, 8 E.R.C. 2120 (D.D.C. 1976), *modified* 12 E.R.C. 1833 (D.D.C. 1979)); also listed in Appendix A of 40 C.F.R. Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operator is not the operator of the treatment works and (b) not a "POTW."

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly owned treatment works (POTW) means a treatment works as defined by Section 212 of the Act, which is owned by a State or municipality (as defined by Section 504(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary industry category means any industry which is not a "primary industry category."

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, semi-solid, or liquid residue removed during the treatment of municipal waste water or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced waste water treatment, scum, septage, portable toilet pumpings, type III marine sanitation device pumpings (33 C.F.R. Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does

not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 C.F.R. § 122.2.

Sewage sludge use or disposal practice 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 substance designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of title III of SARA; 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 CWA (see 40 C.F.R. §§ 110.10 and 117.21) or Section 102 of CERCLA (*see* 40 C.F.R. § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to section 405(d) of the CWA, and is required to obtain a permit under 40 C.F.R. § 122.1(b)(2).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, the Trust Territory of the Pacific Islands, or an Indian Tribe as defined in the regulations which meets the requirements of 40 C.F.R. § 123.31.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

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

Storm water discharge associated with industrial activity means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

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

Treatment works treating domestic sewage means a POTW or any other sewage sludge or waste water treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and waste water from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Director may designate any person subject to the standards for sewage sludge use and

disposal in 40 C.F.R. Part 503 as a "treatment works treating domestic sewage," where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 C.F.R. Part 503.

Upset see B.5.a. above.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Waste pile or *pile* means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States or waters of the U.S. means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands;"

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

    (1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

    (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

    (3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 C.F.R. § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland.

Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency 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.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test.

*Zone of Initial Dilution (*ZID) means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards.

2. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)
TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont.	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen

kg/day	Kilograms per day
lbs/day	Pounds per day
mg/L	Milligram(s) per liter
mL/L	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
Surfactant	Surface-active agent
Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
µg/L	Microgram(s) per liter
WET	"Whole effluent toxicity"
ZID	Zone of Initial Dilution

RESPONSE TO COMMENTS
GLOUCESTER WATER POLLUTION CONTROL FACILITY
GLOUCESTER, MASSACHUSETTS
NPDES PERMIT NO. MA0100625

The Region 1 office ("Region 1" or the "Region") of the U.S. Environmental Protection Agency ("EPA" or the "Agency") and the Massachusetts Department of Environmental Protection ("MassDEP") are issuing a Final National Pollutant Discharge Elimination System ("NPDES") Permit (the "Final Permit") for the City of Gloucester, Water Pollution Control Facility ("WPCF" or the "Facility") located in Gloucester, Massachusetts ("Gloucester," the "City" or the "Permittee"). This permit is being issued under the Federal Clean Water Act ("CWA"), 33 U.S.C. §§ 1251 et seq., and the Massachusetts Clean Waters Act, M.G.L. Ch. 21, §§ 26-35.

In accordance with the provisions of 40 CFR § 124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit No. MA0100625 ("Draft Permit"). This Response to Comments document (the "RTC") explains and supports EPA's determinations that form the basis of the Final Permit. EPA and MassDEP (together, the "Agencies") solicited public comments on the Draft Permit initially from November 5, 2010, through January 18, 2011, with an extension granted to February 2, 2011. Another extension was granted, and additional comments were accepted, from February 14, 2011 through March 31, 2011. A public hearing was held on March 24, 2011.

EPA regulations require that responses be provided for significant public comments submitted on a draft permit. 40 CFR § 124.17(a)(2). The comments on the Draft Permit are organized by commenter as set forth in the Table of Contents, below. The City of Gloucester provided several sets of written comments which we address first (see Comments and Responses 1- 65). Written comments from various organizations, businesses, political representatives and residents are addressed next *(see* Comments and Responses (66 -108). Comments from the public hearing are transcribed and responded to last (*see* Comments and Responses (108 – 139).[1]

Although the Agencies' knowledge of the Facility has benefited from the comments and information submitted, these submissions did not raise substantial new questions concerning the permit that warranted the Agencies exercising their discretion to reopen the public comment period. *See* 40 CFR § 124.14(b). That said, in response to comments, the Agencies have clarified

[1] Gloucester also provided an additional comment letter, with an attached report, on September 13, 2017. This material was submitted well after the original comment period closed on March 31, 2011. Although submitted long after the close of the public comment period, EPA reviewed and considered these comments and has included them in the Administrative Record for the Final Permit. Consistent with 40 CFR § 124.17(a)(2), however, EPA does not respond to these late submitted comments in this RTC. EPA instead addresses these late materials in a memorandum to the permit file and has also included that memorandum in the Administrative Record for the Final Permit. In addition, based on its consideration of the late submitted materials, EPA found that they did not raise any substantial new questions regarding the permit that would either alter the decision on the permit or warrant reopening the public comment period under 40 CFR § 124.14(a) or (b).

certain points and changed certain permit conditions, as discussed in the RTC and specified in the Final Permit. The Agencies summarize the changes made in the Final Permit below. The analyses underlying these changes are contained in the responses to individual comments that follow.

A copy of the Final Permit and this RTC document will be posted on the EPA Region 1 web site: https://www.epa.gov/npdes-permits/massachusetts-npdes-permits

A copy of the Final Permit may be also obtained by writing or calling Janet Deshais, U.S. EPA, 5 Post Office Square, Suite 100 (Mail Code: 06-1), Boston, MA 02109; Telephone: (617) 918-1667; deshais.janet@epa.gov

Table of Contents

I. Changes to the Final Permit

A. Changes to the Final Permit resulting from Comments Received

1. The Final Permit, Attachment B, Industrial Pretreatment Annual Report, under Section 5 has been changed from "Northhampton" to "Gloucester" in two places in order to correct this typographical error (*See* Response 61).

2. The Final Permit has been changed under Part I. A.1, Table 1, from "FLOW" to "Rolling Average Effluent Flow" (*See* Response 47).

3. The Final Permit has been changed under Part I. A.1, Table 1, from "FLOW" to "Effluent Flow" (*See* Response 47).

4. The Final Permit has been changed under Part I. A.1, Table 1, to include the Permittee's flow limit of "5.15 MGD" until Part I.A.1., footnote 2 conditions are met. Also, Part I.A.1, Table 1, line 2 of the Final Permit includes the following sentence: "This limit becomes effective when footnote 2 conditions are met." for clarification purposes (*See* Response 47).

5. The Final Permit language has been changed under Part I.A.1., footnote 2, second paragraph, notation number 4, from "The annual average flow limit is 5.15 MGD until such time as a flow increase to 7.24 MGD is: 1) deemed appropriate by a state antidegradation review, 314 CMR 4.04, 2) is supported by a comprehensive wastewater management plan (CWMP), 301 CMR 11.00, 3) is supported by a Massachusetts Environmental Policy Act (MEPA) review, M.G.L. c. 30 § 61, *et seq*,

and 4) the City has obtained a Massachusetts Ocean Sanctuaries Act variance authorizing the increased discharge, M.G.L. c. 132A § 12A, *et seq* 5) and the City has completed construction of the secondary treatment facilities." to "The annual average flow limit is 5.15 MGD until such time as the City has completed construction of the secondary treatment facilities and a flow increase to 7.24 MGD: 1) is deemed appropriate by a state antidegradation review, 314 CMR 4.04, 2) is supported by a comprehensive wastewater management plan (CWMP), 301 CMR 11.00, and 3) is supported by a Massachusetts Environmental Policy Act (MEPA) review, M.G.L. c. 30 § 61, *et seq.* No variance under the Massachusetts Ocean Sanctuaries Act, M.G.L. c. 132A § 12A, *et seq.,* is necessary as long as the annual average flow does not exceed 7.24 MGD and the maximum design flow does not exceed 15 MGD." (*See* Response 20).

6. EPA method 1664 (which includes Revisions A and B) are the only two EPA approved methods for TPH, oil and grease. EPA-approved method 1664-B by final rule in February 2020. EPA also withdrew method 5520 B-01 by final rule on March 12, 2007. Therefore, the Final Permit includes these two corrections under Part I.A.1., footnote 9., in the first paragraph, which has been changed from "Standard Methods Online, Method 5520 B–01." to "Method 1664 Revision B." Similarly, the phrase "(Revision A and B)" has been added to the Final Permit, under Part 1.A.1, footnote 9, second paragraph. Also, the limits for TPH, oil and grease under Part I.A.1. of the Final Permit have been changed from "0 mg/l" to "non-detect" because existing methods cannot detect a concentration of 0.0 mg/L, and because a limit of non-detect is consistent with the "free from" criterion in the Massachusetts water quality standards (*See* Response 11). Lastly, for clarification purposes, the following language has been added to the Final Permit under Part I.A.1., footnote 9, as follows: "(i.e., test results measured below the EPA-approved test method's ML will be considered in compliance with this permit limit)."

7. The Final Permit has been changed under Part I.A.1., Table 1, enterococci maximum daily limit from "276" to "130" to reflect a change in the state water quality standards for marine SA waters (*See* Response 13).

8. The Final Permit language under Part I.A.1., footnote 3. has been changed from "All required effluent samples shall be collected at a representative point." to "All required effluent samples shall be collected at a representative point prior to mixing with the receiving water." and from "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." to "A routine sampling program shall be developed in which samples are taken at the same location, time and days of the week each month." for clarification purposes (*See* Response 54).

9. Part.A.1.d. has been revised from, "The effluent shall contain neither oil, foam, nor floating solids at any time." to "The discharge shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to the receiving water, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom." (*See* Response 56).

10. The Final Permit under Part I.A.1.h. has been changed to include language that clarifies how to calculate a geometric mean, (See Response 55).

11. The Final Permit has been changed under Part I.A.3, to include the following language, "(*See* NPDES Part II, E.1., General Definitions)" in order to clarify that the terms "pass through" and "interference" are defined in Part II, E.1., General Definitions of the Final Permit (*See* Response 59).

12. The Final Permit has been clarified by including reporting for "BOD_5 Removal, ≥ 85 %, 1/month, Calculation," and "TSS Removal, ≥ 85 %, 1/month, Calculation," under Part I.A.1. Table 1, rather than solely in a footnote under Part I.A.1.e. (*See* Response 79).

B. Final Permit Updates

1. The Final Permit, Attachment A, Whole Effluent Toxicity (WET) Marine Acute Toxicity Test and Protocol, dated September 1996, has been changed to EPA's updated Marine Acute Toxicity Test and Protocol, dated July 2012.

2. The Final Permit has been changed under Part I.A.1., footnote 4, to include the following updated language, "In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is "sufficiently sensitive" when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term "minimum level" refers either to the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in the following ways: they may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor."

3. CSO Outfall 006 has been removed from the Final Permit under Part I.E.1. because this outfall was permanently blocked/closed in 2012.

4. The Final Permit has been updated to include electronic reporting for the permittee's updated NMC program, including an updated High Flow Management Plan under Part I.E.2., as follows, "The permittee shall continue to implement the Nine Minimum Control Program (NMC) as documented as of September, 1996, or as subsequently modified to enhance the effectiveness of the controls. **Within one year of the effective date of the permit, the permittee shall submit to EPA using NetDMR and MassDEP an updated NMC program, including an updated High Flow Management Plan."**

5. The Final Permit has been updated to include CSO signage that warns non-English speaking residents, under Part I.E.2.(10), as follows: "Where easements over property not owned by the permittee must be obtained to meet this requirement, the permittee shall identify the appropriate landowners and obtain the necessary easements, to the extent practicable. The permittee, to the extent feasible, shall add a universal wet weather sewage discharge symbol to each existing sign, or will place a sign with a universal wet weather sewage discharge symbol that is visible from the land and water, unless there is already a warning sign written in a non-English language."

6. The Final Permit has been updated under Part I.E.6. to include electronic reporting of CSO flow from four CSO outfalls that remain open for emergency purposes. Adding flow reporting instructions to an NPDES permit is consistent with Sections 402 and 308 of the CWA, and CFR § 122.48.

7. The phrase "(as required by current Consent Decree)" has been deleted from the Final Permit under Part I.E.3. because the Consent Decree is currently closed.

8. The Final Permit under Part I.J., Monitoring and Reporting has been updated to replace the requirement of submitting hard copies of discharge monitoring data to submitting electronic discharge monitoring reports to EPA using NetDMR. The Final Permit under Part I.J. also includes updates regarding State and pretreatment reporting requirements.

C. Changes to the Final Permit in accordance with State 401 Certification Requirements

1. The Final Permit under Part I.A. has been changed to include a requirement for PFAS monitoring of the influent, effluent, and sludge, as detailed in the Massachusetts water quality certification under Section 401(a)(1) of the CWA, dated June 21, 2022 ("2022 Massachusetts water quality certification").

2. The Final Permit under Part I.C.7. has been changed to include annual PFAS monitoring of all Significant Industrial Users discharging into Gloucester's POTW, as detailed in the 2022 Massachusetts water quality certification.

3. The Final Permit under Part I.A. has been changed to include a requirement for nitrogen monitoring of the effluent, as detailed in the 2022 Massachusetts water quality certification.

D. Changes to the Final Permit for Clarification Purposes

1. The Final Permit has been changed on page 1 to clarify the expiration date, as follows, "This permit and the authorization to discharge expire at midnight, five (5) years from the last day of the month preceding the effective date." to "This permit and the authorization to discharge will expire, August 31, 2027."

2. The Final Permit has been changed under Part I. A.1, Table 1, from all uppercase letters to all lowercase letters for ease of reading this table.

3. The Final Permit, Part I.A.1., footnote 3, first paragraph, has been changed from "…at a representive ..." to "…at a representative …", and in the same paragraph from "…testing done than that…" to "…testing done that…" to correct typographical errors.

4. The Final Permit, Part I.A.1., footnote 3, first paragraph, has been changed from "documented in correspondence appended…" to "documented as an electronic attachment…" for clarification purposes and to reflect the regulatory requirement for electronic reporting.

5. The Final Permit, Part I.A.1., footnote 3, second paragraph, has been changed from "…samples are taken at the same location, same time and same days…" to "…samples are taken at the same location, time and days…" for clarification purposes.

6. The Final Permit, Part I.A.1., footnote 3, third paragraph, has been changed from "The City shall notify EPA and MassDEP at least 60 days..." to "The City shall notify EPA at RINPDESReporting@epa.gov and MassDEP at massdep.npdes@mass.gov at least 60 days…" to clarify where to submit this notification.

7. The Final Permit has been changed to include instructions on how to report values below the minimum detection level under Part I.A.1., footnote 5, for clarification purposes, as follows, "When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For reporting an average based on a

mix of values detected and not detected, assign a value of "0" to all non-detects for that reporting period and report the average of all the results."

8. The Final Permit has been changed to include instructions on how to report "grab" and "composite" samples under Part I.A.1., footnote 6, as follows, "A "grab" sample is an individual sample collected in a period of less than 15 minutes. A "composite" sample is a composite of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow."

9. The Final Permit language under Part I.E.1. has been changed from "…subject to the following effluent limitations:" to "…subject to the following effluent requirements:" for clarification purposes.

10. The Final Permit requirement regarding nine minimum controls reporting has been clarified under Part I.E.5., as follows, "Nine Minimum Controls Reporting Requirement, **Annually, no later than March 1st,** the Permittee shall submit a report into NetDMR summarizing activities during the previous calendar year relating to compliance with the nine minimum controls. The annual report shall include the CSO outfall monitoring data required by Part I.E.6. of this permit. (See Permit Attachment D – Nine Minimum Controls)."

11. The Final Permit has been changed under Part I.F.1. from "The permit only authorizes discharges in accordance with the terms and conditions of this permit and only from the outfalls listed in Parts I.A.1 and I.E.1, of this permit." to "This Permit authorizes discharges only from the outfalls listed in Parts I.A.1. and I.E.1, in accordance with the terms and conditions of this Permit." for clarification purposes.

II. Responses to Comments

Comments are reproduced below as received; they have not been edited.

A. Comments from City of Gloucester, February 4, 2011

Comment 1.

I. Introduction. The City of Gloucester, Massachusetts ("Gloucester" or the "City") submits the following comments regarding the tentative decision of the EPA Regional Administrator to deny Gloucester's request for renewal of modification of Clean Water Act secondary treatment requirements for its Water Pollution Control Facility (WPCF). [Footnote: In Re: City of Gloucester, Massachusetts, Publicly Owned Treatment Works, NPDES Permit No. MA010065, Application for Modification of Secondary Treatment Requirements under Section 301(h) of the Federal Clean Water Act, 33 U.S.C. § 1311(h), Tentative Decision of the Regional Administrator Under 40 C.F.R. Part 125, Subpart G (November 5, 2010).]

Section 301(h) of the federal Clean Water Act ("CWA" or "Act") [Footnote: (33 U.S.C. §1311(h))] allows publicly owned treatment works discharging into marine waters to receive a variance from the Act's technology-based secondary treatment requirements for 5-day biochemical oxygen demand (BOD) and total suspended solids (TSS), as long as certain statutory criteria are met. This provision reflects Congress's determination that secondary treatment provides little environmental benefit for discharges to deep ocean waters, due to the rapid aeration and dispersion of such discharges. [Footnote: see discussion in EPA's preamble to the initial 301(h) regulations, 43 Fed. Reg. 17484 (April 25, 1978)].

Pursuant to § 301(h), EPA granted a variance from secondary treatment requirements for Gloucester's WPCF in 1985 and renewed the variance in 2001. Both of these waivers were for the current treatment plant, which has design flows of 7.24 million gallons per day ("MGD") average and 15 MGD maximum. The current average monthly flow is 5.08 MGD.

In 1990, Gloucester relocated the discharge from the WPCF to a location in Massachusetts Bay, more than a mile beyond Gloucester Outer Harbor, through an outfall approximately 15,000 feet long. The effluent is discharged through a diffuser on the ocean floor into a water depth of 90 feet. The effluent receives chemically enhanced primary treatment and chlorination/dechlorination. The 2001 waiver reflected the extension of the plant's outfall to its current location.

In 2006, the City submitted an application to EPA Region 1 for a renewal of its 301(h) variance. On November 5, 2010, the EPA Regional Administrator issued a tentative decision (the "tentative decision," or "TD") denying the variance. [Footnote: The public comment period was extended by EPA on December 16, 2010 to February 2, 2011, and then again through the date of the public hearing to be held in this matter, currently scheduled for March 24, 2010. See letter dated January 24, 2010 from Stephen S. Perkins, Director of Office of Ecosystem Protection, EPA Region I to Mayor Carolyn A. Kirk.] The denial is based on EPA's assertion that Gloucester has not demonstrated that it meets two of the nine 301(h) statutory criteria. EPA's tentative decision is not consistent with 301(h) regulations and guidance, or EPA's prior decisions regarding the WPCF. In fact, Gloucester's WPCF meets all of the 301(h) criteria as detailed below and EPA's tentative decision is therefore arbitrary and capricious, and not in accordance with the law.

Response 1

EPA and the MassDEP acknowledge Gloucester's comments on EPA's Tentative Decision ("TD") to deny Gloucester's request for renewal of the modification of CWA secondary treatment requirements for its WPCF pursuant to CWA § 301(h). The Agencies' responses to this set of comments are set forth below in Responses 1-139.

Background

On May 26, 2006, the City of Gloucester, Massachusetts applied to EPA for: (1) renewal of its NPDES Permit No. MA0100625, issued under the federal Clean Water Act, 33 U.S.C §§ 1251 et seq. ("Act" or "CWA"), by Region 1 to Gloucester's Water Pollution Control Facility ("WPCF"), and (2) a renewed modification under CWA § 301(h) of the secondary treatment requirements that normally apply to publicly owned sewage treatment plants under CWA § 301(b)(1)(B). The WPCF's current 2001 permit reflects such a modification of secondary treatment requirements. On November 5, 2010, Region 1 issued both a Tentative Decision proposing to deny the CWA § 301(h) modification request ("TD"), in which it concluded that the City had demonstrated that it would meet some *but not all* of the necessary criteria to support a 301(h) modification of secondary treatment limits, and a Draft Permit including secondary treatment requirements. EPA provided for public comments to be submitted on the TD and/or Draft Permit from November 5, 2010, through March 31, 2011.

After considering all public comments received, and other relevant information, including Gloucester's renewal application and all current discharge and ambient monitoring data, EPA is now issuing a Final Decision under 40 CFR Parts 124 and 125, Subpart G, to deny Gloucester's request that Region 1 renew the permit limits previously based on a modification under section 301(h) of the Act. The basis of this denial is detailed in this Response to Comments document. Consistent with this Final Decision, Region 1 is also issuing a Final NPDES Permit to the Gloucester WPCF that sets secondary treatment-based effluent limits.

Section 301(h) of the CWA, and EPA's regulations implementing the provision, specify nine criteria that an applicant must satisfy to qualify for a modification of secondary treatment requirements. *See, generally*, 40 CFR Part 125, Subpart G. A decision by the Regional Administrator to grant such a modification pursuant to 40 CFR § 125.59(i)(1), must be based on a demonstration by the applicant that it has met each of the applicable requirements of 40 CFR §§125.59 through 125.68. If the applicant does not demonstrate that each requirement has been met, the modification request must be denied. The 301(h) regulations also provide that any NPDES permit modified pursuant to section 301(h) of the Act must comply with State and local laws, as well as Federal laws and Executive Orders, including the Coastal Zone Management Act of 1972, as amended, the Endangered Species Act of 1973, as amended, and Title III of the Marine Protection, Research and Sanctuaries Act, as amended. *See* 40 CFR §§ 125.59(b)(3), 125.59(f)(4), 125.61(b)(2).

Consistency with EPA Statutes, Regulations and Guidance

EPA disagrees with Gloucester's assertion that EPA is acting inconsistently with applicable statutes, regulations and guidance in denying Gloucester's request for renewal of the prior CWA § 301(h) modification. As an initial matter, EPA disagrees with the

City's claim that "[the 301(h)] provision reflects Congress's determination that secondary treatment provides little environmental benefit for discharges to deep ocean waters due to the rapid aeration and dispersion of such discharges." While Congress did enact CWA § 301(h) to allow for the possibility that under certain *limited circumstances* some publicly owned treatment works ("POTWs") discharging into marine waters could get a modification of the generally applicable secondary treatment effluent limits and avoid the expense of installing secondary treatment facilities,[2] Congress's overarching objective was to ensure the protection of the marine environment by requiring secondary treatment for all POTWs with the limited exception that a facility discharging into marine waters could qualify for a modification of secondary requirements if it demonstrated that it would meet *all* the requirements of CWA § 301(h). (*See also*, Response 25). In other words, Congress created a narrow exception to the general rule that POTWs must provide secondary treatment to their wastewater. Had Congress intended more broadly to excuse POTWs discharging into deeper ocean waters from secondary treatment requirements, it could easily have specified that discharges into ocean waters of a certain depth do not require secondary treatment. Congress did not, however, adopt such an approach.

To the contrary, Congress made secondary treatment the rule and provided for an exception under CWA § 301(h) only if all the applicable criteria are satisfied. EPA also notes that secondary treatment has been implemented by the vast majority of POTWs in the country, with very few exceptions, and by all New England POTWs of comparable size to Gloucester.[3]

EPA also disagrees that denial of the City's modification request is inconsistent with CWA § 301(h) regulations and guidance. Rather, Gloucester continues not to meet certain statutory and regulatory requirements for a CWA § 301(h) modification. As set forth in the TD, and discussed again in the RTC, Gloucester's request for a CWA § 301(h) modification must show, among other things, that:

- The WPCF's outfall and diffuser location is providing adequate dilution, dispersion, and transport (*i.e.*, the "physical characteristics") of the wastewater so that all applicable State water quality standards will be met at and beyond

[2] As discussed more fully in the responses below, while EPA cannot take a permittee's financial constraints into account when deciding whether an applicant satisfies the criteria for issuing a CWA § 301(h) modification, EPA understands that installing secondary treatment may present significant financial challenges for the City. As set forth in this document, and as EPA has discussed with Gloucester many times, EPA is committed to working with the City to develop a schedule for the design, construction and implementation of a secondary treatment facility that takes into account the City's competing financial commitments. (*See* Response 23).

[3] Most recently, the City of Portsmouth, NH, which has an average design flow of 6.1 MGD, completed construction of its secondary treatment facility which is slated for final review and completion in 2021 (*see* cityofportsmouth.com/Pierce Island Wastewater Facility Upgrade Project) (website accessed 7-7-21). Several small Maine POTWs, mostly with design flows under 1 MGD, continue to have permit limits based on CWA § 301(h) modifications, but only if the statutory requirements of the Clean Water Act are met each permit cycle. For example, one such community failed to meet the criteria and EPA denied its 301(h) modification in 2019. (The NPDES program has been delegated to the State of Maine, but EPA remains the permitting authority for permits issued with CWA § 301(h) modifications.)

the boundary of the ZID. *See* 40 CFR §125.62(a)(i). *See also* 40 CFR §§ 125.62(c), 125.61(b)(1). Furthermore, 40 CFR § 125.59(b)(1) prohibits issuance of a permit with modified limits under CWA § 301(h) if the limits would not assure compliance with all applicable requirements of Part 122, one of which is that a permit must ensure compliance with state water quality standards. *See* 40 CFR §§ 122.4(d) and 122.44. *See also* TD at 5, 13; CWA § 301(h)(2).

- The modified discharge must "allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population." *See* 40 CFR § 125.62(c). *See* TD at 5, 22-24; CWA Section 301(h)(2); and
- The modified discharge must "allow for the attainment or maintenance of water quality which allows for recreational activities beyond the zone of initial dilution, including, without limitation, swimming, diving, boating, fishing, and picnicking, and sports activities along shorelines and beaches." *See* 40 CFR § 125.62(d). *See* TD, at 5, 24; CWA § 301(h)(2).

Gloucester was not meeting these requirements when the TD was issued in 2010 and, based on data supplied by Gloucester in its annual reports, the City has continued not to meet these requirements.

As discussed more fully in this RTC and summarized here, the Gloucester WPCF's wastewater discharges continue not to satisfy water quality standards for: Whole Effluent Toxicity ("WET") (*see* Response 10), oil and grease ("O/G") (*see* Response 11), Total Petroleum Hydrocarbons ("TPH") (*see* Response 12), bacteria limits for shellfishing (*see* Response 14), and bacteria limits for primary contact recreation (*see* Responses 13 and 19). Furthermore, Gloucester also fails to meet the requirement that the biological impact of the discharge must "allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish and wildlife… at and immediately beyond the zone of initial dilution of the applicant's modified discharge." 40 CFR § 125.62(c)(2)(i) (*see* Responses 16 and 17). As a result, the permit for the WPCF does not qualify for a modification of secondary treatment-based effluent limits under CWA § 301(h). EPA expects the WPCF to design, construct and implement secondary treatment in a timeframe consistent with a schedule of compliance that will be established by EPA Region 1's Environmental Compliance and Assistance Division Enforcement and Compliance Assurance Division (ECAD) following final issuance of the permit with input from the City and MassDEP. EPA reserves the right to seek any and all remedies available under Section 309 of the Act, 33 U.S.C. § 1319 for any violations by the City of its permit.

Consistency with Prior Decisions on this Permit

Finally, Gloucester also suggests that the decision proposed by EPA in the TD is inconsistent with prior EPA decisions that granted the WPCF a modification of secondary

treatment requirements under CWA § 301(h), and that, as a result, an EPA denial of the City's request for renewal of its CWA § 301(h) modification would be arbitrary and capricious. EPA disagrees with both suggestions. A decision to modify otherwise applicable secondary treatment standards under CWA § 301(h) is not a permanent determination. Pursuant to 40 CFR § 125.59(c)(4), the decision about whether to grant a CWA § 301(h) modification is revisited with every permit reissuance to review the results of studies and monitoring performed during the life of the permit, recognizing that the circumstances upon which previous modification decisions were made could potentially have changed. Because Gloucester does not meet all of the regulatory criteria to justify renewal of its CWA § 301(h) modification, EPA's current decision to deny Gloucester's request for a CWA § 301(h) modification of secondary treatment requirements is neither arbitrary nor capricious.

Specifically, EPA's earlier decisions to grant Gloucester's CWA § 301(h) modification requests were based on then current evidence and were subject to future revision on the basis of subsequently acquired information. The CWA § 301(h) modification was extended with the August 28, 2001, permit reissuance, but the 2001 permit also added TPH and WET sampling requirements and effluent limits for the first time and required development of a Chlorination System Report to explain to the permitting agencies how the disinfection system would be operated to bring the WPCF into compliance with its total residual chlorine and bacteria limits. The 2001 modification was granted in anticipation that the WPCF's discharges, which received primary treatment, would achieve the permitted limits and thus satisfy all applicable water quality standards. This has not, however, turned out to be the case. EPA also notes that Gloucester could have challenged the basis for the effluent limits and the ZID specified for the 2001 permit, but it did not. Finally, EPA notes that recent WPCF discharge monitoring data indicates ongoing permit exceedances for fecal bacteria, oil and grease, TPH, and WET.[4]

Pollutant Removal by Secondary Treatment

Gloucester's current primary wastewater facility, which was originally built in 1984, includes the following treatment processes: grit tanks, grit chamber, comminutors to shred rags and debris, primary clarification, chemically enhanced primary treatment ("CEPT") using ferric chloride and polymer to improve removal of BOD, TSS, oil and grease, and chlorination/dechlorination to provide disinfection before discharging into MA Bay.[5]

Secondary treatment would provide substantial additional removal of contaminants. For example, in a secondary treatment plant, after the wastewater has been through primary treatment processes, it then flows into the secondary treatment stage. Secondary

[4] *See* Appendix A showing current exceedances for fecal bacteria, oil and grease, TPH, and WET through December 2021.

[5] Gloucester MA0100625 Fact Sheet, 2010, pages 5-6.

treatment processes can remove up to 90 percent of the organic matter in wastewater[6] – and this organic matter can include a variety of contaminants, including pathogenic microorganisms[7] – by using biological treatment processes. Secondary treatment also removes a greater proportion of toxic contaminants. The two most common conventional methods used to achieve secondary treatment are attached growth processes and suspended growth processes.[8] See also Table 1 below (a case study of a wastewater treatment plant's comparison of the contaminant removal rates using primary treatment versus secondary treatment).

Table 1. Comparison of Primary and Secondary Removal of Pollutants[9]

Pollutant	Primary Removal	Secondary Removal
Total suspended solids (TSS)	50-60%	85%+
Biochemical oxygen demand (BOD)	25-40%	85%+
Toxic contaminants	0-50%	50-90%
Nutrients	5%	10-15%
Pathogens [includes pathogenic bacteria]	0-50%*	80-99%+*
*These numbers indicate removal before disinfection. Disinfection further reduces pathogens to safe levels.		

Tiny microbes including bacteria, ciliates, and rotifers, are the key to secondary treatment. These helpful micro-organisms feed vigorously on the wastewater during treatment, breaking down and removing contaminants.[10]

Comment 2.

[Part] II.A. The WPCF. Gloucester's WPCF began operation in 1984. In 1985 it was issued a 301(h) waiver and NPDES permit based on primary treatment. The plant was designed for an average daily flow rate of 7.24 million gallons per day (MGD) with a peak hydraulic flow rate of 15 MGD. The plant's average daily flow for the past five years is as follows:

[6] U.S. EPA, Office of Water, *Primer for Municipal Wastewater Treatment Systems*, EPA 832-R-04-001, September 2004, pages 9-13.
[7] *Pathogen and Particle Associations in Wastewater: Significance and Implications for Treatment and Disinfection Processes*, by C. Chahal, et. al., Section 3.1, Bacteria, page 67.
[8] U.S. EPA, Office of Water, *Primer for Municipal Wastewater Treatment Systems*, EPA 832-R-04-001, September 2004, pages 9-13.
[9] *The State of Boston Harbor, Questions and Answers about the New Outfall*, MWRA, 1997, page 10.
[10] *The State of Boston Harbor, Questions and Answers about the New Outfall*, MWRA, 1997, page 10.

Year	Average WPCF flow (MGD)
2010	4.27
2009	4.34
2008	4.49
2007	4.17
2006	4.69

The WPCF currently serves approximately 7,727 customers in Gloucester (6,928 residential households, 328 commercial facilities, 68 industrial facilities, and 777 mixed-use and public facilities). The industrial users include 4 permitted Significant Industrial Users and 6 permitted smaller users. The WPCF also serves approximately 600 households in Essex and 150 in Rockport (mostly seasonal use). The plant also receives trucked septage, sludge, and holding tank wastes from Gloucester and Essex. Some of the Gloucester flow is from combined sewers receiving both sanitary and stormwater flow.

The plant implements chemically enhanced primary treatment (CEPT), which uses ferric chloride and polymer to increase removal of oil and grease, BOD, and TSS. The effluent is chlorinated to eliminate bacteria, then dechlorinated to remove residual chlorine. The plant discharges effluent through a 15,690-foot outfall to a location approximately a mile beyond Dog Bar Breakwater (Figure 1) into 90 feet (27.4 m) of water. The effluent is discharged at the bottom of the water column through a 61-meter-long multiport diffuser with ten risers (Figures 2 and 3).

Response 2

EPA acknowledges the City's comments and they are included in this Response to Comments document for the record along with the original source of this information that can be found in the Permittee's most recent permit application.[11] Due to the passage of time since these comments were submitted, EPA acknowledges that some of the information stated by Gloucester in this comment (such as the number of customers), may have changed somewhat but no changes of particular significance for this permit decision have been identified. Furthermore, without being in a position to verify the specific number of each type of discharger reported by the City, EPA notes that in addition to residential dischargers, the WPCF receives wastewater from a total of 2 SIUs at this time, septage haulers, commercial facilities and mixed-use facilities. Lastly, an update of the plant's annual average daily flow for the past five years is, as follows:

[11] City of Gloucester's NPDES MA0100625 Permit Application, 2005.

Year	Average WPCF flow (MGD)
2017	3.05
2018	3.33
2019	3.18
2020	3.32
2021	3.35

Comment 3.

II.B. WPCF Improvements. Since EPA's 2001 renewal of the WPCF's 301(h) waiver, numerous improvements have been made to the WPCF. Improvements from 2004-2006, which included the addition of dechlorination in 2006, are summarized in EPA's tentative decision and not restated here.

In addition, the City is currently in the midst of a two-phase set of upgrades to the WPCF. Phase I construction began in January 2010, with substantial completion expected by March 31, 2011, at a cost of approximately $6.5 million. Phase I improvements include:

- Replacement of the mechanisms and tank overflow for the two existing gravity thickeners and sludge holding tank. Installation of a new sludge holding tank mixing system and two new rotary sludge presses with a new polymer system, dewatering system control panel and dewatered sludge conveyors.
- Changes to process flow such that septage and scum will be pumped directly to the sludge holding tank where it will be thoroughly mixed with thickened primary sludge prior to dewatering.
- Replacement of all sludge and scum pumps including two primary sludge pumps, two primary scum pumps, two thickened primary sludge pumps, two thickened primary scum pumps and two sludge dewatering feed pumps. All pumps with the exception of the two thickened primary scum pumps are preceded by an in-line grinder.
- Replacement of the three plant effluent pumps with new higher capacity pumps and new variable frequency drives (VFDs).
- Electrical system upgrades including three new double-ended motor control centers for improved reliability and redundancy and upgrades to the existing fire alarm system and emergency lighting system.
- Upgrades to the SCADA computer control system including new programmable logic controllers (PLCs) at each sludge pumping station and operator work stations in the Control Building so operators can monitor process operations and begin to develop a data base on plant flows, loads and performance.

- A new influent sampler upstream of any side streams and chemical addition to give plant operators a true indication of influent wastewater characteristics.
- Replacement of the scum troughs in the chlorine contact tanks, which will further lower oil and grease concentrations in plant effluent.

In addition to the Phase I upgrades, in November 2009 the City contracted Veolia Environmental Services to operate and maintain the WPCF. Under this contract, the City tripled the repair and maintenance budgets, engaged Veolia technical specialists to review and optimize process operations of the facility and undertook significant improvements to immediately improve operations and effluent quality at the plant. Among other things, Veolia has modified the sodium hypochlorite feed pump suction and discharge piping to ensure reliability during low flows at night, and has made repairs to the effluent flume ultrasonic level indicator and transmitter that have restored the ability to pace sodium hypochlorite and bisulfite based on flow, improving treatment of bacteria. These improvements and more focused attention to the operations of the plant have resulted in substantial improvement in effluent quality as shown in the data presented below.

The Phase II design was completed and submitted to DEP for review in December 2010; it is anticipated to be bid in March-April 2011 with a construction notice to proceed in August 2011. Completion of Phase II construction is scheduled for August 1, 2013, at an expected cost of $13.5 million. Phase II improvements include:

- A new headworks building, which will include two mechanical bar screens with ½-in bar spacing each rated for peak wet weather flow, a screenings wash press for each screen, vortex grit removal with grit pumps and a grit washer and preliminary treatment (screening and grit removal) of all septage, a new polymer feed system to enhance primary treatment, and a new double-ended motor control center to replace two existing single-ended motor control centers for improved reliability and redundancy.
- New standby power generator for the entire plant.
- New transformer and switchgear for the entire plant.
- New odor control facilities for the control building and the new headworks building.
- Yard piping modifications to allow one primary sludge pump to feed one gravity thickener. A new flow meter on the pump discharge will allow the operators to monitor the flow and load to the gravity thickener.
- Additional SCADA system enhancements with connections to new equipment.
- Replacement of an existing primary sludge plunger pump.

These changes will further enhance the WPCF's performance and will result in significantly improved process redundancy.

Response 3

EPA notes that at the time of final reissuance of this permit, even with the upgrades Gloucester references in this comment and in more recent discussions with the City,[12] the WPCF is still unable to meet its permit limits consistently and is causing or contributing to ongoing exceedances of water quality standards and, thus, 301(h) standards. Therefore, EPA is unable to approve the current 301(h) modification renewal request.

As discussed in more detail below, EPA finds that Gloucester is not meeting its permit limits for WET (*see* Response 10); oil and grease (*see* Response 11); total petroleum hydrocarbons (*see* Response 12), bacteria for primary contact *(see* Responses 13 and 19) and shellfishing (*see* Response 14) or the requirement that its discharges not interfere with the receiving water's ability to support a balanced indigenous population of fish, shellfish and wildlife in the receiving water (*see* Responses 15, 16, 17). Furthermore, in the last five years, test results supplied by Gloucester in its monthly discharge monitoring reports indicate exceedances of fecal coliform standards. (*See* Appendix A).

Comment 4.

II.C. Collection System Improvements. Like many older cities, Gloucester's sewer system includes some combined sewers, designed to transport stormwater along with sanitary sewage. This results in high flows in the collection system during wet weather and can result in combined sewer overflows (CSOs). Gloucester has been working on correcting this problem by replacing combined sewer pipes with separate sewer and stormwater pipes. The first area addressed was the basin draining roughly 87% of the area served by combined sewers. Most of the separation of this basin was completed in March of 2009, with the remainder completed in July 2010. Of the total stormwater flow to the sewers within the project area, approximately 90% has been eliminated, resulting in an estimated reduction of 95 million gallons of flow per year to the WPCF. The impacts of this project at the treatment plant have been noticeable and significant. Recovery from peak flows occurs very quickly, and there have been no flooding incidents in spite of extreme rain events, making operation of the plant easier, increasing reliability and effluent quality. Completion of the remaining sewer separation work is expected within the next four years. The CSO project costs total approximately $35 million.

Response 4

EPA notes that in April 2016, Gloucester completed work recommended in its Long-Term Control Plan for reducing CSO discharges. On March 15, 2021, the Consent Decree addressing the City of Gloucester's CSO discharges was terminated.

EPA recognizes the City's work pursuant to the Consent Decree to reduce CSO discharges. This CSO abatement work has benefited water quality by reducing discharges of untreated combined stormwater and sewage from CSO outfalls.

[12] More recent plant upgrades were highlighted by the WPCF personnel at a site visit with EPA staff on January 15, 2020.

That said, the City's Final NPDES Permit will continue to address four active CSO outfalls: 002 (located at Pavilion Beach), 004 (Harbor Cove), 005 (Inner Harbor), 006A (Inner Harbor). While discharges from these CSO outfalls are expected to be infrequent, these outfalls have not been eliminated at this time, since these relief points remain essential to precluding sewer system backups and surcharging under high flow conditions, when serious public health risks would otherwise be incurred.

Comment 5.

II.D. "Current" vs. "Improved" Discharge. EPA's 301(h) regulations allow applicants to meet waiver requirements based on either a "current discharge" or an "improved discharge," which are defined as follows (40 CFR § 125.58(h)-(i)).

Current discharge means the volume, composition, and location of an applicant's discharge at the time of permit application.

Improved discharge means the volume, composition, and location of an applicant's discharge following:
(1) Construction of planned outfall improvements, including, without limitation, outfall relocation, outfall repair, or diffuser modification; or
(2) Construction of planned treatment system improvements to treatment levels or discharge characteristics; or
(3) Implementation of a planned program to improve operation and maintenance of an existing treatment system or to eliminate or control the introduction of pollutants into the applicant's treatment works.

These definitions reflect EPA's determination that it was Congress's intent that applicants that could not demonstrate compliance with the waiver requirements using empirical data from their current discharge could still obtain waivers based on "thoroughly planned and studied" future improvements. [Footnote: Environmental Protection Agency, Modification of Secondary Treatment Requirements for Discharges into Marine Waters: Final Rule, 44 Fed. Reg. 34784, 34788-90 (June 15, 1979)].

As EPA's tentative decision notes, the City's 2006 application stated that it was "based on an improved discharge because of the completion of the 'construction of planned treatment system improvements to treatment levels or discharge characteristics,'" including "the addition of a dechlorination and odor control system in the spring of 2006." This statement reflected a misunderstanding of the regulatory term "improved discharge," because the statement describes the improvements as completed, and the remainder of the application demonstrates that the discharge at the time of application complied with 301(h) requirements. Although it was correct to note that many improvements to the WPCF had been made since the previous waiver renewal, the application should have stated that it was based on a "current discharge."

The City's discharge at the time it submitted its application and its current discharge meet the 301(h) requirements. Since 2006, the City has continued to collect data on both the effluent and the environment in the vicinity of the discharge and has submitted those data to EPA. The City can demonstrate compliance with the 301(h) requirements based on this empirical data, and does not need to rely on predicted future improvements in discharge quality. Thus, the City believes that EPA should consider the WPCF discharge at the time of submission of these comments to be its "current discharge." Moreover, even if EPA considers the City's request for a waiver to be based on an "improved" discharge as compared to when the waiver application was submitted in 2006, the City's empirical data on the composition of the discharge meets the regulatory requirements for proof that an "improved" discharge will meet 301(h) requirements. See 40 CFR § 125.62(e). In any case, EPA should not deny the 301(h) waiver for the WPCF on the basis of a semantic distinction that bears no relation to water quality in the vicinity of the outfall.

Response 5

EPA does not agree that the "current discharge" at the time of submission of these comments in 2011 met the requirements for the 301(h) modification to be renewed. On the contrary, the effluent data referenced for that time period, shows non-compliance with water quality standards-based effluent limits. Moreover, no treatment plant improvements were proposed that would have provided a remedy for the on-going water quality standards exceedances. In addition, since the 2011 comments, the most recent past five years of effluent monitoring data from July 2016 through July 2021 shows continued non-compliance with state water quality standards-based requirements *(see* Appendix A) and no additional improvements have been proposed that are expected to end this non-compliance. As a result, the City continues not to meet the standards for a modification of secondary treatment requirements under CWA § 301(h). With regard to Gloucester's past confusion over the terms "current discharge" and "improved discharge," as discussed in the comment, EPA acknowledges the City's mistake and remains cognizant of the regulatory distinction between the terms "current discharge" and "improved discharge" (*see* 40 CFR §§ 125.58 (h), (i)). This does not, however, change the result. EPA is not basing its decision to deny this modification request on Gloucester's misuse of the term "improved discharge" in its permit application. EPA accepts Gloucester's argument that at the time of its permit application, Gloucester was describing its "current discharge" and not an "improved discharge," but, again, this does not change the current decision.

Comment 6.

II.E. Receiving Waters. The WPCF discharges to Massachusetts Bay, which is classified in the Massachusetts Water Quality Standards ("MWQS," 314 CMR 4.00) as a Class SA water. Gloucester has conducted extensive monitoring in the vicinity of the outfall since 1990.

In anticipation of the completion of the pipeline extension, in 1990 sampling was initiated at sites outside the harbor to establish a baseline for the monitoring of the effluent from the new diffuser (Figures 1 and 4). In October 1990, the discharge was transferred from the old single point

discharge inside the harbor to the new outfall beyond the breakwater. Monitoring at the stations located around the new diffuser has been conducted continuously since March of 1990.

Major changes to the monitoring program over the years (all approved by EPA) have been:

- Priority pollutant scans of water samples were discontinued in 1990 because of the lack of detections of these compounds in samples, even at Station 1 next to the old outfall inside the harbor with no diffuser (e.g. Table 1). The new outfall with a diffuser that has an almost instantaneous dilution of 59:1 (based on conservative modeling) made it even more unlikely these compounds could ever be detected. There have been very few detects in priority pollutants at the treatment plant and these have been at very low levels.

- Sampling for oil and grease ended in the year 2001 because most of the results were non-detects (Tables 2 and 3) and there was no evidence of accumulation in the sediments. The very few isolated detects were more probably associated with the heavy commercial and recreational boat traffic through the area.

- TSS sampling was discontinued in 2001 because 10 years worth of data had shown there was no association between concentrations in the water column and distance from the outfall. There was also no increase in solids in the sediments near the diffuser.

Response 6

EPA agrees with the commenter that the WPCF discharges to Massachusetts Bay, which is classified in the Massachusetts Water Quality Standards ("MSWQS," 314 CMR 4.00) as a Class SA water. (*See also* Response 25 for a discussion of the water quality impacts reported in Gloucester's 2017, 2018, 2019, and 2020 Ambient Monitoring Reports.)

EPA acknowledges that, as the commenter states, the City of Gloucester has conducted ambient monitoring near the edge of the zone of initial dilution and in the farfield area since 1990, and that the ambient monitoring plan was reviewed and approved by EPA. The comment particularly references certain reductions in monitoring that have occurred over time but to the extent that the commenter is trying to suggest that these reductions indicate an overall lack of environmental concerns about the WPCF's discharges, EPA disagrees.

EPA also does not agree with the comment's characterization of the approved changes, as follows:

- EPA disagrees with the comment that "there have been very few detects in priority pollutants at the treatment plant …." There have been numerous detections of priority pollutants in the effluent at the treatment plant. Not only have priority pollutants been detected in WPCF effluent as recently as 2017, 2018, 2019, and 2020, but priority pollutants have also been detected in the sediments near the edge of the zone of initial dilution at Station 3A. The

Permittee has been conducting priority pollutant scans in the effluent annually and in the sediment surrounding the discharge at a distance of 30, 150, and 500 meters away twice per year.[13]

- While EPA agrees that the Agency approved discontinuing oil and grease ambient water column sampling, EPA continues to have environmental concerns about oil and grease based on Gloucester's monthly discharge monitoring data that continues to show intermittent exceedances of water quality standards. (*See* Response 11).
- EPA agrees with the rationale stated in the TSS removal comment.

Comment 7.

III. Application of 301(h) Criteria. Section 301(h) of the Clean Water Act requires an applicant for a waiver to demonstrate that it meets nine statutory criteria. EPA acknowledges that Gloucester has met all but two of the criteria, but concludes in its 2010 tentative decision that Gloucester has failed to demonstrate that the WPCF discharge:

- will meet water quality standards for toxicity; oil, grease, and petrochemicals; and bacteria as required by 33 U.S.C. § 1311(h)(1); and
- will not interfere with the protection and propagation of a balanced indigenous population of fish, shellfish, and wildlife, and will not negatively impact recreational activities as required by 33 U.S.C. § 1311(h)(2).

EPA's application of these criteria to the WPCF in 2010 is strikingly inconsistent with its application of the same criteria in 2001, in ways not justified by updated data or changed water quality standards.

As is demonstrated in the detailed comments below, the discharge from the WPCF meets all water quality standards and will not interfere with the balanced indigenous population or recreation in the vicinity of the outfall. EPA's decision to tentatively deny the 301(h) waiver for the WPCF therefore has no basis in fact or law, and EPA should grant Gloucester a renewal of its 301(h) waiver and issue a new primary treatment permit for the WPCF.

Response 7

EPA disagrees with the commenter's assertions that the WPCF's discharge satisfies all nine of the criteria under CWA § 301(h), that the WPCF's discharges satisfy all applicable water quality standards, that EPA's application of the criteria for granting or denying a 301(h) modification was not based in fact or law, and that EPA's application of the CWA § 301(h) criteria in 2001 and 2010 were inconsistent. These introductory comments are responded to in more detail in other responses to comments presented in

[13] Gloucester 301(h) Monitoring 2017, 2018, 2019, and 2020 Reports by Allan D. Michael & Associates. Note: The Gloucester 301(h) Monitoring 2020 Report includes data from 1990-2020.

this document. *See* Response 1 for a discussion of the statutory and regulatory basis for the denial of Gloucester's 301(h) waiver; *see* Responses 10 (WET), 11 (O/G), 12 (TPH), 13, 14, 19 (Bacteria) for discussions of specific water quality exceedances; and Responses 15, 16 and 17 for discussions of failure to attain or maintain water quality needed to assure protection of a balanced indigenous population of shellfish, fish, and wildlife in the receiving water.

Comment 8.

IV. The WPCF Discharge Meets the Relevant Water Quality Standards In The Waters Outside the Zone of Initial Dilution As Required by Section 301(h). Section 301(h) requires that the discharge from a WPCF comply with all applicable state water quality standards at and beyond the boundary of the zone of initial dilution (ZID). As discussed below, contrary to EPA's tentative decision, the discharge from the WPCF complies with all water quality standards at the ZID boundary, and the 301(h) waiver should be granted.

IV.A. EPA Appropriately Defined the ZID. IV.A.1. Definition of the Zone of Initial Dilution. Congress added Section 301(h) to the Clean Water Act to address discharges into marine waters subject to rapid initial mixing. Therefore, under the 301(h) regulations, the effects of an applicant's discharge on the receiving waters are generally assessed at and beyond the boundary of a "zone of initial dilution (ZID)." [Footnote: The only requirement within the zone of initial dilution for ocean discharges is that conditions "must not contribute to extreme adverse biological impacts, including, but not limited to, the destruction of distinctive habitats of limited distribution, the presence of disease epicenter, or the stimulation of phytoplankton blooms which have adverse effects beyond the zone of initial dilution." 40 CFR § 125.62(c)(3).]. The 301(h) regulations define "zone of initial dilution" as "the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards." 40 CFR § 125.58(dd).

EPA guidance for calculation of the dimensions of the ZID is provided in EPA's 1994 Amended 301(h) Technical Support Document (EPA842-B-94-007). The Technical Support Document specifies the ZID to be that area circumscribed by a distance d (equal to the water depth) from any point on the diffuser.

The Massachusetts Water Quality Standards (MWQS) allow for mixing zones. 314 CMR 4.03(2). EPA's tentative decision concludes that, "as a general matter, the MSWQS do not create a more strict limitation on the size of the ZID than that contained in the 301(h) regulations themselves" (p. 9).

Response 8

The City comments that under CWA § 301(h), a discharger must only meet state water quality standards at and beyond the ZID. According to the commenter, failing to satisfy water quality standards within the ZID does not disqualify a discharger from obtaining a

modification of secondary treatment limits under CWA § 301(h). The City further states that the sole exception to this is that conditions caused by discharges authorized under CWA § 301(h) must "'not contribute to extreme adverse biological impacts, including, but not limited to, the destruction of distinctive habitats of limited distribution, the presence of disease epicenter, or the stimulation of phytoplankton blooms which have adverse effects beyond the zone of initial dilution.' 40 CFR § 125.62(c)(3)." The City quotes EPA's regulations at 40 CFR § 125.59(dd), which provide that a "ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards," and also quotes text from EPA's TD (p. 9) stating that "'as a general matter, the MAWQS do not create a more strict limitation on the size of the ZID than that contained in the 301(h) regulations themselves.'" Finally, the commenter urges that the WPCF's discharges do, in fact, comply with all water quality standards at and beyond the ZID boundary and that, as a result, EPA's TD erred by proposing to deny the City's request for renewal of its existing permit limits based on a modification of secondary treatment standards under CWA § 301(h).

EPA disagrees with certain aspects of this comment. The commenter incorrectly states that CWA § 301(h) only requires that discharges satisfy state water quality standards at and beyond the ZID. To the contrary, CWA § 301(h)(9) specifies that *EPA water quality criteria* established under CWA § 304 – not *state water quality standards,* which are established under CWA § 303 – must be met at and beyond the ZID. That said, it is true that *EPA regulations* at 40 CFR §§ 125.62(a)(1)(i) and (ii) provide that state water quality standards, like EPA water quality criteria, need be met only at and beyond the edge of any ZID that has been identified,[14] but, as the City also notes, 40 CFR § 125.59(dd) provides that delineation of a ZID under CWA § 301(h) is subject to any restrictions on the delineation of mixing zones according to state policy under its water quality standards. (EPA regulations also clearly state that any discharge approved under CWA § 301(h) must satisfy state water quality standards. S*ee* 40 CFR §§ 125.61(b)(1) and (2), 125.59(b)(1) and (3).) All of this together means that discharges authorized under CWA § 301(h) must satisfy water quality standards at and beyond the ZID, except that the size of a ZID may be restricted, and using a ZID for determining compliance may even be barred, if the state's mixing zone policy under its water quality standards calls for such restrictions.

[14] Thus, 40 CFR §§ 125.62(a)(1)(i) and (ii) state as follows:

(a) *Physical characteristics of discharge.* (1) At the time the 301(h) modification becomes effective, the applicant's outfall and diffuser must be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater such that the discharge does not exceed at and beyond the zone of initial dilution:

(i) All applicable water quality standards; and

(ii) All applicable EPA water quality criteria for pollutants for which there is no applicable EPA-approved water quality standard that directly corresponds to the EPA water quality criterion for the pollutant.

In this case, Massachusetts' mixing zone policy does, indeed, restrict the delineation of mixing zones in ways that in some cases will limit the size of the ZID that can be allowed under Section 301(h) of the CWA. For example, Massachusetts does not allow any mixing zone for discharges of some pollutants, including bacteria. In addition the size of the ZID is limited for discharge of Whole Effluent Toxicity (WET) by the dilution allowance already built into the WET limits in the Massachusetts Toxicity Policy (*see* Response 10). Therefore, for these pollutants, compliance with the numeric bacteria criteria and the narrative toxics criteria, as translated into a WET limit, is required at the end of the discharge pipe[15], rather than at the edge of a ZID. The City's comments fail to acknowledge this.

The City cites to EPA's statement in the TD (at p. 9) that "as a general matter" the MAWQS do not restrict ZIDs beyond the requirements of EPA's regulations under the CWA § 301(h) program, but the statement that the MAWQS are *generally* not more restrictive was not intended to suggest or mean that they are not more restrictive in some circumstances. When state policy does not allow a mixing zone for discharges of certain pollutants, such discharges are not permitted to take advantage of a ZID for determining compliance and compliance must be determined at the end of the discharge pipe[16]. Again, as stated above, this is the case for limits on bacteria and for limits on WET, other than the allowance for dilution already built into the WET limits in the state's Toxics Policy. Thus, while EPA agrees that in some respects the 301(h) regulations focus on impacts at and beyond the ZID, in other instances, determining whether state water quality standards are being met for purposes of 301(h) requires EPA to assess water quality impacts *within* the ZID or to apply water quality-based effluent limits at the end of the discharge pipe.

If EPA were to accept Gloucester's argument, it would suggest that a 301(h) modification would authorize the City's wastewater discharges to exceed water quality-based WET effluent limits within the ZID in violation of the Massachusetts Surface Water Quality Standards ("MSWQS") and the state's mixing zone policy, as long as the WET limits would be met at the edge of the ZID and beyond. Section 301(h) of the CWA, and EPA regulations thereunder, do no authorize such a violation of state water quality standards. Moreover, Gloucester's DMR data from 2016 through 2021 (*see* Appendix A) clearly show that water quality violations for toxicity are occuring within the ZID. As a result, all MSWQS are not being satisfied and a modification of effluent limits under Section 301(h) cannot be allowed.

The MA Toxics Policy was specifically written by Massachusetts to interpret its narrative toxics WQS in accordance with federal regulations (40 CFR § 131.11(a)(2)) which require states to provide information identifying the method by which the state intends to regulate point source discharges of toxic pollutants based on narrative criteria. This regulation allows information to be included as part of the adopted standards or to be

[15] Email correspondence from Susannah King of MassDEP to Ellen Weitzler of EPA, dated May 4, 2022.
[16] Email correspondence from Susannah King of MassDEP to Ellen Weitzler of EPA, dated May 4, 2022.

included in guidance documents generated by the state.[17] The Massachusetts narrative toxics criterion has been interpreted, consistent with federal regulations, by MassDEP within its MA Toxics Policy. The 301(h) regulations specifically defer to state water quality standards and define the zone of initial dilution as: "the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards." (40 CFR §125.58 (dd)).

See Response 10 for further discussion of these water quality exceedances and their relationship to EPA's denial of the 301(h) waiver.

Comment 9.

IV.A.2. EPA Has Applied a Conservatively Small ZID for the Gloucester WPCF Discharge. The existing outfall diffuser is a linear multiport diffuser 61 m in length, with ten six-inch (0.1524 m) diameter ports spaced at 6.1 m intervals. [Footnote: EPA's tentative decision document and other references to the diffuser state a port diameter of 1.52 meters, which is obviously a typographical error.]. EPA's tentative decision calculates the surrounding ZID to be approximately 55.1 m by 115.2 m.

The ports discharge at a depth of 90 feet (27.43 meters) perpendicular to the diffuser barrel (which is generally perpendicular to the local bathymetric contours and principal current direction) at an upward angle of 11.25º from the horizontal. The design flow per port (for the maximum design flow of 15 MGD) is 0.0657 m^3/sec, giving a port velocity of 11.8 ft/sec. At the modeled wet weather maximum flow of 10 MGD (see below), the port flow is 0.0438 m^3/sec and the port velocity is 7.9 ft/sec. The diffuser design provides rapid initial dilution. The location of the discharge is well flushed by ambient currents and does not result in a build up of effluent in the vicinity of the discharge, as demonstrated by receiving water monitoring.

Critical initial dilution ("CID") as described in the EPA tentative decision is stated as 65:1 for dry weather (6.3 MGD effluent flow) and 59:1 for wet weather (10.0 MGD effluent flow). The City recently recalculated the CID using more recent data and modeling. Using the EPA-approved model UDKHDEN, the critical density profile from 2007 [Footnote: This critical density profile is that profile resulting in the lowest initial dilution, with all other parameters constant (and at critical conditions). The July 11, 2007 density profile at Station 3C appears to be a good representation of critical conditions with a strong density gradient throughout the profile], and a critical ambient current of 3 cm/sec [Footnote: For tidally influenced marine waters,

[17] Specifically, 40 CFR § 131.11 states that: "States must adopt those water quality criteria that protect designated uses." For toxic pollutants, "[w]here a State adopts narrative criteria for toxic pollutants to protect designated uses, the State must provide information identifying the method by which the State intends to regulate point source discharges of toxic pollutants…. [s]uch information may be included as part of the standards or may be included in documents generated by the State in response to the Water Quality Planning and Management Regulations. 40 CFR § 131.11(a)(2).

currents are constantly and rapidly varying in space and time and seldom, if ever, are zero. The typical practice is to use the 10th percentile current speed in the vicinity of the discharge as the critical condition. A value of 3 cm/sec is reasonable, and is consistent with current data collected in the vicinity of the discharge.], the initial dilution for an effluent flow of 10.0 MGD was calculated to be 79:1 as the plume rises past the eventual equilibrium depth (trapping level) and 103:1 at the point of maximum rise. The simulation was done using an effluent temperature of 15ºC. [Footnote: Effluent temperature has a minor effect on initial dilution: effluent temperature variation between 5ºC and 25ºC changes dilution by < 5%.]. If this simulation is done at an ambient current speed of zero the results are consistent with the existing CID. Thus, it appears that the existing CID is conservative, since the ambient current speed will almost always be greater than zero.

Response 9

EPA disagrees with the comment that EPA has applied a conservatively small zone of initial dilution (ZID) for the Gloucester WPCF Discharge when it used the UMERGE dilution model. [EPA confirms the port diameter should read "six inch (0.1524 m)" in all documentation.] It is EPA's understanding that the City is proposing a ZID size based on the UDKHDEN model, which is a model that has been found to overestimate available dilution. For example, the UDKHDEN model overestimated the minimum dilution and the height to the top of the wastefield in a 2000 study published in the Water Engineering Research journal. The study compared several models and found the UMERGE model to be one of the best mathematical predictors, predicting dilutions within 4%. In comparison, the UDKHDEN model overestimated dilutions by 89%.[18] EPA also disagrees with Gloucester's assertion that "[t]he location of the discharge is well flushed by ambient currents and does not result in a build up of effluent in the vicinity of the discharge, as demonstrated by receiving water monitoring." Contrary to this comment, monitoring data shows adverse effects on receiving water quality associated with the WPCF's discharge, as discussed in greater detail in Responses 6 and 16. Also, whether or not there is a background buildup of effluent in the area of the WPCF's discharge is a hydrodynamic question involving fluids in motion and should be tested using a dye study rather than by an evaluation of receiving water quality monitoring. Additionally, the commenter's recommendation that EPA rely on one data point for the critical condition density profile that occurred on July 11, 2007 at Station 3C with a corresponding critical ambient current of 3 cm/sec, is not persuasive. EPA's Technical Support Document for Water Quality-based Toxics Control (TSD)[19] recommends critical design periods to be used when evaluating mixing zones. According to the TSD, discharges to coastal bays and ocean waters should be evaluated during periods of maximum thermal or density stratification and the results should be compared to periods of minimal stratification.[20]

[18] Applicability of Models for Boston Outfall Plumes by Yongtai Chung and Gyoung Wan Kim, Department of Earth Environmental System, Sunchon Chongam College, Chonnam, Korea, Water Engineering Research, Vol. 1, No. 4, 2000.
[19] EPA, 1991, Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001.
[20] EPA, 1991, Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, p. 74.

The TSD additionally recommends evaluating periods when it is likely that water quality standards will be exceeded.[21] The TSD also recommends "the 10th percentile value *from the cumulative frequency of each parameter* [emphasis added] should be used to define the period of minimum dilution."[22] Absent this information, EPA must utilize the best information reasonably available at the time of permit reissuance.

EPA also disagrees with the commenter's assertion that "the typical practice is to use the 10th percentile current speed in the vicinity of the discharge as the critical condition." When site conditions indicate use of 10th percentile design conditions, when there is an ocean discharge, it is important to not only use the 10th percentile ambient velocity, but rather the 10th percentile worst case design condition for *all design parameters* [emphasis added]. In other words, other site specific design conditions need to be considered besides the 10th percentile design condition. For example, one needs to assess any potential effects on more distant sensitive resources that may be impacted if the effluent plume has greater extent due to higher ambient velocities, and so forth.

Specifically, according to EPA's technical guidance presented in EPA's *Technical Support Document for Water Quality-based Toxics Control* (EPA, March 1991)[23] (WQTSD), low-water slack tide is recommended for discharges to estuaries and coastal bays. For ocean discharges, the 10th percentile "worst case" value for the cumulative frequency for each design parameter should be used as design conditions:

> "In estuaries without stratification, the critical dilution condition includes a combination of low-water slack at spring tide for the estuary and design low flow for riverine inflow. In estuaries with stratification, a site-specific analysis of a period of minimum stratification and a period of maximum stratification, both at low water slack, should be made to evaluate which one results in the lowest dilution.
>
> "After either stratified or unstratified estuaries are evaluated at critical design conditions, an off-design condition should be checked. The off-design condition (e.g., higher flow or lower stratification) recommended for both cases is the period of maximum velocity during a tidal cycle. This off-design condition results in greater dilution than the design condition, but it causes the maximal extension of the plume. Extension of the plume into critical resource areas may cause more water quality problems than the high-concentration, low-dilution situation.
>
> "Recommendations for a critical design for coastal bays are the same as for stratified estuaries. The period of maximum stratification must be compared with the period of minimum stratification in order to select the worst case. The off-

[21] EPA, 1991, Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, p. 74.
[22] EPA, 1991, Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, p. 74.
[23] https://www3.epa.gov/npdes/pubs/owm0264.pdf

design condition of maximum tidal velocity should also be evaluated to predict the worst-case extent of the plume.

"For deep ocean discharges, the 10th percentile value from the cumulative frequency of each parameter should be used to define the period of minimal dilution."

Therefore, although EPA has considered Gloucester's proposed initial dilution, we find that the assumptions and results of the UMERGE model most closely meet the recommendations of the WQTSD.

The size of the ZID has not been changed for the Final Permit and is based on guidance from EPA's 1994 Amended 301(h) Technical Support Document which states: "In general, the ZID can be considered to include that bottom area and the water column above that area that is circumscribed by distance d from any point of the diffuser, where d is equal to the water depth."[24] Based on the size of the ZID, using the UMERGE model as explained above, EPA estimated the critical initial dilution[25] ("CID") to be 65:1 for the dry weather flow (6.3 MGD effluent flow) and 59:1 for wet weather flow (10 MGD effluent flow) and used a dilution factor of 64:1 for calculating effluent permit limits, which is the interpolated value between the two flow scenarios and most likely representative of the dilution at the proposed design flow of 7.24 MGD. It is EPA's determination that using the UMERGE model provides an appropriate level of accuracy and conservatism.

EPA also notes that if it replaced the 64:1 dilution factor described above with the less conservative CID of 79:1 noted in the comment, it would neither materially impact EPA's analysis nor change its determination that the City's request for renewal of its previous CWA § 301(h) modification must be denied. This is further explained below.

Since bacteria, TPH and O/G limits were derived without consideration for dilution, consistent with the Massachusetts Mixing Zone Policy,[26] an increase in the dilution factor would not change these limits. In addition, under the MA Toxics Policy,[27] WET limits are determined by dilution *ranges*. Whether the current (64:1) or recalculated (79:1) dilution factor is used, the Gloucester discharge falls within the 20 to 100 dilution range under the MA Toxics Policy. Therefore, the WET limits would remain the same in either case.

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[24] EPA's Amended 301(h) Technical Support Document ("TSD"), 1994, page 56.

[25] Evaluation of the City of Gloucester Initial Dilutions for Proposed 1995 Flows and Effluent Characteristics, and Modified Outfall Design, Draft Report, Tetra Tech, Inc., for U.S. EPA, November 1989.

[26] Specifically, the Massachusetts Mixing Zone Policy, January 8, 1993, Table 2, Summary of Mixing Zone Policy, Section 3. Minimum Size, states that: "Minimize by technology; design, operation, location, level of treatment, [and] Meet criteria within the ZID, or; justify larger area through antidegradation provisions."

[27] The Massachusetts Toxics Policy, February 23, 1990, Table II Whole Effluent Toxicity Requirements for NPDES Permits.

The only permit limits that might change due to an increased dilution factor would be the acute and chronic limits for total residual chlorine ("TRC"). The following calculations for TRC using a dilution factor of 64:1 are taken from Page 17 of the 2010 Fact Sheet.

> TRC Limits Calculated Using the 64:1 Dilution Factor:
> Acute Chlorine Salt Water Criterion = 13 ug/l
> Chronic Chlorine Salt Water Criterion = 7.5 ug/l
> (Acute criterion * dilution factor) = Acute (Maximum Daily)
> 13 ug/l x 64 = 832 ug / (l/1000) = 0.83 mg/l Maximum Daily
> (Chronic criterion * dilution factor) = Chronic (Average Monthly)
> 7.5 ug/l x 64 = 480 ug/l / (l/1000) = 0.48 mg/l Average Monthly

EPA has also recalculated the TRC limits using the commenter's proposed dilution factor of 79:1. These calculations are presented below:

> TRC limits recalculated using a 79:1 dilution factor:
> (Acute criterion * dilution factor) = Acute (Maximum Daily)
> 13 ug/l x 79 = 1027 ug / (l/1000) = 1.0 mg/l Maximum Daily
> (Chronic criterion * dilution factor) = Chronic (Average Monthly)
> 7.5 ug/l x 79 = 593 ug/l / (l/1000) = 0.59 mg/l Average Monthly

A comparison is presented immediately below of the Final Permit's limits with the limits recalculated based the dilution factor of 79:1.

Final Permit Limits:	Recalculated Limits:
0.83 mg/l Maximum Daily	1.0 mg/l Maximum Daily
0.48 mg/l Average Monthly	0.59 mg/l Average Monthly

EPA has not changed the TRC limits in the Final Permit, however, because, as explained above, EPA concludes that its estimated dilution factor is a better estimate than the value offered by the commenter.

Comment 10.

IV.B. The Discharge Can and Will Comply with Water Quality Standards for Toxicity. Although explicitly acknowledging that the WPCF's effluent would meet numeric state water quality standards for toxicity at the edge of the ZID, EPA nonetheless denies the 301(h) waiver on the basis of the results of effluent toxicity testing. It is arbitrary and capricious and without legal foundation for EPA to equate these test results with a failure to meet 301(h) criteria.

The Massachusetts water quality standard for toxicity for all waters includes a general narrative standard as well as numeric standards for most pollutants:

> All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR

> 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher. 314 CMR 4.05(5)(e).

The MWQS standards allow water quality criteria to be exceeded inside of mixing zones "...so long as there is safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations." 314 CMR 4.03(2).[28]

EPA acknowledges that the WPCF meets all of the numeric water quality standards for toxicity in its tentative decision (p. 23). However, EPA concludes that the WPCF discharge does not meet the narrative MWQS for toxicity. This is incorrect. EPA's tentative waiver denial states that "an end-of-pipe WET limit of 1 TU [i.e., LC50 > 100% effluent] is required by the [MassDEP] Toxics Policy" (p. 15). EPA then states (TD at 16-17):

> The WPCF's effluent has frequently exceeded the existing permit's state water quality standards-based effluent limit for preventing acutely toxic effects. Based on this information, and in the absence of any data or analysis indicating that this pattern of exceedances would change if the WPCF's waiver were renewed, EPA Region 1 concludes that the applicant has failed to show that, at the time the renewed modification would become effective, its discharge would meet the state standards for toxicity at and beyond the ZID.

EPA is wrongly conflating end-of-pipe limits with ambient water quality standards. The "Toxics Policy" EPA cites a document entitled "Massachusetts Water Quality Standards: Implementation Policy for the Control of Toxic Pollutants in Surface Waters, February 23, 1990" ("Toxics Policy"). [Footnote: The tentative waiver decision states that the Toxics Policy provides information required by EPA under 40 CFR § 131.11(a)(2). (Tentative waiver decision at 14.) However, that regulation requires states to provide information on applying narrative standards to "point source discharges of toxic pollutants on water quality limited segments." Massachusetts Bay is not "water quality limited" for any pollutants, including toxic pollutants.]. EPA erroneously relies on the Toxics Policy for the premise that an end-of-pipe limit of 1.0 acute toxic units (TUa) employing Whole Effluent Toxicity Testing is a "water quality standard" that the WPCF must meet. Effluent limits are not water quality standards. Rather, "applicable water quality standards" for toxic pollutants for the 301(h) evaluation are those contained in 314 CMR 4.05(e), as referenced above. [Footnote: Similarly, the supposed "technology-based limit" of 2.0 TU cited by EPA as MassDEP policy is an effluent limit, not a water quality standard. Moreover, neither EPA nor MassDEP provides any justification for this arbitrary number.]

[28] MassDEP memorandum from Susannah King to EPA, clarifying that all organisms are included, December 2, 2021.

Moreover, EPA's reliance on WET testing to conclude that the effluent is causing toxicity at and beyond the ZID is flawed. In fact, the WPCF discharge meets the narrative and numeric water quality standards for toxicity at and beyond the zone of initial dilution, as required by the 301(h) regulations. First, the fact that all numeric effluent standards are met at the boundary of the ZID provides strong evidence that the narrative standard ("free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife") is also met. Second, the WET testing results upon which EPA relies reflect unrealistic laboratory conditions not representative of the conditions at the boundary of the ZID. [Footnote: A number of WET test conditions differ from ambient conditions in the vicinity of the WCPF outfall in ways that increase toxicity to test organisms, making the test inappropriate for use in evaluating Gloucester's 301(h) application. Some of the differences include:

> Dilution and Exposure Time
> The toxicity tests bear no resemblance to what any organism is subjected to at the diffuser. In the laboratory, the exposure time is 48 hours. Because of the diffusers, the highest concentration an individual organism could experience at the edge of the ZID is a 1:59 dilution of the effluent, and that would only be for a matter of seconds. Further dilution occurs rapidly.
>
> Dissolved Oxygen
> Unrealistically low levels of dissolved oxygen in test chambers can stress test organisms. In the laboratory tests, oxygenation of the test chambers is not permitted unless DO drops to 4 mg/l and then oxygenation is only allowed at the rate of 100 bubbles/min. In the results for tests done on the Gloucester effluent since 2001, there was a statistically significant correlation ($p < 0.001$) between the average oxygen concentration at 24 hrs in the test chambers and survival rates of both Menidia and Mysidopsis. In reality, the effluent of the Gloucester wastewater treatment plant is released into an oxygen-rich environment. Regular testing of dissolved oxygen levels at the outfall over the last 20 years show that there is never an issue with concentrations of dissolved oxygen (see, e.g., Table 4). Phytoplankton in the ocean produce at least half of all the oxygen on the planet (e.g. Field et al., 1998) and the photic zone in Massachusetts Bay is very productive.
>
> Temperature
> The laboratory tests are conducted at either 20 or 25 degrees Celsius although the temperature at the outfall never approaches these temperatures. The diffuser releases the effluent at 30 meters depth in Massachusetts Bay where the maximum summer temperature is 10 – 11 degrees C. For most of the year the temperature is well below 10^{o} C. A toxicity identification evaluation (TIE) study conducted on the Gloucester treatment plant effluent identified ammonia as the likely primary cause of toxicity (Brown and Caldwell, 2007). The percentage of unionized ammonia, the fraction toxic to marine organisms, is greatly affected by pH and temperature. Higher temperature and pH increases the amount of un-ionized ammonia. At a pH of 8 and salinity of 32 ppt (approximate conditions at the outfall), the percentage of un-ionized ammonia changes from 1.44% at 10^{o}C degrees to 2.98% at 20^{o} C and 4.28% at 25^{o} C (EIFAC, 1986). Clearly, the temperature of the seawater during the laboratory tests has a dramatic effect on results, essentially doubling or tripling the toxicity of the ammonia component.]

Finally, the City's discharge also meets the MWQS mixing zone provision inside the ZID, [Footnote: Gloucester does not concede that the 301(h) criteria contemplate the application of water quality standards inside the ZID, or that the Toxics Policy's contemplation of an acute toxicity limit inside a mixing zone is a water quality standard for Section 301(h) purposes, particularly since these requirements are inconsistent with 40 CFR § 125.62(c)(3), which

provides requirements for within the ZID. There is no dispute that the discharge meets those requirements.] providing "safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations." To assess compliance with these narrative criteria, the MassDEP Toxics Policy document recommends 0.3 TU as "a conservative (non-time-dependent) acute limit," "[i]n the absence of detailed site-specific exposure histories for all important species." However, this generic guidance is not part of the duly promulgated MWQS regulations and is not appropriate for the Gloucester WPCF discharge, for which there is site-specific evidence that the narrative MWQS standard is met. In the open ocean area receiving the discharge, there is clearly no blockage of passage, and the mixing resulting from the diffuser jet velocity results in rapid dilution. Based on the initial dilution modeling described earlier, the conservative CID of 59:1 is reached within 8 meters of the discharge point and within 20 seconds of the initial time of discharge. Organisms entrained in the plume would, therefore, not be exposed to purported acute toxicity levels for more than a few seconds. More than 20 years of ecological monitoring data support the assessment that there have been no deleterious effects on marine populations (see Gloucester's annual 301(h) reports submitted to EPA). The WPCF's discharge does not violate the MQWS for toxicity.

Response 10

EPA disagrees with several aspects of this comment.

Gloucester's Discharges Have Violated Both the Permit's WET Limits and Massachusetts Water Quality Standards for Toxicity.

The commenter contends that EPA expressly acknowledged in the TD that the WPCF's discharge met "all of the numeric water quality standards for toxicity" but then incorrectly concluded that the discharge violates Massachusetts water quality standards (WQS) for toxicity based on the WPCF's violations of the permit's Whole Effluent Toxicity (WET) limits. EPA has considered this comment but disagrees with it and maintains its conclusion that the City's discharges in violation of the permit's WET limits are also causing or contributing to violations of Massachusetts water quality standards ("WQS"). EPA explains its view below.

The water quality criteria for toxicity in the Massachusetts WQS include both an overarching narrative restriction on toxicity ("All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.") and a provision to address individual pollutants ("For pollutants not otherwise listed in 314 CMR 4.00, the *National Recommended* Water *Quality Criteria: 2002, EPA 822R-02-047, November 2002* published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher."). 314 CMR 4.05(5)(e). The commenter is correct that EPA indicated in the TD, at p. 23, that it had "not found any reasonable potential for the WPCF's effluent to violate chemical-specific standards established to protect aquatic life." Indeed, that is why EPA did not include

chemical-specific, water quality-based effluent limits ("QBELS") in the WPCF's permit for the purpose of controlling the discharge's toxicity. At the same time, however, EPA *did* set *whole effluent* limits in the permit to control toxicity and, as the commenter acknowledges, EPA stated (and documented) in the TD that the "WET tests of the WPCF's effluent indicate that the effluent has frequently exceeded effluent limitations based on criteria in the MSWQS for preventing acutely toxic effects [to aquatic life]." *Id.* EPA also similarly stated in the TD that "the WPCF's effluent has frequently exceeded the existing permit's state water quality standards-based effluent limit for preventing acutely toxic effects" (i.e., the WET limits). TD at p. 16. *See also id.* at 15.

While the commenter argues that it is incorrect to conclude that the City's violations of the WET limits indicate non-compliance with the State's narrative water quality criterion for toxicity, EPA disagrees. Section 301(b)(1)(C) of the CWA requires that permits include any limits "necessary to meet water quality standards." As stated above, Massachusetts WQS include a narrative criterion mandating that "[a]ll surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." 314 CMR 4.05(5)(e). Consistent with Section 301(b)(1)(C) of the CWA and 40 CFR § 122.44(d)(1)(v), EPA included a WET limit in the POTW's existing permit precisely because the Agency determined that there was a reasonable potential that the WPCF's primary-treated effluent would violate the state's narrative water quality criterion for toxicity. As EPA explained in the TD, the Gloucester permit's numeric WET limits restrict the allowable toxicity of the combinations of pollutants present in the POTW's discharge so that by meeting the limit, the City would also comply with the state's narrative water quality criterion for toxicity. *See* TD, at pp. 14-15, 23.[29] As the TD also explained, however, the WPCF's discharge has frequently exceeded the WET limit. Moreover, EPA's ongoing review of the WET data indicates that since issuance of the TD, the WPCF's effluent has continued frequently to exceed the existing permit's WET limits.[30] (*See* Table 2 below and Appendix A).

[29] WET limits are commonly included in NPDES permits for POTWs to determine compliance with narrative water quality criteria prohibiting the discharge of toxic pollutants in toxic amounts. *See* 40 CFR § 122.44(d)(1)(v). POTW wastewater, by its nature, includes a variable combination of pollutants, including chemicals and organic wastes more numerous than the priority pollutant list of chemicals required to be measured individually by the permittee. The WET test is valuable in this context because it measures not only the toxic effects that individual pollutants may have on aquatic life but also any toxic effects that *combinations* of pollutants in the wastewater may have.

[30] It should also be noted that, as detailed in Response 6, above, effluent data from the WPCF and sediment data from the area around the discharge outfall both reveal the presence of various individual toxicants.

Table 2 – Whole Effluent Toxicity Test Results, June 2010 – December 2021

Parameter	**LC50 Acute Menidia**	**LC50 Static 48Hr Acute Mysid. Bahia**
	Monthly Ave Minimum	**Monthly Ave Minimum**
Units	**%**	**%**
Effluent Limit	**100**	**100**
Minimum	**16**	**24.1**
Median	**50**	**100**
No. of Violations	**42**	**20**
6/30/2010	**35.2**	100
9/30/2010	**26.95**	100
12/31/2010	**58.4**	**90.5**
3/31/2011	100	100
6/30/2011	**54.525**	**90.76**
9/30/2011	**20.4**	100
12/31/2011	**26.8**	**72.2**
3/31/2012	**16**	100
6/30/2012	**52.3**	100
9/30/2012	**33.9**	**76.3**
12/31/2012	**16.1**	**52.8**
3/31/2013	**41.3**	100
6/30/2013	**67.4**	**86.8**
9/30/2013	**43**	**72**
12/31/2013	**16.9**	**38.6**
3/31/2014	**21.7**	**74.2**
6/30/2014	**25.7**	**99**
9/30/2014	**30.4**	100
12/31/2014	**61.6**	100

3/31/2015	**59.9**	100
6/30/2015	**39.9**	100
9/30/2015	100	100
12/31/2015	**43**	**71.9**
3/31/2016	**59.9**	100
6/30/2016	**57.6**	100
9/30/2016	**70.7**	100
12/31/2016	100	100
3/31/2017	**61.1**	**82.3**
6/30/2017	100	100
9/30/2017	**50**	**74.6**
12/31/2017	**46.1**	100
3/31/2018	**72.2**	100
6/30/2018	**66.2**	**69.7**
9/30/2018	**31.3**	**68**
12/31/2018	**84.5**	**89.1**
3/31/2019	**67.6**	100
6/30/2019	**56.6**	100
9/30/2019	**47.3**	**74**
12/31/2019	**87.1**	100
3/31/2020	**28.3**	**58.4**
6/30/2020	**25**	100
9/30/2020	**18.2**	**24.1**
12/31/2020	**88.3**	100
3/31/2021	**31.8**	100
6/30/2021	100	100
9/30/2021	**57.9**	**95.9**
12/31/2021	**17.1**	100

The commenter incorrectly argues that meeting numeric effluent limits "at the boundary of the ZID provides strong evidence that the narrative standard ('free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife') is also met." This argument is undercut both factually and legally by the City's violations of the applicable WET limits that were set consistent with EPA regulations and State policy to ensure compliance with the State's narrative toxicity criterion. Just because certain pollutant-specific limits are met does not necessarily mean either that toxic concentrations of *other* individual pollutants are not present or that toxic *combinations* of pollutants are not present. WET limits address these considerations by regulating the toxicity of the *whole effluent* rather than the toxicity of only specific pollutants. In this case, the WET limits were set to ensure that the State's narrative toxicity criterion is met, but the City's discharges have persistently violated those limits.

The WPCF's discharges in violation of the WET limits indicate violations of the Massachusetts narrative toxicity criterion because the WET limits were set for the express purpose of giving effect to, and determining compliance with, the State's narrative criterion. EPA set the permit's WET limits consistent with Massachusetts' specific policy for the regulation of toxic discharges entitled, "Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters" (February 23, 1990) ("Toxics Policy"). Since Gloucester's discharges violate the WET limits, the water body segment receiving the discharge cannot be regarded to be "free from pollutants in concentrations or combinations that are toxic to … aquatic life …," as required by the State's narrative criterion.

The City argues that "EPA is wrongly conflating end-of-pipe [WET] limits with ambient water quality standards …[,]" that "[e]ffluent limits are not water quality standards …[,]" and that the "'applicable water quality standards' for toxic pollutants for the 301(h) evaluation are those contained in 314 CMR 4.05(e) …." Yet, none of these arguments undermine EPA's conclusions. EPA well understands the difference between a discharge-specific effluent limit included in an NPDES permit in order to ensure that the discharge will meet state water quality standards (i.e., a QBEL) and the water quality standards themselves, which specify uses and ambient water quality conditions that water bodies must support and maintain. Although different, QBELs and water quality standards are undoubtedly related. Specifically, water quality standards are implemented by setting discharge permit-specific QBELs when the permitting agency determines that the discharge has a reasonable potential to cause or contribute to violations of the water quality standards unless the QBEL is met. 40 CFR § 122.44(d)(1)(i) – (v). In this case, the WET limits are QBELs set consistent with the State's Toxics Policy to give effect to the State's narrative water quality criterion for toxicity, which requires that the State's waters remain "free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." 314 CMR 4.05(e). Thus, the City's discharges in

violation of the WET limits also represent violations of the State's narrative criterion for toxicity.

EPA Was Correct to Use the Massachusetts Toxics Policy in Setting the Permit's WET Limits

To support its argument that Massachusetts water quality criteria for toxicity are not being violated, Gloucester's comments contend that the Massachusetts Toxics Policy is an inappropriate tool for applying the Massachusetts narrative water quality criterion restricting discharge toxicity set forth at 314 CMR 4.05(5)(e). According to the City, because "this generic guidance is not part of the duly promulgated MSWQS regulations …," it should not be used in setting limits for determining compliance with the State's narrative toxicity criterion. The City is incorrect.

Section 301(b)(1)(C) of the CWA requires that permits contain any limits "necessary to meet [state] water quality standards." When applying state water quality standards, EPA relies on the state's interpretations of its own standards, unless EPA determines that the interpretation is clearly erroneous and would unlawfully result in less stringent permit limits than ought to be included in the permit. The Massachusetts Toxics Policy specifically addresses how discharges should be regulated to meet the State's narrative water quality criterion for toxicity. Moreover, the State's development of the Toxics Policy accords with federal regulations requiring states to identify their intended methods for regulating point source discharges of toxic pollutants based on narrative criteria. *See* 40 CFR § 131.11(a)(2). The regulation calls for states to include such information either as part of the adopted WQS *or* in related documents generated by the State.[31] Therefore, the Toxics Policy does not have to be included in the WQS regulations in order to be applicable and EPA is correct to apply the Massachusetts narrative water quality criterion for toxicity consistent with the State's Toxics Policy.

The commenter also incorrectly argues that the Toxics Policy does not apply to Gloucester's discharge because 40 CFR § 131.11(a)(2) calls for States to identify their methods for regulating based on narrative toxicity criteria point source discharges of toxic pollutants to water body segments that are "water quality limited," but the water body receiving the City's discharge is not "water quality limited." EPA disagrees for two main reasons.

[31] Specifically, 40 CFR § 131.11(a)(1) states that: "States must adopt those water quality criteria that protect designated uses." In addition, 40 CFR § 131.11(a)(2) states that:

> [w]here a State adopts narrative criteria for toxic pollutants to protect designated uses, the State must provide information identifying the method by which the State intends to regulate point source discharges of toxic pollutants on water quality limited segments based on such narrative criteria. Such information may be included as part of the standards or may be included in documents generated by the State in response to the Water Quality Planning and Management Regulations (40 CFR Part 130).

First, the commenter misinterprets the meaning of "water quality limited" as that term is used in 40 CFR § 131.11(a)(2). As defined in 40 CFR § 131.3(h), a water quality limited segment is:

> … any segment where it is known that water quality does not meet applicable water quality standards, and/or is not expected to meet applicable water quality standards, even after the application of the technology-based effluent limitations required by sections 301(b) and 306 of the CWA.

Therefore, EPA interprets the term "water quality limited segment," as used in 40 CFR § 131.11(a)(2), to refer to any portion of a water body receiving a discharge subject to a QBEL. This is because application of a QBEL means it has been determined that a discharge is causing or contributing to, or has a reasonable potential to cause or contribute to, an "excursion above any State water quality standard." *See* 40 CFR § 122.44(d)(1)(i). In that case, the water body is not expected to meet water quality standards if only technology-based requirements are applied.

In the present case, EPA set WET limits for Gloucester's discharge because it determined that there was a reasonable potential that Gloucester's primary treated discharge would cause or contribute to an excursion in the receiving water above the Massachusetts narrative criterion for toxicity. In other words, the water body segment was not expected to meet applicable water quality standards for toxicity after the application of technology-based requirements alone, which in this case called only for primary treatment based on a modification of effluent limits under Section 301(h) of the CWA. As a result, EPA regards the receiving water for the WPCF's discharge to be a "water quality limited segment" within the meaning of 40 CFR § 131.11(a)(2) and application of the Toxics Policy is appropriate under that regulation. Therefore, it was entirely appropriate under 40 CFR § 131.11(a)(2) for EPA to set WET limits for Gloucester in a manner consistent with the Toxics Policy and in an effort to ensure compliance with the Massachusetts narrative water quality criterion for toxicity. (Unfortunately, as discussed above, the City's discharges have persistently violated those WET limits.)

Second, even if the receiving water for Gloucester's discharge was not considered a "water quality limited segment" under 40 CFR § 131.11(a)(2), it would still be appropriate for EPA to use the Toxics Policy in setting WET limits for the City's discharge. While it is true that 40 CFR § 131.11(a)(2) requires states to provide information on how they intend to regulate discharges of toxic pollutants to "water quality limited" segments, the regulation does not bar states from applying the same approach to regulating toxic discharges to water bodies *not* considered to be "water quality limited" in an effort to ensure that generally applicable narrative toxicity criteria in the state's water quality standards will be met in all the state's waters. In this case, the Massachusetts narrative toxicity criterion applies to all the State's waters and the Toxics Policy, which helps to implement the criterion, applies to all discharges of toxic pollutants to the State's waters. *See*, e.g., Toxics Policy at 1 ("This policy applies to all toxic pollutants.") and 7 ("Protection of aquatic life is universally applicable to all

Classes of surface waters."). The State does not limit application of either the toxicity criterion or the Toxics Policy to water body segments that have somehow been designated as "water quality limited." Moreover, 40 CFR § 131.11(a)(2) does not indicate that when EPA is setting permit limits to ensure satisfaction of a state's narrative water quality criteria for toxicity, it should disregard state policies regarding the application of their water quality criteria unless the discharge is to a water body considered to be "water quality limited." Consequently, EPA was correct to apply the Massachusetts Toxics Policy.

Finally, EPA is also correct to use the Toxics Policy in setting WET limits for Gloucester because doing so is consistent with Massachusetts policy regarding "mixing zones," as set out in a MassDEP memorandum entitled, "Massachusetts Surface Water Quality Standards: Implementation Policy for Mixing Zones" (January 8, 1993) (the "Mixing Zone Policy"). Specifically, the Mixing Zone Policy, at p. 4, states that one way to ensure that any mixing zone satisfies Massachusetts WQS with regard to restricting toxicity within the mixing zone is to apply the approach to setting permit limits for toxic discharges that is detailed in the Toxics Policy. Mixing zones are discussed in detail below.

Gloucester's Discharges of Toxic Effluent Do Not Satisfy the Massachusetts Mixing Zone Policy

Gloucester also comments that the City's discharges do not violate State water quality standards because Massachusetts allows for "mixing zones" and, according to the City, the WPCF's discharges satisfy the State's mixing zone requirements. In EPA's view, however, Gloucester's primary treated discharges do *not* meet all the Massachusetts mixing zone requirements.

A mixing zone is a limited area of a receiving water around a point of discharge which provides dilution to the discharge and within which excursions from compliance with water quality criteria may be allowed, subject to certain conditions, by state water quality standards, provided that the state's standards are satisfied at and beyond the edge of the mixing zone. *See* 314 CMR 4.03(2). EPA agrees with the City that Massachusetts, as permitted by EPA regulations, *see* 40 CFR § 131.13, allows for the use of mixing zones in the application of its water quality standards, subject to certain specific conditions. *See* 314 CMR 4.03(2). Thus, EPA also agrees that discharges that satisfy Massachusetts mixing zone requirements could be considered to satisfy the State's water quality standards despite causing certain exceedances of water quality criteria *within* the mixing zone.

In pertinent part, Massachusetts mixing zone regulations provide as follows:

> (2) Mixing Zones. In applying 314 CMR 4.00 the Department may recognize a limited area or volume of a waterbody as a mixing zone for the initial dilution of a discharge. Waters within a mixing zone may fail to meet specific water quality criteria provided the following conditions are met:

(a) Mixing zones shall be limited to an area or volume as small as feasible. There shall be no lethality to organisms passing through the mixing zone as determined by the Department. The location, design and operation of the discharge shall minimize impacts on aquatic life and other existing and designated uses within and beyond the mixing zone.

(b) Mixing zones shall not interfere with the migration or free movement of fish or other aquatic life. There shall be safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations.

314 CMR 4.03(2)(a) and (b). Indeed, Gloucester's comment expressly acknowledges that Massachusetts mixing zone requirements require "safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations."

The Massachusetts Mixing Zone Policy explains in detail how the State's requirements should be applied to ensure that the conditions calling for safe passage through the mixing zone for swimming and drifting organisms, and "no lethality to organisms passing through the mixing zone," are met. The Policy, at p. 4, states as follows:

> [t]o protect swimming and drifting organisms the in-zone quality must be such that these organisms can pass through the mixing zone without acute exposure to toxicants.

One way to prevent acute exposures is to prohibit acute concentrations at the outfall structure or within a short distance from it. The Division's toxic (sic) policy (reference 1) uses 0.3 toxic units as a criterion for acute toxicity. The policy places effluent limits of 1.0 toxic unit on discharges with less than 100:1 dilution and 2.0 toxic units on all others. Additional requirements are imposed where dilutions are very low. These effluent limitations assure that 0.3 toxic units are met within a short distance of the outfall and that acutely toxic exposures will not occur in the mixing zone.

See also Mixing Zone Policy at p. 1; Toxics Policy at p. 10. Thus, the State's Mixing Zone Policy states that the Massachusetts Toxics Policy provides one way to set permit effluent limits that will prevent unacceptable acute toxic exposures within the mixing zone (i.e., the 0.3 toxic units standard will be met "within a short distance of the outfall and … acutely toxic exposures will not occur in the mixing zone") and thereby assure a safe and adequate zone of passage through the mixing zone for swimming and drifting organisms, "with no lethality to organisms passing through the mixing zone as determined by the Department." 314 CMR 4.03(2)(a).

As stated above, EPA followed the State's Mixing Zone and Toxics Policies in setting the permit's WET limits and Gloucester's discharges have persistently violated those limits. As a result, Gloucester's discharges have not provided adequately safe passage through

the mixing zone for swimming and drifting organisms and have not sufficiently precluded lethality to organisms passing through the mixing zone. EPA was correct to apply the Toxics Policy in setting the WET limits and the WPCF's discharges do *not* satisfy the State's mixing zone requirements.

Gloucester's comments ignore the approach to evaluating the acceptability of acute toxic exposures spelled out in the State's Mixing Zone Policy. Indeed, Gloucester does not question that EPA correctly set the WET limits, but instead argues that the Toxics Policy should not be applied in this case and offers an alternative assessment of whether safe and adequate passage through the mixing zone is provided for swimming and drifting organisms. The City argues that there is no blockage of passage because the discharge is to the open ocean, that the City's discharges through its diffuser are rapidly diluted in the receiving water, that the City's modeling indicates that the "the conservative CID of 59:1 is reached within 8 meters of the discharge point and within 20 seconds of the initial time of discharge," and that "[o]rganisms entrained in the plume would, therefore, not be exposed to purported acute toxicity levels for more than a few seconds." While EPA agrees that passage is not physically blocked at the site of the discharge, that is not the key issue. The key issue is whether the risk posed to swimming or drifting organisms passing through the mixing zone from the potential exposure to acutely toxic discharges is acceptable. This issue is addressed by EPA's application of the WET limits consistent with both Massachusetts' Toxics Policy and Mixing Zone Policy. Moreover, setting the WET limits consistent with Massachusetts policy takes available dilution into account, using 0.3 toxic units as a criterion for acute toxicity but imposing an effluent limit of 1.0 toxic unit for discharges receiving dilution of more than 10:1 but less than 100:1 dilution. (As a result, the effluent limits would be the same whether 59:1 is considered to be the available dilution, or the less conservative dilution value of 79:1, as proposed by Gloucester in Comment 9, is used.) Gloucester's suggestion that the discharges satisfy State mixing zone requirements because organisms would only be exposed to acutely toxic discharges for a few seconds is not supported by physical modeling and amounts to speculation. In addition, this speculation misses the point that the WET limits were properly set for this discharge to "assure that 0.3 toxic units are met within a short distance of the outfall and that acutely toxic exposures will not occur in the mixing zone …" and those limits have been persistently exceeded. As a result, the City's primary treated effluent neither satisfies Massachusetts mixing zone requirements nor State water quality standards.

Gloucester's Effluent Discharges Do Not Meet Massachusetts Water Quality Standards at the Boundary of the Zone of Initial Dilution

The "Zone of Initial Dilution" ("ZID") is an important concept under Section 301(h) of the CWA and EPA's regulations thereunder. Specifically, a ZID is a type of mixing zone used in evaluating applications for the modification of secondary treatment limits under Section 301(h). EPA regulations define the ZID as "the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, *provided that the*

ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards."[32] 40 CFR § 125.58(dd) (emphasis added). Therefore, as Gloucester's comment acknowledges, a ZID is subject to any restrictions in the mixing zone requirements that apply under state water quality standards. The restrictions of Massachusetts' Mixing Zone Policy had been described above (e.g., "safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations;" and "no lethality to organisms passing through the mixing zone as determined by the Department").

EPA regulations also state that:

> [a]t the time the 301(h) modification becomes effective, the applicant's outfall and diffuser must be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater such that the discharge does not exceed at and beyond the zone of initial dilution:
>
> (i) All applicable water quality standards ….

40 CFR § 125.62(a)(1)(i)). *See also* 33 U.S.C. 1311(h)(9). The text of the regulation implies that, although compliance with water quality standards must be maintained at and beyond the boundary of the ZID, exceedances of water quality standards *within* the ZID will be tolerated. Additional EPA regulations, however, set limits on any exceedances within the ZID. First, as stated above, 40 CFR § 125.58(dd) dictates that the ZID is subject to the restrictions of state mixing zone requirements. Second, 40 CFR § 125.62(c)(3) precludes "extreme adverse biological impacts" within the ZID.

Gloucester comments that "the WPCF's discharge meets the narrative and numeric water quality standards for toxicity at and beyond the zone of initial dilution, as required by 301(h) regulations…[,]" but EPA disagrees. As explained above, Massachusetts water quality standards dictate that mixing zones must provide, among other things, "safe and adequate passage for swimming and drifting organisms" through the mixing zone with "no lethality to organisms passing through the mixing zone …." 314 CMR 4.03(2)(a) and (b). *See also* Mixing Zone Policy at 1. As also explained above, the Massachusetts Mixing Zone Policy identifies that WET limits set under the Massachusetts Toxics Policy can be used to determine the acceptability of any acute toxic effects within the mixing zone caused by a discharge. Therefore, violations of such WET limits are unacceptable within a mixing zone under Massachusetts water quality standards. As a result, such WET limit violations are also unacceptable within a ZID under EPA's regulations, which dictate that ZIDs are subject to the restrictions of state mixing zone requirements.

Accordingly, EPA also disagrees with Gloucester's more specific comments suggesting that ambient monitoring results demonstrate that the discharge is not causing or

[32] In this case, EPA estimated the ZID area to be approximately 55.1 meters x 115.2 meters, which falls within the range of the ZID dimensions provided by Gloucester in its 2001 Permit Application[32] (i.e, 28.4 +/- 33 meters x 88.4 +/- 33 meters).

contributing to a violation of Massachusetts WQS for toxicity at the edge of the ZID. The City argues that its discharges satisfy the State's Mixing Zone Policy – which the City notes allows exceedances of water quality criteria within a mixing zone (in this case, the ZID) as long as safe passage is provided through the mixing zone for swimming and drifting organsisms with no deleterious effects on their populations – because, according to the City, there is no evidence of harmful effects to *populations* of aquatic organisms. Yet, even if one assumes for the sake of argument that there is no evidence of harmful effects on populations of swimming and drifting organisms, the City's suggestion that its discharges satisfy the Massachusetts Mixing Zone Policy is contradicted by the WPCF's persistent violations of the WET limits. As discussed above, the WET limit violations constitute violations of the State's narrative water quality criterion for toxicity with respect to acute toxicity, the State's mixing zone requirements, and the federal ZID requirements.

Finding WET data alone sufficient to establish that a problem exists is consistent with EPA's longstanding policy to consider different types of toxicity assessments independently.[33] In other words, where different types of monitoring data – such as WET test data, biological surveys and chemical analyses – are available to assess whether a water body is attaining aquatic life uses or satisfying water quality criteria, or to identify whether certain sources of pollution have the potential to cause or contribute to non-attainment of aquatic life uses or water quality criteria, one type of assessment showing a problem is sufficient to identify an existing or potential impact/impairment. Moreover, a satisfactory assessment of one type does not override a finding of existing or potential impairment based on an assessment of another type.

The City argues that it was "arbitrary and capricious and without legal foundation" for EPA to conclude on the basis of the WET violations that the WPCF's discharge does not satisfy the criteria for receiving a CWA § 301(h) modification, and further suggests that WET limits applied *at the point of discharge* cannot be used to determine if the Massachusetts narrative water quality criterion for toxicity is met *at the edge of the ZID*. EPA disagrees. First, as already explained above, the WET violations show that the City's discharges violate Massachusetts mixing zone requirements and, as a result, also violate federal requirements for the ZID under Section 301(h) of the CWA. Put differently, the ZID cannot provide an area within which WET violations are allowed if those same violations are not allowed by the State's mixing zone requirements. *See* 40 CFR § 125.58(dd). Second, as explained in the Toxics Policy, WET limits applied at the point of discharge already reflect (i.e., give credit for) the dilution provided by the ZID.Under the MA Toxics Policy, the applicable effluent limit to restrict acute toxicity within the mixing zone for Gloucester is 1.0 TU (*see* Table II, page 8), as specified in Table II, and:

[33] "Transmittal of Final Policy on Biological Assessments and Criteria," Tudor T. Davis, (EPA, June 19, 1991)(822/R-91-101).

> … Table II takes mixing zone considerations and other effluent limitations into account. It shows allowable whole effluent toxicity limitations and testing requirements based on available dilution at critical conditions.

Thus, the availability of dilution in the ZID, as well as the mobility of swimming and drifting organisms, have all been accounted for in the derivation of the permit's WET limits. This is why the permit does not currently include a WET limit to address *chronic* toxicity – swimming and drifting organisms may not stay in the mixing zone long enough to experience chronic effects – and the recommended criterion of 0.3 TU is for preventing *acute* toxic effects. Moreover, the WET limit for acute toxicity at 1.0 TU recognizes Gloucester's critical dilution factor ("DF") of 59:1 and does not necessarily preclude *any* toxicity at the end of the discharge pipe but is intended to ensure that the 0.3 TU criterion is met "within a short distance of the effluent pipe." Toxics Policy, pp. 9-10.[34] Therefore, although the WET limits apply to test results on samples of Gloucester's effluent collected at the end-of-pipe, the limits actually determine whether the narrative toxics criterion is met *at the edge of the ZID after initial dilution*.

In addition, as discussed above, the State's Mixing Zone Policy expressly directs that the Toxics Policy can be applied to ensure that an unacceptable level of acute toxicity does not occur within a mixing zone (which in this case is the ZID).[35] Under the MA Toxics Policy, dilution is already incorporated when setting an LC_{50} limitation, and although WET requirements are applied as "end of pipe" limits, they are set to measure compliance with the State's toxicity criterion at the edge of the ZID after available dilution. As a result, Gloucester's violations of the WET limits are unacceptable violations of water quality requirements within and at the edge of the ZID and mixing zone. The City has not identified any data or analysis indicating that the existing pattern of exceedances would change if the WPCF's modified effluent limits under Section

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[34] This permit limit is equivalent to an LC_{50} (the concentration of effluent that is lethal to 50% of the test organisms) using 100% effluent. As explained in Part V.B. of the Toxics Policy, "the recommended criterion to prevent acutely toxic effects in the receiving water is 0.3 T.U. This is based on an adjustment factor of one-third used to extrapolate the LC_{50} [(concentration at which 50% of the test organisms do not survive)] to an LC_1 (concentration at which 1% of the test organisms do not survive)." For discharges with a dilution factor of less than or equal to 100, the end-of-pipe limit of 1.0 T.U. is designed to ensure that the 0.3 T.U. criterion will be met "within a short distance of the effluent pipe". The dilution factor applicable to Gloucester's discharge is less than 100:1. *See* Response 9, above. This WET limit is also consistent with EPA's Technical Support Document which recommends the 0.3 T.U. acute WET criterion to ensure surface waters are not acutely toxic to more than 1% of the organisms (USEPA 1991a; Section 2.3.3, page 35).

[35] The 1990 Massachusetts Mixing Zone Policy, at p. 4, states as follows:

> One way to prevent acute exposures is to prohibit acute concentrations at the outfall structure or within a short distance from it. Mass DEP's toxic policy (reference 1) uses 0.3 toxic units as a criterion for acute toxicity. The policy places effluent limits of 1.0 toxic unit on discharges with less than 100:1 dilution and 2.0 toxic units on all others. Additional requirements are imposed where dilutions are very low. These effluent limitations assure that 0.3 toxic units are met within a short distance of the outfall and that acutely toxic exposures will not occur in the mixing zone.

301(h) were renewed.[36] Therefore, EPA concludes that Gloucester's primary treated discharge would continue violating the Massachusetts narrative water quality criterion for toxicity, as reflected in the permit's WET limits, and the City does not satisfy the requirements for obtaining effluent limit modifications under Section 301(h) of the CWA. *See* 40 CFR § 125.62(a)(1)(i).

The Adverse Biological Effects Associated with the City's Discharges of Primary Treated Effluent Further Support EPA's Denial of Gloucester's Request for Renewal of its Primary Treatment-Based Effluent Limits under Section 301(h) of the CWA

The City incorrectly comments that its discharge "meets the MWQS mixing zone provision inside the ZID, providing 'safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations.'" As discussed above, the City's discharges violate the permit's WET limits for acute toxicity, which means that those discharges are *not* providing safe and adequate passage through the ZID for swimming and drifting organisms, as required by Massachusetts water quality standards. (EPA is not aware of any data addressing whether discharges within the ZID have or have not caused or contributed to any deleterious effects on populations of swimming and drifting organisms.)

In a footnote in its comment, the City acknowledges that the Massachusetts Toxics Policy calls for application of an acute toxicity limit within a mixing zone, but goes on to state that it "does not concede" either that "the 301(h) criteria contemplate the application of water quality standards inside the ZID …" or that such a toxicity limit is a "water quality standard for 301(h) purposes, particularly since these requirements are inconsistent with 40 CFR § 125.62(c)(3), which provides requirements for within the ZID." Yet, as EPA has explained farther above in these responses to comments, EPA regulations under Section 301(h) of the CWA bar a ZID from being any larger than allowed by the mixing zone requirements of the applicable state water quality standards. 40 CFR § 125.58(dd). Thus, delineation of a ZID under Section 301(h) does not excuse compliance with state water quality standards beyond what is allowed by the state's mixing zone requirements. In the instant case, application of the acute WET limits to Gloucester's discharge is consistent with the requirements of both Massachusetts' Toxics Policy and its Mixing Zone Policy. Therefore, it is also consistent with the requirements for a ZID under Section 301(h) of the CWA. Furthermore, while the WET limits are not themselves state water quality standards, they *are* effluent limits used to measure and assure compliance with the narrative toxicity criterion in Massachusetts' water quality standards.

Contrary to Gloucester's comment, application of the WET limits consistent with the requirements of state water quality standards is *not* inconsistent with 40 CFR § 125.62(c)(3), which specifies certain conditions that must be maintained within a ZID, such as that "[c]onditions within the zone of initial dilution must not contribute to extreme adverse biological impacts …." Federal regulations prohibiting primary treated

[36] Refer to Appendix A showing current exceedances for WET through July 2021.

discharges from causing "extreme adverse biological impacts" within the ZID do not also somehow bar either the application of state mixing zone requirements calling for safe and adequate passage through the ZID for swimming and drifting organisms or the application of WET limits that give effect to the State's safe passage requirement. Indeed, as explained previously, EPA regulations at 40 CFR § 125.58(dd) require that a ZID satisfy applicable state mixing zone requirements.

Gloucester's comment also makes a number of additional arguments concerning the biological effects of its discharges of primary treated effluent. First, the City asserts that "organisms entrained in the plume would … not be exposed to purported acute toxicity levels for more than a few seconds." Yet, Gloucester has not submitted any physical analysis substantiating that organisms would only be exposed to acutely toxic effluent for a few seconds. (This issue is discussed further below in responses to comments about the use of the WET tests.) Indeed, it seems likely that stationary or slower moving benthic organisms might be exposed to toxic discharges for considerably more than a few seconds, given the continuous nature of the City's discharge. Furthermore, while it is unclear what the exposure time to toxic discharges is for pelagic organisms, the bottom line is that the WET limits are designed to ensure that swimming and drifting organisms remain safe from acutely toxic discharges, but the City's discharge has persistently exceeded those limits.

Second, the City's comments urge that that biological monitoring data demonstrates the presence of a "balanced indigenous population of shellfish, fish and wildlife" just beyond the zone of initial dilution.[37] EPA regulations under Section 301(h) of the CWA provide as follows:

(c) *Biological impact of discharge.*

* * *

(2) A balanced indigenous population of shellfish, fish, and wildlife must exist:

(i) Immediately beyond the zone of initial dilution of the applicant's modified discharge; and

(ii) In all other areas beyond the zone of initial dilution where marine life is actually or potentially affected by the applicant's modified discharge.

The biological monitoring data referred to in the comment consists of benthic organism data collected at a series of sampling locations located at and beyond the edge of the ZID.

[37] EPA regulations define "balanced indigenous population" of shellfish, fish, and wildlife ("BIP") to mean: … an ecological community which:

(1) Exhibits characteristics similar to those of nearby, healthy communities existing under comparable but unpolluted environmental conditions; or

(2) May reasonably be expected to become re-established in the polluted water body segment from adjacent waters if sources of pollution were removed.

40 CFR § 125.58 (f)(1) and (2).

EPA has carefully evaluated the available data and does not agree that it indicates the presence of a balanced indigenous population of shellfish, fish, and wildlife immediately beyond the ZID. To the contrary, EPA concludes that the benthic data indicates that a balanced indigenous population does not exist immediately beyond the ZID. EPA discusses this benthic data in detail below in the Responses to Comments 16-17.

Third, the City comments that there is "no dispute" that Gloucester's primary treated effluent satisfies 40 CFR § 125.62(c)(3), which requires the following:

> (3) Conditions within the zone of initial dilution must not contribute to extreme adverse biological impacts, including, but not limited to, the destruction of distinctive habitats of limited distribution, the presence of disease epicenter, or the stimulation of phytoplankton blooms which have adverse effects beyond the zone of initial dilution.

At present, EPA has not determined that the City's discharges of primary treated effluent are contributing to "extreme adverse biological impacts" within the ZID, but EPA notes that the benthic organism data, coupled with the WET data, does indicate likely toxic effects from the discharge on benthic life within the ZID. That said, EPA concludes that it does not presently have sufficient information to determine whether those harmful effects rise to the level of "extreme adverse biological impacts." This conclusion could change in the future based on additional data or analysis. (As noted above, the benthic data is discussed in more detail in Responses 16-17 below.)

Finally, EPA points out that under Section 301(h)(2) of the CWA, 33 U.S.C. 1311(h)(2), an applicant seeking modification of secondary treatment requirements under Section 301(h):

> … must demonstrate[ ] to the satisfaction of the Administrator that … (2) the discharge of pollutants in accordance with such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures … the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife … in and on the water ….

See also 40 § CFR 125.62(c)(1) ("The applicant's modified discharge must allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife."). Given the persistent WET violations by the City's primary treated discharge, as well as the data indicating harm to benthic life within and immediately beyond the ZID, the City has not demonstrated to EPA's satisfaction that continuing its discharges of primary treated effluent will result in water quality that "assures" the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in the water receiving the City's discharge. This conclusion is discussed in more detail in Response 16, below.

EPA's Use of the WET Tests is Not Flawed Because of Alleged Differences Between Conditions at the Site of Gloucester's Discharge and Conditions in the Lab Tests.

EPA regulations governing NPDES permits directly address the use of WET testing and WET limits. First, 40 CFR § 122.44(d)(1)(i) provides that permit limits must control all pollutants that the permitting authority determines will or may be discharged at levels that will cause, contribute to, or have the reasonable potential to cause an excursion above any State water quality standard, including narrative water quality criteria. Second, 40 CFR § 122.44(d)(1)(v) provides that when the permitting authority determines that a discharge will (or may) cause, have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative criterion for toxicity, then "the permit must contain effluent limits for whole effluent toxicity."[38] (Similarly, 40 CFR § 122.44(d)(1)(iv) provides that a permit must contain whole effluent toxicity limits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contribute to an in-stream excursion above a numeric criterion for whole effluent toxicity.) In addition, EPA's WET tests have been upheld in federal court. *See Edison Elec. Inst. v. EPA*, 391 F.3d 1267, 1274-75 (D.C. Cir. 2004).

As discussed above, the Massachusetts WQS include a narrative criterion to limit toxicity and EPA determined that Gloucester's primary treated discharge had a reasonable potential to cause or contribute to in-stream excursions above the Massachusetts criterion. Therefore, in accordance with the above-discussed EPA regulations, EPA included WET limits in Gloucester's NPDES permit. EPA set the limits, and accounted for dilution provided by the ZID at the location of Gloucester's discharge, in a manner consistent with both the Massachusetts Mixing Zone Policy and the MassachusettsToxics Policy. Contrary to the comment, EPA's approach to this was not "flawed." EPA followed the standard approach, spelled out in EPA regulations and consistent with Massachusetts water quality standards, of using WET limits and WET testing in the application of the state's narrative water quality criterion for toxicity. As it has turned out, the WPCF's primary treated effluent discharges have persistently violated the permit's WET limits.

WET limits are used because numeric, pollutant-specific permit limits are not always sufficient to ensure that narrative toxicity criteria are satisfied. *See* 40 CFR § 122.44(d)(1)(v). First, chemical-specific numeric water quality criteria – that would support setting chemical-specific numeric permit limits – have been set for only a limited number of the chemicals that may be present in a POTW's effluent and have toxic effects, either individually or in combination with other chemicals in the discharge. Second, POTW effluent can contain a changing variety of pollutants and pollutant concentrations and, as a result, even if no single pollutant has been determined to be present in a harmful amount, the *changing mixtures* of different pollutants in the wastewater may be harmful to aquatic organisms due to interactions among the

[38] The regulation provides an exception so that whole effluent toxicity limits are not required if chemical-specific limits are demonstrated to be sufficient to attain any applicable narrative and numeric State water quality criteria. 40 CFR § 122.44(d)(1)(v). In this case, however, no such demonstration has been made.

pollutants. WET tests address these issues by measuring the toxicity of an entire effluent by assessing the growth and reproduction (chronic toxicity) or mortality (acute toxicity) of test organisms exposed to the effluent. This approach can identify toxicity regardless of whether the effect is caused by individual pollutants or combinations of pollutants in the discharge. Thus, WET testing is a biological testing approach in which test organisms are exposed in the laboratory to samples of an effluent at various concentrations and the adverse effects on the organisms, if any, are measured. If test water containing a particular concentration of the effluent is toxic to the test organisms in the laboratory, then it is presumed that the effluent also threatens toxic effects to aquatic life in the receiving water at that concentration.

Gloucester comments that the Agency's "reliance on WET testing to conclude that the effluent is causing toxicity at and beyond the ZID is flawed" due to a variety of alleged differences between conditions at the WPCF's discharge site and conditions used in the laboratory WET tests. Gloucester argues that the lab WET tests use an exposure time that is too long, dissolved oxygen (DO) levels that are too low, and temperatures that are too high for the tests to be useful in deciding whether to grant or deny Gloucester's request for modified effluent limits under Section 301(h) of the CWA. As explained below, EPA disagrees with this comment. *See also* Response 53, below.

- *Exposure time:* The City argues that "[b]ecause of the diffusers, the highest concentration an individual organism could experience at the edge of the ZID is a 1:59 dilution of the effluent, and that would only be for a matter of seconds. Further dilution occurs rapidly." EPA disagrees with this comment. Gloucester has not submitted any physical analysis demonstrating that organisms would only be exposed to high concentations of the discharge for a matter of seconds. Given that detailed site-specific time-exposure histories for all important species have not been provided by the commenter, EPA concludes that it is necessary, consistent with Massachusetts policy, to set a conservative (non-time-dependent) acute toxicity limit.[39] In addition, exposure to the discharge would be intensified if the discharge plume is reentrained within the area of the discharge, and/or if there is a background buildup of pollutants in the area of the discharge. EPA is not aware of any physical studies of reentrainment. Therefore, the City has not shown that these conditions are *not* occurring and experts in the field of hydraulic engineering caution that dilution may be significantly overestimated if reentrainment of a discharge plume is assumed to be zero when models are used to estimate the available dilution.[40] Gloucester's primary treated discharge is exceeding the acute WET limit and EPA cannot make unsupported assumptions to downplay the discharge's potential adverse effects.

[39] The 1990 Massachusetts Mixing Zone Policy, at p. 10, states as follows: "In the absence of detailed site-specific time-exposure histories for all important species, it is necessary to set a conservative (non-time dependent) acute limit."

[40] Abessi, O. and Roberts, P.J.W. (2014), "Multiport Diffusers for Dense Discharges." *Journal of Hydraulic Engineering*, (04014032, pages 1-11).

Aside from the technical issues with determining the exposure time, EPA disagrees with the underlying assumption that the duration of the test must match estimated exposure times at the point of discharge in order to have value. The value of the WET tests is in their ability to consistently measure the aggregate toxicity of a complex effluent. In addition, it is neither practicable nor required for EPA to create individualized WET tests for every discharger to match the precise discharge temperature, effluent concentration, and duration of exposure of organisms at the discharge site, all of which may vary under different conditions, and all while using the most sensitive species likely to be exposed to the effluent at the discharge site. Instead, WET test conditions are standardized to optimize test organism performance. For example, other than the effluent, all factors such as temperature, salinity, dissolved oxygen, food given to the organisms each day, and other criteria, are kept constant in order to maintain the health of the test organisms while they are subjected to the effluent.

The commenter also has not demonstrated that lethality to the test species was overstated because it increased with longer exposure to the effluent. Survival is measured before the start of the test, at 24 hours and again at 48 hours. Any test subjects that expire shortly after the test begins would first be counted at the end of 24 hours. Without establishing how long it took for lethality to occur to the test subjects, the commenter has not demonstrated that the duration of the tests overestimates the toxicity that occurs at the location of the Gloucester discharge.

In any event, EPA has properly applied the WET tests consistent with the existing permit, EPA regulations and the Massachusetts Toxics Policy. Moreover, as previously mentioned, EPA's WET tests have been upheld in court, and Gloucester's primary treated discharge has persistently violated the WET limits that were set to assure compliance with the State's narrative water quality criterion for toxicity.

- *Dissolved Oxygen ("DO")*: EPA disagrees with the comment that oxygenation is only allowed if DO drops to 4 mg/L. Gloucester's contract laboratory oxygenates the test chambers continuously throughout all WET tests. In addition, the commenter has not provided data to support the suggestion that low dissolved oxygen in the test chambers is diminishing survival during WET testing.

  EPA does not dispute that Gloucester's effluent is well oxygenated at the discharge site after thoroughly mixing with the receiving water, but this does not change anything. Oxygen is added during the WET tests for survival of the test organisms and there is no requirement that DO levels in the test precisely mimic conditions at the point of discharge.

- *Temperature*: Gloucester comments that water temperatures used in the WET tests are much warmer than actually exist at the location of the City's discharge. The City further suggests that WET tests should be conducted at the same temperature as the ambient receiving water in order to provide meaningful results. In addition,

Gloucester urges that the toxicity of the City's discharge is the result of ammonia concentrations and that since ammonia toxicity is magnified by warmer water, the warmer water temperatures in the laboratory WET tests overstate the actual toxicity of Gloucester's discharge in the ocean.

EPA does not agree with the commenter's argument. First, the bottom line is that the WET tests have been properly applied and carried out to assure compliance with the State's narrative water quality criterion for toxicity, and the WPCF's primary treated effluent has persistently violated the permit's WET limits. Second, it is not necessary for water temperatures used in WET tests to precisely match the water temperatures at the discharge site in order for the test to yield meaningful results. WET tests assess the impact of discharge toxicants independent of effects from other factors in the receiving waters, including influences from substrate differences and physical conditions, such as dissolved oxygen, temperature, channelization, flooding and weather cycles. This allows regulatory agencies to use WET testing to specifically identify and control the portion of the impact caused by the pollutant discharges.[41]

EPA also does not agree that the record establishes that the toxicity of the City's discharge is solely the result of ammonia. More specifically, EPA disagrees with the City's characterization of the results of the Toxicity Identification Evaluation (TIE). The Phase I November 2006 TIE report[42] suggested there may be several potential toxicants present. In addition to ammonia, other possible sources of toxicity that were identified include chlorine and chlorination products, heavy metals (notably copper), polymers and cleaning products (e.g., those containing quaternary ammonia). Furthermore, the Phase II TIE (April 2008) clearly identified toxic effects from a combination of factors, not just the presence of ammonia in the effluent.

The Phase II TIE involved a variety of testing and data collection efforts to address recommendations from the Phase I report.[43] In the Phase II TIE, fractionation tests were conducted to evaluate the various potential sources of toxicity. Fractionation involves using the process of elimination to try to determine which pollutants are causing the failed WET tests. Samples were first tested to determine if toxicity was present. Once toxicity was confirmed, fractionation testing began. Raw samples were analyzed for the presence of TKN, ammonia, TSS, BOD, total and dissolved copper, total residual chlorine, CTAS, MBAS and non-ionic surfactants.

The Phase II report provided the following fractionation conclusions:

- Ammonia is likely a contributor to toxicity but is probably not the sole toxicant;
- Copper may contribute to toxicity;
- Chlorination/dechlorination contributes significant toxicity to Mysids;

[41] EPA Technical Support Document for Water Quality-based Toxics Control, March 1991, page 11.
[42] Phase I – TRE/TIE Prepared for City of Gloucester, MA, November 2006.
[43] Phase II – Voluntary Toxicity Identification Evaluation (TIE) Prepared for City of Gloucester, MA, April 2008.

- Surfactants are present at high enough concentrations to contribute to toxicity;
- Data suggests the primary toxicant is likely a pollutant that causes toxic effects and then dissipates over time, and this indicates that chlorination/dechlorination may be a significant contributor to toxicity; and
- Ammonia may also manifest as a primary toxicant that causes toxic effects and then dissipates over time under specific conditions while using biological or physicochemical processes. Gloucester's primary treatment plant uses CEPT which is a physicochemical technology used to treat domestic wastewater. Therefore, the City's current WWTF fits into this problematic category.

The results of Gloucester's effluent monitoring show that the discharge clearly does not meet WQS because the effluent has not been meeting the permitted WET limits. As can be seen from Appendix A, recent acute WET tests performed using the Inland Silverside (*Menidia*) exposed to samples of Gloucester's effluent collected from 2016 to 2021 violated the LC50 permit limit in 17 out of 20 samples (Silversides are more sensitive to ammonia than Mysid), while for the Mysid Shrimp (*Mysid bahia*) (Mysids are more sensitive to chlorine and chloramines than Silversides) there were 8 violations out of 20 samples. Each of these WET limit violations represents an exceedance of the narrative water quality standard requiring that "[a]ll surface water shall be free from pollutants in concentrations or combinations that are toxic to … aquatic life …." *See* 314 CMR 4.05(e).

Again, the TIE evaluated the Gloucester discharge's persistent toxicity. The Phase II report concluded that ammonia and chlorination/dechlorination are the most likely [primary] contributors to observed toxicity, while toxic effects may also result to a lesser degree from surfactants and metals (e.g., copper) in the City's effluent. From a process standpoint, the discharge's toxicity could result from the WPCF overdosing its effluent with sodium bisulfite, which causes toxicity due to a depletion of oxygen during the toxicity test. Excess sodium bisulfite would then likely dissipate with time, which could contribute to the reduced toxicity after samples are held.[44] In EPA's view, because primary treatment uses a higher dose of chlorine to disinfect raw wastewater, and because primary treatment is not designed to remove ammonia from wastewater, Gloucester will likely not be able to alleviate its toxicity problem without upgrading its wastewater treatment technology to secondary treatment. With secondary treatment, ammonia will be removed, metals and other toxic pollutants will be removed, and lower doses of chlorine will be needed, all of which will help reduce the toxicity of the City's effluent. *See, e.g.,* Response 1 (Table 1).

[44] Phase II – Voluntary Toxicity Identification Evaluation (TIE) Prepared for City of Gloucester, MA, April 2008, page 4-1.

Comment 11.

IV.C. The Discharge Can and Will Comply with Water Quality Standards for Oil and Grease. The MWQS state that Class SA waters "…shall be free from oil and grease and petrochemicals." 314 CMR § 4.05(4)(a)(7). EPA has inexplicably turned this narrative standard into a requirement that absolutely no oil, grease or petrochemicals be discharged in the WPCF's effluent, which it knows is impossible in a WPCF with any level of treatment, and which does not take into account the application of a ZID as allowed by Section 301(h).

In Gloucester's 2001 permit, EPA used this same narrative standard to develop an effluent limit of 25 mg/l monthly average for oil and grease (O&G) based on the discharge's dilution factor. EPA's 2010 tentative decision, without justification, states that the current permit limitation was "inappropriate." In the tentative decision, EPA states that the renewal permit limitation should be 0 mg/l, with a compliance limit of 5 mg/l because that is the lowest reliably measurable concentration. O&G has been detected above 5 mg/l in the plant's discharge, and therefore EPA concludes that Gloucester has failed to show that its discharge would meet water quality standards for O&G at and beyond the ZID.

EPA's translation of the "free from" water quality standard for oil and grease into a 5 mg/l standard for the WPCF effluent lacks a rational basis. Based on the critical initial dilution of 59:1 posited by EPA, even an effluent concentration of 25 mg/l will result in an ambient concentration of 0.42 mg/l at the edge of the ZID. This is an order of magnitude below the ML of 5 mg/l, which EPA indicates is an appropriate compliance level. Thus, the effluent limitation of 25 mg/l previously implemented by EPA was appropriate and even conservative based on the initial dilution. Because the current discharge consistently meets this limitation, there is no basis to conclude that the effluent will result in any violations of the criterion at the edge of the ZID.

Further, compliance with the MWQS criterion in the receiving waters has been well demonstrated. For the first 12 years of Gloucester's 301(h) monitoring program, levels of oil and grease were measured in the receiving waters. Samples were taken from surface and bottom waters at four stations around the diffuser and at two control sites. In spite of commercial and recreational boat traffic through the area, positive detects were exceedingly rare. [Footnote: In 2000 and 2001 there were no detects for oil and grease in more than 500 samples (Tables 2 and 3).]. As a result, EPA has not required sampling for oil and grease in the waters around the outfall since 2002.

Moreover, the City is unaware of any permits for Massachusetts POTWs discharging to SA waters for which the O&G limit is set at the level EPA says is required. Below are some examples from the EPA Region 1 website of permits for POTWs discharging to SA waters. None of these even have an O&G limit, much less a 0 mg/l requirement.

- Cohasset Wastewater Treatment Plant (NPDES Permit MA000285, 7/18/2007): No O&G limit or monitoring requirement.
- Rockport Wastewater Treatment Plant (Draft NPDES Permit MA0100145, public notice date 5/20/2009): No O&G limit or monitoring requirement.

- South Essex Wastewater Treatment Facility (NPDES Permit MA0100501):
  - Permit dated 2/9/2001: O&G monitoring/reporting requirement only.
  - Draft permit (2008): No O&G limit or monitoring requirement. The fact sheet states:

    > The current permit includes an effluent limit of 15 mg/l for oil and grease. This value meets the narrative "free from oil and grease and petrochemicals" in the SA criteria. Since the current permit became effective on October 10, 2001, the maximum daily value for oil and grease has not exceeded 9 mg/l and has an average maximum daily value of 7.83 mg/l (n=70). EPA has determined that there is no reasonable potential and has removed the requirement from the permit.

- Dartmouth Water Pollution Control Facility (NPDES Permit MA0101605, 6/19/2009): No O&G limit or monitoring requirement.

EPA should not arbitrarily impose an oil and grease standard which is not achieveable and which has not been applied to other WCPFs discharging to marine SA waters. The existing standard has already been determined to be adequately protective, and thus Gloucester has demonstrated its discharge can and will comply with the water quality standard for oil and grease.

Response 11

Gloucester discharges its primary treated effluent into Massachusetts Bay, which is classified as a Class SA water, the highest of Massachusetts' three marine classifications. *See* 314 CMR 4.05(4)(a), (b) and (c). Designated uses for Class SA waters include providing excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and providing a resource for primary and secondary contact recreation. 314 CMR 4.05(4)(a). In addition, Class SA waters are required to "have excellent aesthetic value." *Id.*[45]

The Massachusetts surface water quality standards also specify water quality criteria for various parameters that apply to the various water body classifications set forth in the standards. For example, the State's water quality criteria restrict the presence of oil and grease ("O/G") and petrochemicals in Class SA, SB and SC waters, and the criterion for SA waters is the most stringent. *See* 314 CMR 4.05(4)(a)(7), (b)(7) and (c)(7). The criteria for SA, SB and SC waters are presented for comparison in the following table:

[45] This requirement for SA waters is even more stringent than the State's requirements for SB waters, which "shall have consistently good aesthetic value," and SC waters, which "shall have good aesthetic value." *Compare* 314 CMR 4.05(4)(a)(7) *with* 314 CMR 4.05(4)(b)(7) and (c)(7).

Section III, Table 1	
314 CMR 4.05(4)(a)(7): For Class SA Waters	314 CMR 4.05(4)(b)(7) and (c)(7): For Class SB and SC Waters
Oil and Grease. These waters shall be free from oil, grease and petrochemicals.	Oil and Grease. These waters shall be free from oil, grease and petrochemicals that produce visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.

The Gloucester Final Permit and related denial of the City's request for a 301(h) modification reflect the State's narrative water quality criterion for SA waters that requires the receiving water to be "free from oil and grease, and petrochemicals," without the qualifications included in the criterion for SB and SC waters. While the former sets an across-the-board "free from" O/G and petrochemicals requirement, the latter requires that waters be free from O/G and petrochemicals to the extent that they would produce certain specified adverse effects (e.g., produce a visible film on the water or impart an oily taste to the water).

Gloucester's NPDES permits have all included O/G limits since the first permit was issued to the City on June 26, 1985. With each permit reissuance, EPA found a reasonable potential for O/G in the City's effluent to cause or contribute to an exceedance of water quality standards and set a permit limit for that pollutant parameter.[46] When Gloucester's first permit was issued, the City discharged its wastewater to Gloucester Harbor, a Class SB CSO Water. The permit set an average monthly O/G limit of 15 mg/l based on the concentration at which a visible oil sheen was considered likely to occur.[47] Thus, consistent with the water quality criterion for SB waters, the limit was established to prevent the discharge from causing a "visible film on the surface of the [receiving] water."

By late 1990, Gloucester's discharge was relocated from Gloucester Harbor to its present location in SA waters outside the harbor. The August 28, 2001, permit included a average monthly limit for O/G of 25 mg/l, but also added a new average monthly limit of 5.0 mg/L for Total Petroleum Hydrocarbons ("TPH"). The 2001 Fact Sheet explained that "[t]he permittee has indicated that the levels of detected oil & grease are most likely animal based, which it believes does not result in a sheen in the discharge…," and that

[46] *See* 40 CFR § 122.44(d)(1)(i) which states that: "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

[47] *See* EPA Memo from Permit Assistance and Evaluation Division, titled: Oil and Grease Limitations in Petroleum Marketing Terminals, dated March 18, 1974, for the basis of the 15 mg/L O/G limit to protect water bodies from oil sheens. https://www3.epa.gov/npdes/pubs/owm483.pdf

"[s]ome fish processing discharges to the plant are believed to contribute food based oils which may make up the majority of oil and grease from the facility."[48] *See also* TD, p. 17 (quoting the following from the 2001 Responses to Comments, p. 4: "monitoring data indicated that, 'most of the oil & grease in the discharge is in the form of food based oils and grease and a small portion is attributable to total petroleum hydrocarbons (TPH).'").

EPA reassessed the O/G and TPH limits for the November 5, 2010 Draft Permit. EPA found that in light of the state's water quality criterion requiring that SA waters be "free from" O/G and petrochemicals, the 2001 permit had "inappropriately" raised the O/G limit to 25 mg/l. TD, p. 17. EPA explained that both it and MassDEP interpreted the "free from" O/G and petrochemicals criterion "to mean that there shall be no detectable oil and grease in discharges to Class SA waters." *Id. See also* 2010 Fact Sheet, p. 14 ("EPA interprets this narrative criterion to require that there shall be no measurable oil and grease present in the receiving waters."). EPA also explained that O/G includes *both* petroleum hydrocarbons *and* vegetable oils and animal fats and related materials, and that both types of O/G can produce a visible sheen on water and potentially harm aquatic life by suffocating fish larvae and coating fish gills. 2010 Fact Sheet, p. 12.[49] In addition, EPA pointed out that petroleum compounds in O/G (and TPH) can be toxic to marine life even at very low concentrations. *Id*.

Finally, EPA noted that the WPCF's effluent data showed that the facility (a) frequently discharged measurable amounts of O/G (though below the 25 mg/L limit), and (b) frequently violated the 5 mg/L limit for TPH. EPA explained that this indicated that the assumption underlying the limits – i.e., that Gloucester's O/G was entirely or primarily from food and/or animal-based sources – was not valid. *Id.*, p. 13. Moreover, EPA found that the City's discharge had a reasonable potential to exceed the State's narrative criterion for SA waters because EPA and MassDEP interpret the criterion to bar the

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[48] *See* Gloucester 2001 Fact Sheet, pages 6-7.

[49] EPA does not agree with any suggestion that discharges of O/G originating from food or animal-based sources are harmless or that only O/G from petroleum-based sources are a concern. Indeed, food and animal-based O/G can cause many similar harms to water quality and marine life as petroleum-based O/G. EPA discusses this reality on its Oil Spills Prevention and Preparedness website where it notes the identical regulatory requirements for petroleum and food-based oils, stating:

> Petroleum oils, vegetable oils, and animal fats share common physical properties and produce similar environmental effects. Like petroleum oils, vegetable oils and animal fats and their constituents can:
>
> - Cause devastating physical effects, such as coating animals and plants with oil and suffocating them by oxygen depletion;
> - Be toxic and form toxic products;
> - Destroy future and existing food supplies, breeding animals, and habitats;
> - Produce rancid odors;
> - Foul shorelines, clog water treatment plants, and catch fire when ignition sources are present; and
> - Form products that linger in the environment for many years.

More information on Vegetable Oils and Animal Fats can be found at the following website: https://www.epa.gov/emergency-response/vegetable-oils-and-animal-fats (*see also*, 40 CFR § 112.2 (definition of "oil").

discharge of measurable quantities of O/G and/or TPH to the receiving water but the WPCF's effluent data clearly evidenced that the City was doing so. *Id.*, p. 14. In order to satisfy the State's "free from" O/G and petrochemicals criterion, EPA specified in Part I.A.1., footnote 8 of the Draft Permit that "[t]he permittee shall have no detectable discharge of oil and grease or TPH." 2010 Draft Permit, p. 4 n. 8. *See also* 2010 Fact Sheet, p. 14; TD, p. 17. To give further effect to this requirement, EPA also included in the Draft Permit a proposed effluent limit of 0.0 mg/L for both O/G and TPH. 2010 Draft Permit, p. 2. *See also* TD, p. 17. As a practical matter, however, EPA understood that a concentration of zero O/G or TPH could not be detected by any existing method.

Therefore, for the 2010 Draft Permit, EPA established a compliance level of ≤ 5.0 mg/l for both O/G and TPH[50] because 5.0 mg/l was the minimum level of quantification (ML)[51] for the EPA-approved analytical method[52] for the analysis of both oil and grease and TPH,[53] EPA Method 1664-A. *See* 2010 Draft Permit, p. 4 n. 8. EPA measures compliance at the ML when there is no EPA approved test method available that is sensitive enough to measure compliance at the level of a specified permit limit.[54] EPA also provided in the 2010 Draft Permit that if it approved a more sensitive method during the permit term, the Permittee would need to use the more sensitive method to measure O/G and TPH (*see* 2010 Draft Permit, p. 4, footnote 8).

Having considered the City's comments and the issues discussed above, EPA has recast the effluent limits for O/G and TPH in the Final Permit to require "non-detect" for those parameters, rather than setting a limit of 0.0 mg/L. This makes sense because existing methods cannot detect a concentration of 0.0 mg/L, and because a limit of non-detect is consistent with the "free from" criterion for SA waters in the Massachusetts water quality standards. As EPA explained previously, the State's criterion requires no detectable or measurable discharges of O/G or TPH to SA waters. Like Part I.A.1.8. in the 2010 Draft Permit, Part I.A.1.8. in the Final Permit makes clear that compliance will be measured at a level of 5 mg/L because that is the ML of the two most sensitive analytical methods currently approved[55] by EPA for the analysis of O/G and TPH,[56] EPA Methods 1664-A

[50] *See* Limits on Page 2 and Permit Footnote 9 on page 4 of the Final Permit.
[51] The minimum level, or ML, is the lowest level at which the entire analytical system must give a recognizable signal and an acceptable calibration point for the pollutant being analyzed. National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual EPA-833-K-10-001, Chapter 5, page 5-21 (September 2010).
[52] 40 CFR § 136.3 Table IB—List of Approved Inorganic Test Procedures, 41. Oil and grease—Total recoverable
[53] Method 1664 refers to non-polar material (NPM) which equates to TPH for the purposes of this procedure.
[54] EPA's Technical Support Document for Water Quality-Based Toxics Control, recommends the use of the minimum level (ML) and specific test methods for establishing compliance levels in permits. This is reiterated in Draft, National Guidance for the Permitting Monitoring and Enforcement of Water Quality-based Effluent Limitations Set below Analytical Detection/Quantitation Levels, EPA-March, 1994, and again in the Proposed NPDES Rule requiring 'Sufficiently Sensitive' Test Methods (SSTM).
[55] 40 CFR § 136.3 Table IB—List of Approved Inorganic Test Procedures, 41. Oil and grease—Total recoverable
[56] Method 1664 refers to non-polar material (NPM) which equates to TPH for the purposes of this procedure.

and 1664-B.[57] The footnote in the Draft Permit and carried into the Final Permit also explains that the permittee must use the EPA-approved method with the lowest possible ML so that if EPA approves a method with a lower ML in the future, that more sensitive method must be used. If O/G or TPH is detected at or above the applicable ML, then the discharge would be out of compliance with the water quality-based limit of non-detect.

Gloucester's comment suggests that EPA regulations under Section 301(h) of the CWA only require that water quality standards be achieved at the edge of the zone of initial dilution (ZID) and beyond, and that, as a result, detectable levels of O/G or TPH in the effluent (i.e., levels at and above 5 mg/L) should not be a problem as long as these pollutants are not detectable at the edge of the ZID and beyond. The City maintains that given the dilution provided by the ZID, retaining the existing limit for O/G of 25 mg/L at the end of the discharge pipe would easily result in meeting the compliance limit of 5 mg/L (based on the ML) at the edge of the ZID. Therefore, the City argues that the discharge does not pose a water quality problem and the limit of 25 mg/L can be retained.

EPA, however, disagrees with the City's reasoning for several reasons. First, under state policy, Gloucester's discharge must meet the state water quality criteria for O/G and TPH at the end of the discharge pipe.[58] Second, EPA maintains that the discharge from the outfall of detectable levels of O/G and/or TPH violates the "free from" criterion applicable to SA waters even if the levels dip below 5 mg/L at the edge of the ZID and beyond and, therefore, become undetectable at that point. The water quality criterion requiring that SA waters are free from O/G and petrochemicals is not satisfied if the City discharges concentrations of O/G and/or TPH that are admittedly detectable at the end of the pipe in anticipation that dilution provided in the receiving water will reduce pollutant concentrations to a level below the ML by the edge of the ZID so that they can no longer be measured at or beyond that distance. Under such circumstances, the pollutants are known to have been discharged to the water body and their presence is undisputed even if their concentrations drop below the ML by the edge of the ZID.

Furthermore, concentrations of oil and grease greater than 15 mg/L will form a sheen on the surface water which is a nuisance and would violate the state's requirement that SA waters have excellent aesthetic value. According to the MassDEP Mixing Zone Policy, nuisance conditions within a mixing zone should be prevented. The Mixing Zone Policy also states that while "waters within a mixing zone are not expected to meet the same aesthetic requirements as waters outside of a mixing zone," they "should not create a nuisance condition or detract from the overall aesthetic value of the segment." (*See* Mixing Zone Policy at IV(c)). The policy further explains that nuisance conditions may occur "from pollutants that settle to form objectionable deposits; float as debris, scum or other matter; produce objectionable odor, color or turbidity; or produce undesirable species of aquatic life." As discussed above, not only can O/G and TPH harm aquatic life,

[57] EPA Method 1664, Revision A, EPA-821-R-98-002, PB99-121949, February 1999 and EPA Method 1664, Revision B, EPA-821-R-10-001, PB2010-4303, February 2010.
[58] Email correspondence from Susannah King of MassDEP to Ellen Weitzler of EPA, dated May 4, 2022.

but they are pollutants that can float on the water surface, discolor the water, and/or cause objectionable tastes and odors in the water. Allowing excessive discharges of these pollutants within the ZID based on an expectation that their concentrations might become undetectable at the edge of the ZID could create this very problem of nuisance conditions and diminished aesthetic value within the water body segment and the mixing zone. As such, the state's Mixing Zone Policy would not allow such discharges of O/G and TPH within the mixing zone and since EPA regulations limit the scope of a ZID to what is allowed by state mixing zone requirements, *see* 40 CFR § 125.58(dd), such discharges to the ZID should not be allowed under EPA's regulations, either.

Finally, the Mixing Zone Policy also notes that "the measurement of these criteria is often subjective … [and that] [i]mplementation of technology based treatment requirements substantially reduces the possibility of aesthetics becoming a concern." EPA notes that providing a higher level of treatment for Gloucester's effluent, along with increased pretreatment efforts, should alleviate this concern with respect to O/G and TPH.

EPA evaluated Gloucester's DMR effluent data for both O/G and TPH in light of the Final Permit's non-detect limit. From 2016 through 2021, all of the 60 monthly average O/G results exceeded the non-detect limit, and 20 samples out of 60 exceeded the TPH limit.[59] Based on these sample results, EPA has determined that the discharge is currently not free from oil and grease or TPH.[60]

EPA also disagrees with the City's assertion that the oil and grease standard for SA Waters will not be achievable and that secondary treatment would not result in any meaningful environmental benefit for the receiving water in the area of the discharge. First, O/G in wastewater occurs in three forms: a) free, b) attached to other solids, and c) semi-colloidal. Free grease can float and be skimmed from primary sedimentation tanks, but the majority of O/G and TPH in wastewater passes through primary treatment attached to other solids and then settles or remains suspended in the semi-colloidal form (i.e., if the resultant specific gravity is similar to that of water). With secondary treatment, forms b) and c) above pass through the primary sedimentation tank but then float to a secondary treatment unit, such as an activated sludge unit or a trickling filter.

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[59] *See* Appendix A, Effluent TPH Data indicates exceedances from July 2016 – July 2021.

[60] This comment and others point to data showing little or no O/G or TPH in ambient water column samples or sediment as a reason for approving the 301(h) waiver application. Yet, most of these comments refer to the absence of detectable O/G in samples Gloucester obtained and analyzed prior to 2001 as part of the City's monitoring program. The absence of discernible O/G or TPH in these samples taken beyond the ZID does not confirm that effluent is not contributing to exceedances of the free from standard. Conversely, the ambient and sediment monitoring results with detectable concentrations of O/G offer evidence that the receiving water is not meeting the State's standard, which provides additional evidence supporting denial of the 301(h) waiver request. EPA anticipates that with secondary treatment, Gloucester will be able to meet the 5.0 mg/L compliance level for both O/G and TPH at the end of the discharge pipe. The actual treatability of Gloucester's effluent may be confirmed by bench scale testing. Finally, EPA also notes that future improvements to the sensitivity of test methods for O/G and/or TPH may lower the compliance level(s) in the future.

Microorganisms in the secondary biological treatment unit metabolize the O/G, reducing its presence.[61] Second, a study from Topeka, KS, showed that primary treatment removed 45% of the O/G in an effluent, while secondary treatment activated sludge plants removed 84%. Activated sludge plants in Madison, Wisconsin removed up to 94% of the O/G.[62] This demonstrates that secondary treatment is substantially more effective for removing oil and grease and TPH than primary treatment and it most likely explains why the City of Gloucester's primary treatment plant effluent continues to exceed the MAWQS for Class SA waters for oil and grease and petrochemicals. Third, like the 2010 Draft Permit, under the Final Permit, Part I.A.1. 8., compliance will be measured at 5 mg/L for oil and grease (and TPH) based on the ML for the most sensitive EPA methods in 40 CFR Part 136. EPA expects that Gloucester will be able to meet its permit limit at the end of the pipe with additional pretreatment efforts and secondary treatment in place.

Finally, the City comments that EPA-issued NPDES permits to the Massachusetts communities of Cohasset, Rockport, and Dartmouth, as well as to the South Essex Sanitary District (SESD), do not include O/G or TPH limits or monitoring requirements despite the fact that these POTWs, like Gloucester, discharge their wastewater to coastal waters. This comment incorrectly suggests that EPA has treated these POTW permits inconsistently. In response, EPA considered each of these permits, as well as the NPDES permit for Ipswich, MA, and found that EPA's approach has been consistent and that any differences between the various permits' conditions addressing O/G and TPH were appropriately based on the different facts of each case.

Municipal POTWs typically receive wastewater from a variety of residential, commercial, and industrial sources, and the quantity and quality of this influent can vary from day to day. This may be especially so for communities with combined sewer systems that convey both municipal wastewater and stormwater runoff to their POTWs during wet weather, though EPA notes that Gloucester has achieved a large degree of sewer separation in recent years in order to address combined sewer overflow problems. As a result, EPA's judgment is that there is always the possibility of O/G and/or TPH turning up in a POTW's influent and effluent. *See* EPA Permit Writer's Manual (2010), Sections 6.2.1.5 and 6.3.3. Indeed, Gloucester is an example of this, as the City's discharges over the years have included detectable levels of O/G and TPH. In addition, as spelled out above in this response, Massachusetts narrative water quality criteria restrict to varying degrees the presence of O/G and "petrochemicals" in all the state's classes of coastal waters (SA, SB and SC).

Therefore, EPA has included in *all* of the specified permits water quality-based effluent limits designed to ensure compliance with the applicable Massachusetts narrative water quality criterion for O/G. The precise terms of these effluent limits (and monitoring

[61] EPA Guidance Document 440/1-75/066, Pretreatment Requirements for Oil and Grease, Treatability of Oil and Grease Discharged to Publicly Owned Treatment Works, April 1975, page 7.
[62] EPA Guidance Document 440/1-75/066, Pretreatment Requirements for Oil and Grease, Treatability of Oil and Grease Discharged to Publicly Owned Treatment Works, April 1975, page 7.

requirements) vary based on the specific water quality criterion that applies to the receiving waters in question and the data regarding past O/G and TPH discharges from each facility. At the beginning of this response, EPA presents a table juxtaposing the state criterion applicable to SA waters with the criterion that applies to SB and SC waters. EPA explains that the state's criterion requires that SA waters be unqualifiedly "free from" O/G and petrochemicals,[63] whereas the criterion for SB and SC waters requires that they be free from O/G and petrochemicals that cause certain specified adverse effects (e.g., that produce a visible film on the surface of the water or impart an oily taste to the water).

Turning to Gloucester's permit, as noted previously, the City's effluent data over the years shows persistent discharges of detectable levels of O/G and TPH. Please see Table 3, below, with the most recent discharge monitoring data.

Table 3 – Oil/Grease and TPH Test Results, January 2020 – December 2021

Parameter	**Oil/Grease**	**TPH**
Units	**mg/l**	**mg/l**
Final Permit Limit	**non-detect (less than 5 mg/l)**	**non-detect (less than 5 mg/l)**
Minimum	non-detect	non-detect
Median	8.9	3.1
No. of Violations	**23** out of 24	**5** out of 24
1/31/2020	**7**	3
2/29/2020	**8.8**	4.5
3/31/2020	**6.8**	2
4/30/2020	**6**	**5**
5/31/2020	**7.5**	2

[63] EPA acknowledges that there have been inconsistent interpretations of the Class SA criterion for O/G in past Massachusetts NPDES permits. Gloucester correctly points out that despite indicating that SESD was discharging to SA waters, the 2008 Draft Permit did not include effluent limits or monitoring requirements for O/G and the supporting Fact Sheet stated that there was no reasonable potential for exceedances of the 2001 Permit's 15 mg/l limit and that meeting the 15 mg/l limit would satisfy the Class SA O/G standard. This, however, represented an incorrect interpretation of the unqualified "free from" criterion for O/G that applies to SA waters in Massachusetts, as indicated by EPA's above discussion of the Massachusetts criterion. In any event, this mistaken interpretation became moot when the 2016 Final Permit for SESD reflected a correction to classify SESD's receiving water as SB instead of SA. *See* 2016 SESD NPDES Permit (No. MA0100501) and page 8 of the attached Responses to Comments document. *See also* Public Notice for SESD NPDES Draft Permit (No. MA0100501) (Sept. 13, 2013); 2013 Partially Revised Fact Sheet, pp. 1, 4-8.

6/30/2020	**8.6**	3
7/31/2020	**9**	3
8/31/2020	**9.3**	2
9/30/2020	**13.4**	**5**
10/31/2020	**9.5**	**5**
11/30/2020	**10.8**	3
12/31/2020	**9**	2
1/31/2021	**10**	3
2/28/2021	**8.5**	**5**
3/31/2021	**13.6**	3
4/30/2021	**9.5**	3
5/31/2021	**7**	2
6/30/2021	**7.6**	2
7/31/2021	**6.3**	2
8/31/2021	**7.8**	2
9/30/2021	4.3	2
10/31/2021	**11.8**	3
11/30/2021	**9.6**	2
12/31/2021	**11.8**	**5.3**

As a result, in developing prior iterations of Gloucester's NPDES permit, EPA has consistently found a reasonable potential for the City's discharge to cause a violation of the applicable water quality criterion and has consistently included water quality-based effluent limits to restrict O/G and TPH. *See, e.g.* 2001 Gloucester NPDES Permit, Part I.A.1, p. 2 (of 13). *See also* 40 CFR § 122.44(d)(1)(i) ("[permit] [l]imitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality"). For Gloucester's new Final Permit, EPA has once again found a reasonable potential for the City's wastewater discharges to cause an excursion above the Massachusetts water quality criterion requiring that SA waters be "free from" O/G and petrochemicals. To ensure satisfaction of the criterion, EPA has included in the Final Permit a limit of "non-

detect" for O/G and TPH. In addition, consistent with the CWA and EPA regulations, the Final Permit includes reasonable monitoring requirements to assess compliance with the effluent limits. *See* 33 U.S.C. § 1342(a)(2); 40 CFR §§ 122.44(i) and 122.48(b). All of this makes perfect sense.

With regard to the other permits cited by the commenter (i.e., the permits for Cohasset, Dartmouth, Rockport, and SESD) and Ipswich, they all share an important difference from the Gloucester permit: namely, the effluent data submitted with the permit applications did not show the specific presence of detectable levels of O/G or TPH. Nevertheless, as explained above, these municipal discharges still have a reasonable potential to discharge O/G and/or TPH in their effluent that could cause an excursion above the applicable water quality criteria. Ipswich discharges to SA waters subject to the State's unqualified "free from" criterion, whereas the other communities discharge to SB waters subject to the qualified "free from" criterion.[64] Therefore, EPA included a narrative water quality-based effluent limit in each permit that bars discharges that would be inconsistent with the applicable criterion. *See* 2016 Ipswich NPDES Permit (No. MA0100609), Part I.A.1.a. and d ("The effluent shall be free from oil and grease and petrochemicals."). *See also* 2007 Cohasset NPDES Permit (No. MA0100285), Part I.A.3.a. and d; 2009 Dartmouth NPDES Permit (No. MA0101605), Part I.A.1.a. and d; 2016 SESD NPDES Permit (No. MA0100501), Part I.A.2.a. and d; and 2020 Rockport NPDES Permit (No. MA0100145), Part I.A.2 and I.A.7. EPA did not, however, include additional specific monitoring requirements for O/G or TPH in these permits given (a) that the permit applications from these facilities did not indicate detectable levels of these pollutants, (b) that all these facilities already have secondary treatment, which provides improved removal of any O/G and TPH that might be present in the POTW influent, and (c) that the facilities will have to collect O/G data for their next permit applications so the issue can be reviewed again (*see* 40 CFR § 122.21(j)(4)(iii) , App. J, Table 1). In fact, EPA received a 2021 permit application for the SESD facility and these pollutants were reported as non-detect for the facility's 12 samples.[65] In sum, EPA concludes that it has set appropriate O/G and TPH limits for Gloucester's Final Permit and that those limits are consistent with the other permits referenced in the comment.

Comment 12.

IV.D. The Discharge Can and Will Comply with Water Quality Standards for Total Petroleum Hydrocarbons (TPH). Similar to the oil and grease analysis, EPA again arbitrarily translates the "free from" water quality standard into a 0 mg/l permit limit with a 5 mg/l compliance limit, regardless of data showing that the effluent does not contribute detectable TPH to the receiving waters. Using data from January 2006 to March 2009, EPA's tentative decision states that "the

[64] The Rockport WPCF discharges to a receiving water classified as SB. The 1978 edition of the Massachusetts Surface Water Quality Standards contained a typographical error that identified Rockport Harbor as Class SA, followed by a 2002 Assessment Report which repeated the error. After examination of the historical record, however, MassDEP corrected the error and clarified Rockport Harbor's classification as a Class SB water.

[65] SESD Permit Application, EPA Form 3510-2A (Revised 3-19), Table B, page 15, dated January 27, 2021.

WPCF's discharge violated the 5 mg/l TPH limit nine times out of the last thirty-nine sampling events." (p. 17). First, EPA's determination that the WPCF's discharge violates the 5 mg/l standard ignores the fact that the limit is consistently met at the boundary of the ZID, which is what is required by Section 301(h). Moreover, EPA ignores more recent data and wrongly fails to recognize the significant improvement in the quality of the discharge since the City's application was submitted in 2006. The WPCF effluent only exceeded the 5 mg/l TPH limit once between April 2007 and December 2010 (see TD, p. 18, and WPCF 2009-2010 monthly Discharge Monitoring Reports submitted to EPA). Not coincidentally, the City began to implement a program to separate its combined sewer system soon after the application was submitted. The majority of TPH in the discharge was almost certainly a result of stormwater run-off from streets and parking lots. The Phase I CSO Abatement Project was completed in March 2009. There have been no violations of the TPH limit since then.

The fact that the WPCF effluent is not a significant contributor to TPH in the receiving waters has also been demonstrated in the results of sediment sampling in the vicinity of the outfall reported annually since 1991. Priority pollutants scans for volatile and semi-volatile organics were originally performed on samples from both the water column and sediments. Water column sampling was discontinued in 1991 due to the failure to detect any of these compounds. Sediment sampling has continued for the last 20 years at sites ranging from 30 m to 1500 m from the diffuser. Only a few pyrogenic semi-volatile hydrocarbons have been detected and these at very low levels (parts per billion) typical of background levels for Massachusetts Bay (Table 5). The sampling site nearest the outfall usually has the lowest concentrations of these compounds. There have been no indications of increases in the concentrations of any of these materials in the 20-year time period. The sources are most likely atmospheric deposition, runoff and boat traffic. There is simply no basis to conclude that TPH from the WPCF discharge is having any impact on the marine environment in the vicinity of the outfall.

Response 12

Gloucester's 2001 NPDES Permit set a monthly average effluent limit of 5.0 mg/L for TPH (applicable at "end of pipe") and, as the above comment implicitly acknowledges, the City's effluent data demonstrates that the wastewater discharged from the WPCF's primary treatment plant has frequently violated the limit. While Gloucester's comment alleges that there is "data showing that the effluent does not contribute detectable TPH to the receiving waters," the data showing TPH violations demonstrate that, contrary to the comment, the City *does* contribute detectable TPH to the receiving water.

Taking a different tack, Gloucester also argues that EPA's 2010 TD ignored the fact that the City's TPH results were vastly improved in more recent years. The City states that "[t]he majority of TPH in the discharge was almost certainly a result of stormwater run-off from streets and parking lots …," and suggests that the City's sewer separation efforts effectively resolved the problem of TPH discharges. EPA disagrees with the latter suggestion, however, because the City has continued intermittently violating the permit limit for TPH. From 2016 through 2021 there were 19 exceedances of the 5 mg/l

compliance limit for TPH. The remaining 42 samples were below the 5 mg/l minimum level (ML). *See* Appendix A. Thus, regardless of the reported reductions in detectable petroleum found in field monitoring, and the suggested reductions in influent TPH, the fact remains that the WPCF's primary treated effluent has continued to contribute detectable levels of TPH to the receiving water. EPA unreservedly congratulates the City for its sewer system improvements and agrees that the resulting reductions in influent TPH will help to make compliance with current and future TPH limits more likely – and have undoubtedly addressed the problem of untreated CSO discharges to Gloucester Harbor – but compliance with TPH limits will be more likely still once secondary treatment is provided at the WPCF.

The City also incorrectly comments that "EPA again arbitrarily translates the 'free from' water quality standard into a 0 mg/l permit limit with a 5 mg/l compliance limit." EPA's determination in this regard was not arbitrary, it was well reasoned. While working on the 2010 Draft Permit, EPA realized that the 2001 Permit's effluent limits for O/G and TPH (25.0 and 5.0 mg/L, respectively) would not assure compliance with the Massachusetts water quality criterion requiring that SA waters are unqualifiedly "free from oil and grease and petrochemicals." 314 CMR 4.05(4)(a)(7). (*See also* Response 11 above.) To achieve such compliance, EPA proposed a limit of 0.0 mg/L for TPH in the 2010 Draft Permit; if the 0.0 mg/L limit was met, then the free from criterion would also be met. EPA also understood, however, that there was no approved method capable of measuring TPH (or O/G) down to 0.0 mg/L (or below 5 mg/L). Therefore, EPA provided in footnote 8 of the 2010 Draft Permit that while the permittee "shall have no detectable discharge of oil and grease or TPH …," compliance would be measured at the 5 mg/L based on the ML of what was then (and still is) the most sensitive test method(s) approved by EPA. 2010 Draft Permit, p. 4 n.8. The footnote further stated that if a more sensitive method was approved by EPA, then that method would need to be used by the permittee.

EPA has retained this approach for the Final Permit, but has provided clarification by replacing the Draft Permit's 0.0 mg/L limit in Part I.A.1 of the Permit with a limit of "non-detect," while again indicating in footnote 8 that the permittee shall have no detectable discharges of oil and grease or TPH – in order to satisfy the state's "free from" criterion – but that compliance will be determined based on the ML of 5 mg/L for the most sensitive analytical method currently approved by EPA.

Gloucester comments that EPA's reference to the City's violations of the 2001 Permit's 5.0 mg/L limit for TPH "ignores the fact that the limit is consistently met at the boundary of the ZID, which is what is required by Section 301(h)." This comment is off-target, however, in several respects. First, the TPH limit of 5.0 mg/l in Part I.A.1 of the 2001 Permit clearly applies at the end of the discharge pipe[66] and the City has frequently violated that limit. The City has not consistently "met" the limit at the ZID boundary. Second, EPA is correct to conclude that the City's request for modified treatment limits under Section 301(h) of the CWA has not demonstrated that the WPCF's primary treated

[66] Email correspondence from Susannah King of MassDEP to Ellen Weitzler of EPA, dated May 4, 2022.

effluent would meet state water quality standards for TPH at the edge of the ZID. The state's water quality criterion requires that SA waters be free from O/G and petrochemicals (which are pollutants represented by the O/G and TPH parameters) and the City's application did not demonstrate that it would meet this criterion either within or at the edge of the ZID given that the WPCF is discharging measurable quantities of TPH at the end of the discharge outfall. This is so even if the dilution that might be provided within the ZID could result in levels of TPH at the edge of the ZID that would be below the ML. If the WPCF discharges measurable levels of TPH into the water, then the pollutants are present in the water and they neither disappear nor somehow remain in place at the end of the discharge pipe. Instead, these pollutants would circulate in the water column based on a number of factors, such as the prevailing currents, and, in EPA's view, the free from criterion would not be met either within, or at the edge of, the ZID.[67] If the City was not discharging detectable levels of TPH at the end of the pipe, one could argue that the free from criterion was effectively being met, but that is not the case here. Put differently, merely diluting admittedly detectable levels of O/G or TPH to concentrations that are undetectable at the edge of the ZID by the most sensitive test method available, does not meet the definition of "free from."

The comment points out that "the limit is consistently met at the boundary of the ZID, " an argument that is not applicable to TPH (*see* Response 11). EPA notes that compliance is measured at the method's minimum level (5 mg/L) and the narrative water quality standard of "free from" in the Draft and Final Permit must be met at the end of the pipe, and that this applies for discharges of TPH just as it does for O/G.

Finally, Gloucester argues that other sources (e.g, boats, atmospheric deposition) are likely to be the source of TPH found in ambient monitoring in the area around the outfall/diffuser. Whether or not other sources are *also* contributing TPH to the water column near the diffuser, the point remains that the WPCF has continued to discharge detectable levels of TPH. As such, the City has not demonstrated that its primary treated discharge would result in water quality standards being met for TPH discharges either at the end of the discharge pipe or at the edge of the ZID. The Final Permit is written to ensure that the discharge does not cause *or contribute* to an exceedance of the water quality standard that requires that SA waters be free from oil and grease and petrochemicals.

Comment 13.

IV.E. The Discharge Can and Will Comply With Bacteria Water Quality Standards for Primary Contact Recreation. Once again ignoring the provisions of Section 301(h) that mandate the

[67] To be clear, Gloucester did not actually take samples for TPH at the edge of the ZID. Rather, Gloucester has calculated that it expects that TPH levels would be below the ML at the edge of the ZID based on the degree of dilution that it expects the ZID to provide. While Gloucester might be able to suggest that it expects that TPH levels would theoretically in many cases be below 5.0 mg/L at the edge of the ZID, EPA can fairly suggest that when detectable levels of TPH are discharged at the end of the pipe, it can theoretically expect TPH to be present at the edge of the ZID so that the free from standard would not be met.

determination of compliance at the ZID boundary, EPA concludes that the discharge from the WPCF will violate primary contact bacteria water quality standards. Compounding the error, EPA faults Gloucester for not providing data to support compliance with enterococci standards that it acknowledges did not even exist at the time the City's application was submitted.

As an initial matter, the existing Gloucester WPCF is designed to meet and has demonstrated it can consistently meet the applicable fecal coliform effluent limits in the permit. The permit limit exceedances indicated in Table 5 of the tentative denial were all the result of operational issues that have since been corrected or of one-time events unlikely to be repeated. Most of the exceedances of the fecal coliform limit occurred in 2006-2007, during the commissioning of the dechlorination system. The dechlorination system was designed for the dosage to be controlled automatically, flow-paced and altered by a feed back loop from a residual analyzer, but the automatic system was not reliable. Eventually, after numerous attempts and system modifications, the system was set up to run with manual dosage adjustments and exceedances of the fecal coliform limit stopped. The handful of bacteria violations since then have been the result of one-time mechanical problems or operator error, as shown in the table below.

Exceedances of Daily Maximum Permit Limit for Fecal Coliform Bacteria in Effluent Gloucester WPCF 2009-2010		
MONTH	NUMBER OF EXCEEDANCES	REASON FOR EXCEEDANCES
September 2009	1	The failure of hypochlorite pump to deliver adequate chemicals (due to wear) caused inadequate disinfection.
December 2009	2	Both violations appear directly related to mechanical problems caused by sludge accumulations in the clarifiers. Primary sludge piping was blocked by grit preventing sludge removal, causing the clarifier rake arms to torque out and solids washouts. During the preceding 6 or 7 months, it had been impossible to remove grit at the headworks because of the placement of temporary emergency bypass pumps (required by Mass DEP) while one of the influent screw pumps was being replaced due to failure.
April 2010	1	Inadequate chlorination due to operator setting dosage too low, in error.
September 2010	1	Chlorine mixers tripped out during a generator load test. Operators failed to notice and the mixers were not restarted for some 90 minutes, during which time a sample had been collected for bacteria analysis.

In any case, the permit limit exceedances in Table 5 of the TD do not translate into violation of state water quality standards in the receiving waters at the boundary of the ZID. Employing the dilution factors used by EPA, there would be no exceedances of the monthly geo-mean and only six exceedances of the daily maximum concentration of bacteria over the three years of results in Table 5 of the TD, all but one of which occurred during the commissioning of the dechlorination system in 2006-2007. EPA seeks to avoid Section 301(h)'s recognition of the use of a ZID by stating that EPA and Massachusetts traditionally do not allow dischargers to meet bacteria criteria through dilution. However, the TD cites to no Massachusetts regulations or guidance on this point, and the EPA document it cites is a 2008 memorandum that references mixing zones in "rivers and streams," where presumably access to waters immediately adjacent to an outfall could be more common. The Gloucester discharge is clearly not to a river or stream, so the referenced policy is inapplicable. Finally, EPA bases its conclusion that the discharge does not meet the bacteria water quality standard for primary contact recreation on the "fact" that there are popular scuba diving locations in the vicinity of the outfall. However, EPA itself recognized in its 2001 decision that the area in the vicinity of the discharge has never been identified as a popular scuba diving location, and that the discharge is not impacting recreational activities. There has been no change in recreational uses in the vicinity of the discharge, and EPA's 2001 conclusions remain valid.

Also, with regard to EPA's criticism that Gloucester did not submit any data regarding enterococci levels in the WPCF's discharge, the City's application for permit renewal was submitted on May 26, 2006. The MWQS fecal coliform standard for primary contact recreation was not changed to the enterococci criterion until December 2006. The City had no requirement to sample for enterococci or meet the enterococci criterion prior to the submittal of its application, nor has the WPCF NPDES permit been modified to require enterococci monitoring. Therefore, inclusion of discharge-specific enterococci information in the application was not only impossible but unnecessary at the time of the submittal.

In the absence of actual data, EPA's opinion that the Gloucester WPCF will not meet the enterococci requirements is conjecture, and not based on facility-specific information or analyses of the Gloucester WPCF or its influent or discharge characteristics. Instead, EPA simply recites the existing bacteria data and states that "This result [based on studies from Southern California] tends to suggest that the new single sample standard for enterococci in the MSWQS for SA waters is likely to be even more difficult to meet than the old fecal coliform standard" (emphases added). Conjecture and guess-work are not sufficient grounds to deny the 301(h) waiver. [Footnote: Although the City believes that it will meet the new enterococci standard, at a minimum it would be appropriate for EPA to condition the waiver on the implementation by the City of a compliance plan that would include operational and monitoring activities that would be undertaken over the next permit cycle to demonstrate that the WPCF can meet the enterococci criterion.]

Response 13

Under Section 301(h)(2) of the CWA, an applicant for modification of the secondary treatment requirements that otherwise apply to all POTWs must:

> … demonstrate[ ] to the satisfaction of the Administrator that[, among other things] –
>
> * * *
>
> (2) the discharge of pollutants in accordance with such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which … allows recreational activities, in and on the water ….

See also 40 CFR § 125.62(d)(1). In the TD, p. 20, EPA explained that Gloucester discharges to SA waters and that such "waters are designated … for primary and secondary contact recreation" under Massachusetts water quality standards. 314 CMR 4.05(4)(a). Not only are these waters designated for primary contact recreation, but EPA also explained in the TD, p. 20, that primary contact recreation is also an "existing use," *see* 314 CMR 4.02 (definition of "existing use"), for the waters receiving Gloucester's discharge due to the proximity of two popular scuba diving sites (the wreck of the Chester Poling and the wreck of the Nina T as shown in Figure 1 below).[68] Therefore, in applying Section 301(h)(2) and 40 CFR § 125.62(d)(1), EPA evaluated whether the City's primary treated discharge would satisfy the state's water quality criteria for protecting primary contact recreation use of the receiving water. TD, pp. 18-21. From this evaluation, EPA concluded that "the applicant has failed to demonstrate that: 1. The proposed discharge would not negatively impact recreational activities …. Section 301(h)(2); 40 CFR § 125.62(b), (c), (d)." TD, p. 5. *See also* TD, pp. 14, 18 and 21.

[68] Gloucester questions the existence of the two referenced scuba diving sites, arguing that EPA did not identify these sites in 2001. The City then concludes that the discharge has no effect on recreational uses of the water. EPA disagrees, however, and has further documented its conclusions regarding the nearby dive sites. *See, e.g.,* www.seconndivers.org/new-england-wreckdiving/wreck-of-the-chester-a-poling (most recently visited on Jan. 24, 2022) ("Located less than 20 minutes outside of Gloucester Harbor, the stern of the *Poling* has become a staple in New England wreck diving."); www.mwdc.org/Shipwrecks/poling.htm (most recently visited on Jan. 24, 2022) ("The stern of this former steel coastal tanker is a very popular dive site."); and www.northernatlanticdive.com/shipwrecks/nina-t (most recently visited on Jan. 24, 2022) ("The wreck [of the Nina T] has become a popular second dive to the Poling and is often referred to as a 'classic New England shipwreck'"). *See also* Response 19, below.

Figure 1 - Diving Sites in MA Bay Near the Gloucester Outfall
Nina T is 100 m South from outfall
Chester A. Poling is 608 m North East from outfall

Gloucester's comment above raises several issues about EPA's consideration of the City's bacteria discharges in the context of primary contact recreation. Having considered these issues, however, EPA again reaches essentially the same conclusions, as discussed below.

In the TD, p. 18, EPA explained that the City's 2001 Permit includes effluent limits for fecal coliform bacteria based on the state water quality criteria then in effect for SA waters. The 2001 Permit applied these limits at the "end of the discharge pipe." In other words, the limits were not relaxed to reflect dilution provided in a ZID. *See id.*, p. 18 n.8. *See also* 2001 Permit, Part I.A.1 n.6. EPA further explained that the state does not "traditionally" allow dischargers to meet criteria for bacteria based on dilution or a mixing zone. TD, p. 18 n. 8. While Gloucester's comment objects that EPA did not cite to state regulations or guidance underlying the state's "no mixing zone" (or "no dilution") approach to regulating bacteria discharges, EPA correctly described the state's approach to applying its water quality standards and is not obligated to provide a justification for state's requirements. When developing federal NPDES permit limits based on state water quality standards, EPA tries to apply the state standards consistently with how the state applies them (unless EPA determines that the state has adopted a clearly erroneous interpretation of the standards that would yield permit limits inconsistent with both the standards and Section 301(b)(1)(C) of the CWA). That said, in this case, EPA correctly identified how the state applies its standards for bacteria and has acted consistently with the state's approach.[69]

[69] Email correspondence from Susannah King of MassDEP to Ellen Weitzler of EPA, dated May 4, 2022.

To respond further to this comment, EPA points out that the state's mixing zone regulations and 1993 Mixing Zone Policy both provide foundational support for the state's approach. First, the state regulations neither indicate that MassDEP *must* grant requests for mixing zones nor create an entitlement for dischargers to get approval for requested mixing zones. The regulations only state that "the Department *may* recognize a limited area or volume of a waterbody as a mixing zone for the initial dilution of a discharge." 314 CMR 4.03(2) (emphasis added). Second, the regulations further provide that "[t]he location, design and operation of the discharge *shall minimize impacts on existing and designated uses within and beyond the mixing zone* … [and] *shall not … interfere with the existing or designated uses* of surface waters." 314 CMR 4.03(2)(a) and (c) (emphasis added). Similarly, the Mixing Zone Policy states, at p. 1 (emphasis added), that "[w]ithin a mixing zone, excursions from certain water quality criteria may be tolerable, provided this does *not interfere with the existing or designated uses* of the segment …[,]" and that "[m]ixing zones *shall not … diminish the existing or designated uses* of the segment disproportionately." Allowing primary contact recreation in water contaminated with excessive levels of fecal coliform bacteria could directly threaten public health and, as a result, interfere with and/or diminish disproportionately the designated and existing uses for primary contact recreation that apply to the receiving water for Gloucester's discharge. Thus, the state's regulations and Mixing Zone Policy contraindicate allowing mixing zones that would accommodate discharges of bacteria in excess of water quality criteria into waters with a designated and/or existing use for primary contact recreation.[70]

In light of the above, EPA views the state's position against allowing mixing zones for bacteria discharges to be a reasonable application of the state's water quality standards, particularly for SA waters. To underscore its support for the state's stance, EPA cited in the TD, p. 18 n. 8, to an EPA policy analysis memorandum (i.e., the Memorandum from Ephraim S. King, Director of Office of Science and Technology to William Spratlin, Director, Water Wetlands and Pesticides (Nov. 12, 2008)), which states that "… mixing zones that allow for elevated levels of bacteria in rivers and streams designated for primary contact recreation are inconsistent with the designated use and should not be permitted because these could result in a significant health risk." Gloucester comments that "[t]he Gloucester discharge is clearly not to a river or stream, so the referenced

[70] The State's Mixing Zone Policy also states, at p. 3, that, "[t]he presence of mixing zones should not result in significant health risks when evaluated using reasonable assumptions about exposure pathways." This would suggest that no mixing zone (or ZID) should be applied to accommodate discharges of fecal coliform bacteria by Gloucester that exceed state water quality criteria because the water body receiving the City's discharge has both a designated use and an existing use for primary contact recreation and such discharges could cause significant health risks using reasonable assumptions about exposure pathways. Again, EPA explained in the TD, p. 20, that although the waters receiving Gloucester's offshore discharge are not "bathing beach" waters, they have been classified by the state as SA waters and not only is primary contact recreation a "designated use" for such waters, but these waters also have an "existing use" of primary contact recreation because of the existence of two popular scuba diving sites nearby, as discussed above.

policy [i.e., the policy discussed in the 2008 King Memorandum] is inapplicable." Yet, EPA did not state either that the King Memorandum was controlling of EPA's decision or that it dictated the MassDEP's approach to mixing zones for bacteria. EPA only stated that the state's approach was consistent with EPA's own thinking – i.e., not to use mixing zones to allow for elevated levels of bacteria above water quality criteria in waters used for primary contact recreation – as evidenced by the King Memorandum. The commenter is correct that the King Memorandum was addressing a question about mixing zones in rivers and streams, whereas Gloucester discharges offshore to marine waters, but that does not make EPA's reference to the Memorandum inappropriate. The King Memorandum explains that:

> EPA's long-standing policy to ensure protection of human health has been that initial zones of dilution are not appropriate where they may pose "significant health risks" or where "they may endanger critical areas (e.g., … **recreational areas** (emphasis added) …)". Such a "significant health risk" could be presented where an initial zone of dilution for bacteria is established in rivers and streams designated for primary contact recreation.

While the King Memorandum was specifically responding to a question posed about rivers and streams, its logic also applies to coastal waters. Applying a mixing zone or ZID to allow exceedances of water quality criteria for bacteria in waters used for primary contact recreation could create a significant health risk to anyone who uses the waters for that purpose, whether it is coastal waters or rivers or streams that are at issue. *See* 2010 Fact Sheet, p. 16. In any event, EPA continues to agree with MassDEP's view that its bacteria standards should be applied at the end-of-pipe in order to assure attainment of designated and existing primary contact recreational uses.

As mentioned above, EPA's 2010 TD, p. 18, explained that before 2006, Massachusetts water quality standards provided that for Class SA waters "not designated for shellfishing, fecal coliform bacteria: '[s]hall not exceed a geometric mean of 200 organisms per 100 ml in any representative set of samples, nor shall more than 10% of the samples exceed 400 organisms per 100 ml.' 314 CMR 4.05(4)(a)(4) (2000)." (Even *more* stringent criteria for fecal coliform applied to SA waters designated for shellfishing.) EPA further explained that based on these state water quality criteria, Gloucester's 2001 permit included the following effluent limits for fecal coliform bacteria: an average monthly limit of 200 colony forming units ("cfu") per 100 ml and a daily maximum limit of 400 cfu/100 ml. *See* TD, p. 18; 2001 Permit, Part I.A.1. EPA then detailed that the City's discharges frequently violated these effluent limits. TD, p. 19. In light of these discharge violations, it was perfectly reasonable for EPA to conclude that Gloucester had not demonstrated to EPA's satisfaction that the City's primary treated discharges would not interfere with attaining a level of water quality needed to safely allow recreation in and on the receiving water, as required by Section 301(h)(2) of the CWA. *See also* 40 CFR § 125.62(d)(1).

Gloucester's comment seeks to downplay the fecal coliform exceedances by suggesting that they resulted primarily from operational problems with the chlorination system during 2006-2007 which have since been resolved. EPA disagrees, however, that the problem of fecal coliform exceedances has been resolved. According to Effluent Monitoring Reports (see Appendix A), between July 2016 and July 2021, 4 out of the 60 reported daily maximum samples exceeded the 400 MPN/100 ml limit from the 2001 permit, which is still in effect. The most recent daily maximum exceedance occurred in June 2021. Moreover, while the City points to certain specific causes of past fecal coliform exceedances – primarily past issues with the chlorination system – the fact remains that the City has been unable to maintain consistent compliance with the applicable fecal coliform limits either during 2006 and 2007 or since that time.

Taking a different tack, Gloucester's comment also argues that in the context of state water quality standards limiting bacteria levels to protect primary contact recreation, EPA ignores "the provisions of Section 301(h) that mandate the determination of compliance at the ZID boundary …." While *Section 301(h)* does not mandate that compliance with state water quality standards be determined at the edge of the ZID – Section 301(h)(9) refers to meeting *EPA water quality criteria* under Section 304 of the statute rather than *state water quality standards*, which are developed pursuant to Section 303 – EPA assumes Gloucester was referring to EPA's regulations under Section 301(h). Specifically, 40 CFR § 125.62(a)(1)(i) provides as follows:

> (a) *Physical characteristics of discharge.* (1) At the time the 301(h) modification becomes effective, the applicant's outfall and diffuser must be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater such that the discharge does not exceed at and beyond the zone of initial dilution:
>
> (i) All applicable water quality standards ….

See TD, p. 13. The City asserts that the permit limit exceedances cited by EPA in Table 5 of the TD "do not translate into violation of state water quality standards in the receiving waters at the boundary of the ZID." The City's comment then contradicts itself, however, and rather than stating that there would be *no* violations if dilution representing the ZID was factored into the compliance determination, it states that there would have been "only six exceedances of the daily maximum concentration of bacteria over the three years of results in Table 5 of the TD …." In other words, the City acknowledges multiple fecal bacteria exceedances even if dilution from the proposed ZID is taken into account.

In any event, EPA does not agree with Gloucester's comments about consideration of the ZID. First, as discussed above, Gloucester's comment ultimately admits that the City's discharge has violated permit limits for fecal bacteria that were set to protect primary contact recreational use of the water, and this is the case whether the limits are applied at the end of the discharge pipe (as the 2001 Permit requires) or dilution was factored into the calculations to reflect dilution in a ZID. Second, and more importantly, Massachusetts

does not allow the use of mixing zones or dilution to authorize exceedances of water quality criteria for bacteria. Instead, as discussed above, such criteria are implemented as end-of-pipe permit limits. EPA regulations under Section 301(h) of the CWA provide that a "ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards." 40 CFR § 125.58(dd). Therefore, for the purposes of Section 301(h), and consistent with the state's water quality standards, which do not allow mixing zones for bacteria discharges, compliance with limits and criteria for bacteria discharges by Massachusetts permittees are based on end-of-pipe values without allowance for dilution provided by a ZID. While 40 CFR § 125.62(a)(1)(i) refers to compliance with water quality standards at and beyond the edge of a ZID, there is no ZID that applies for bacteria discharges to Massachusetts SA waters and the state's criteria must be met in the waters at the point of discharge.

Gloucester also objects to EPA's consideration of the state's then new water quality criteria for primary contact recreation bacteria based on enterococci. As EPA explained in the TD, p. 20, Massachusetts amended its water quality criteria in 2006 to add new enterococci criteria.[71] While EPA indicated that Gloucester had not provided any enterococci data to support its application for renewal of its Section 301(h) modification, EPA neither stated nor intended to imply that Gloucester had committed legal error by failing to provide such data. EPA acknowledges that the enterococci criteria were not in effect at the time Gloucester submitted its application in May 2006. Although the City could have collected and submitted such data as a supplement to its application once the water quality standard had changed later in 2006, it was not legally obliged to do so. Of course, this left EPA to evaluate whether Gloucester's discharges could satisfy the new criteria based on the (fecal coliform) data that the City did provide as well as any other relevant information that EPA could obtain.

After considering the City's comments, EPA maintains its conclusions from the TD; namely, that Gloucester has not consistently met the fecal coliform limit in its current permit and the data and scientific literature indicates that the City also would most likely be unable to consistently meet limits based on the enterococci water quality criteria. As EPA stated in the 2010 TD, "data [from Portsmouth, NH,] indicates that it is more difficult to meet enterococci limits with primary treatment than it is to meet fecal coliform limits." EPA went on to conclude that "although fecal coliform and enterococci were not found [in the studies reviewed] to be well correlated under all conditions, the enterococci standard was more frequently exceeded [in the studies] than the fecal coliform standard." TD, pp. 20-21 (citing a series of studies from California). Gloucester incorrectly comments that EPA is speculating about whether Gloucester would meet the criteria for enterococci. To the contrary, EPA based its conclusion on a consideration of the available data and relevant scientific literature. Gloucester has not submitted anything to contradict EPA's conclusion or to support a different one.

[71] Since the TD was published, the MassDEP has again modified its bacteria criteria for primary contact recreation in SA waters. *See* 314 CMR 4.05(4)(a).4.b. and 314 CMR 4.05(5)(f)(f)2. and 3 (2021).

In addition, as referenced on page 13 of EPA's 2010 TD, 40 CFR § 125.59(b)(1) states that "no section 301(h) modified permit shall be issued: (1) where such issuance would not assure compliance with all applicable requirements of this subpart and part 122." Part 122 includes 40 CFR §122.4(d), which provides that "[n]o permit may be issued: … (d) When the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states …." *See also* 40 CFR § 122.44(d) (permits shall include any requirements necessary to "[a]chieve water quality standards"). Based on the above facts and analysis, permit conditions modified under Section 301(h) to allow Gloucester to continue discharging its primary treated effluent simply would not assure compliance with the state's primary contact recreation criteria for bacteria in SA waters. To the contrary, the requested modified limits appear likely to result in periodic violations of state water quality standards limiting bacteria in the waters of the Commonwealth. *See also* 40 CFR § 125.59(b)(3) (permit limits should not be modified under Section 301(h) if the permit would conflict with applicable provisions of state law). As a result, EPA correctly decided not to grant the City's request for renewal of its modified permit limits under Section 301(h).

Finally, with secondary treatment, Gloucester's wastewater treatment will be more effective against pathogenic microorganisms in the WPCF's influent. Secondary treatment processes can remove up to 90 percent of the organic matter in wastewater by using biological treatment processes.[72] *See* Response 1 (Table 1). As a result, the City is more likely to meet its water quality-based permit limits for bacteria because disinfection will be more effective and more solids contaminated with bacteria will be removed from the wastewater.

Comment 14.

IV.F. The Discharge Can and Will Comply with Bacteria Criteria for Shellfishing. On the basis of inapplicable water quality standards, EPA concludes that the discharge will not comply with bacteria criteria for shellfishing. This is not correct.

The TD states that the numeric criterion for bacteria for Class SA waters designated for shellfishing applies to the area to which the WPCF discharges. For such waters, the MWQS state that "fecal coliform shall not exceed a geometric mean Most Probable Number (MPN) of 14 organisms per 100 ml, nor shall more than 10% of the same exceed a MPN of 28 per 100 ml…" EPA states that, according to Gloucester's annual 301(h) monitoring reports, "23 out of 192 samples (approximately 12%) taken at Station 3A, which is located at the edge of the ZID, exceeded 28 organisms per 100 ml." (p. 22) (EPA does not state which years' reports it used to make this calculation.)

[72] U.S. EPA, Office of Water, Primer for Municipal Wastewater Treatment Systems, EPA 832-R-04-001, September 2004, pages 9-13.

EPA's conclusion is unjustifiable for a number of reasons. First, the MWQS for shellfishing do not apply to the area of the WPCF discharge. EPA itself acknowledges that the area of the WPCF discharge is classified as "Prohibited" by the Massachusetts Division of Marine Fisheries (DMF) under the National Shellfish Sanitation Program (Figure 5). [Footnote: The outfall is considered a point source under the National Shellfish Sanitation Program, regardless of whether pollution from the point source is actual or potential and whether the POTW uses secondary treatment, and as such there must be a prohibited buffer around that outfall for the harvesting of shellfish. Thus, denying the 301(h) waiver and imposing a secondary treatment requirement is not going to result in the area of the discharge being opened to shellfishing.] The MWQS for Class SA waters designated for shellfishing only apply to "Approved and Conditionally Approved Shellfish Areas." 314 CMR 4.05(4)(a). Thus, an area that is classified not as "Approved" or "Conditionally Approved" by the DMF, but rather as "Prohibited," is not subject to the MWQS for shellfishing.

Further, even if the shellfishing bacteria standard did apply in the vicinity of the outfall, EPA has again ignored the time trends in the data. Results for 2009 monitoring (Table 6) show that at each station in the vicinity of the outfall (including at the boundary of the ZID; see Figure 1), the geometric mean of all samples did not exceed 14/100 ml, nor did more than 10% of samples exceed 28/100 ml.

Finally, even if the area were opened to shellfishing (which, as discussed above, will not be the case as long as any WPCF discharge, primary or secondary, is present), there is no potential for shellfishing in the area of the outfall. There are only two species found in the area of the discharge that could be considered potential resource species. These are the soft-shell clam, Mya arenaria, and the ocean quahog, Arctica islandica. Both of these species are typically found in "beds" where high densities make it feasible to collect enough individuals to make the effort worthwhile. Mya arenaria beds are found in intertidal areas and ocean quahog beds in sandier sediments offshore. Small numbers of juveniles of both these species have been reported in benthic grab samples in the monitoring program, but fewer than 10 adult individuals of Arctica islandica and no adult specimens of Mya arenaria were collected in more than 1000 benthic grab samples taken over 20 years. Further, there is not presently a commercial or recreational market for Arctica islandica in Massachusetts. [Footnote: Based on discussions with the Gloucester Shellfish Constable.]

As demonstrated above, the discharge from the WPCF meets all water quality criteria, and therefore the 301(h) waiver should be granted.

Response 14

In the TD, p. 22, EPA concluded that Gloucester had "failed to show that, at the time the renewed modification would become effective, its discharge would meet at and beyond the ZID the water quality standards for bacteria in Class SA waters designated for shellfishing." While Gloucester's comment challenges this conclusion, EPA stands by it. In addition, EPA further concludes that because Massachusetts does not allow for the use

of mixing zones, such as the ZID, to achieve compliance with water quality criteria for bacteria, *see* Response 13 above, the water quality criteria for bacteria in Class SA waters designated for shellfishing must be satisfied *within* the previously identified ZID (i.e., at end-of-pipe), *see* 40 CFR § 125.58(dd) ("[a] ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards"), as well as at and beyond the edge of the ZID, and the City has not demonstrated that the State criteria would be met in any of these zones if the WPCF continues discharging its primary treated effluent to the area.

At the heart of Gloucester's comment is its contention that "the MWQS for shellfishing do not apply to the area of the WPCF discharge." Citing to 314 CMR 4.05(4)(a), Gloucester comments that "[t]he MWQS for Class SA waters designated for shellfishing only apply to 'Approved and Conditionally Approved Shellfish Areas' …[.]" The City further contends that because the waters receiving the City's discharge are "classified as 'Prohibited' by the Massachusetts Division of Marine Fisheries (DMF) under the National Shellfish Sanitation Program," due to the presence of Gloucester's discharge, these waters are "not subject to the MWQS for shellfishing."

The City's comment on this point is incorrect. EPA explained in the TD, pp. 21-22, why the state's water quality standards for SA waters designated for shellfishing *do* apply to the waters receiving Gloucester's discharge.[73] EPA provides additional explanation in response to the City's comment. To begin with, in the Massachusetts water quality standards regulations, Table 19 to 314 CMR 4.00, which is set forth in 314 CMR 4.06(6)(b), *see also id.* (Figure 19), lists the area of Massachusetts Bay receiving Gloucester's discharge as Class SA waters with a "qualifier" for shellfishing. *See also* 314 CMR 4.06(1)(c) and (d)(5) and 4.06(5). The state standards explain that a qualifier "indicates special considerations and uses applicable to the segment that may affect the application of criteria or antidegradation provisions of 314 CMR 4.00." 314 CMR 4.06(1)(d). For waters assigned a qualifier for shellfishing, the standards provide that such waters are subject to "more stringent regulation" based on Massachusetts Division of Marine Fisheries (MassDMF) requirements, which include requirements for determining whether a water body designated for shellfishing can actually be *used* for shellfishing. 314 CMR 4.06(1)(d)(5). Moreover, the regulations also state that "[t]o determine whether a particular water designated for shellfishing *also* is approved for use, the Massachusetts Division of Marine Fisheries and/or the appropriate local authority (usually the Shellfish Department) should be contacted." 314 CMR 4.06(1)(d)(5) (emphasis added). These provisions of the water quality standards indicate that

[73] When the City filed its comments in 2010, the applicable version of the Massachusetts Water Quality Standards was the one adopted by the State in 2006. At present, the applicable version of the Water Quality Standards is the one adopted by the state in 2021. Therefore, EPA has assessed whether the City's future discharges under the requested Section 301(h) modification would meet State water quality standards based on the 2021 atandards. That said, the pertinent aspects of the standards that relate to the application of bacteria criteria for waters designated for shellfishing have not changed from 2006 to 2021. *Compare* 314 CMR 4.05(4)(a)4.a and 4.06(d)(5) (2006), *with* 314 CMR 4.05(4)(a)4.a and 4.06(d)(5) (2021).

MassDMF requirements that determine whether waters designated for shellfishing can actually be used for that purpose are *additional* requirements that apply on top of the water quality criteria that apply to these waters.

Nothing in the state regulations suggests that if the MassDMF requirements are not met so that an area cannot actually be used for shellfishing, then the applicable water quality standards (designated uses and water quality criteria) for those waters somehow no longer apply. To the contrary, the regulatory text expressly indicates particular water quality criteria apply to waters designated for shellfishing and that the MassDMF will apply additional, more stringent requirements to determine whether those waters can actually be used for that purpose. The latter is a separate question.[74]

In addition to the special qualifier for shellfishing that applies to the waters receiving Gloucester's discharge, these waters have a designated use for shellfishing because they are classified as SA waters and the state standards provide that designated uses for SA waters include "secondary contact recreation," 314 CMR 4.05(4)(a), which is defined to include shellfishing. *See* 314 CMR 4.02 (2021).[75] Thus, these waters have been assigned a designated use for shellfishing both because they have been given a specific qualifier for shellfishing and because, as SA waters, they have a designated use for secondary contact recreation, which includes shellfishing. Furthermore, and contrary to the City's comment, whether a receiving water is opened or closed for shellfishing by the MassDMF does not affect its designated uses. S*ee* 40 CFR § 131.3(f) ("designated uses" are defined as "those uses specified in water quality standards for each water body or segment whether or not they are being attained"). (EPA previously explained this in the TD, pp. 21-22.)[76]

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[74] The water quality standards also provide that "[w]here designated in the tables to 314 CMR 4.00 for shellfishing, … [SA] waters shall be suitable for shellfish harvesting without depuration (Approved and Conditionally Approved Shellfish Areas)." 314 CMR 4.05(4)(a). Contrary to the implication of Gloucester's comment, there is nothing about this language that suggests that if the waters are not deemed suitable for harvesting without depuration or are not an Approved or Conditionally Approved Shellfish Area, then the water quality criteria for bacteria in shellfishing waters no longer apply.

[75] The state's regulations define "secondary contact recreation" to mean:

> [a]ny recreation or other water use in which contact with the water is either incidental or accidental. These include, but are not limited to, fishing, including human consumption of fish, boating and limited contact incident to shoreline activities. Where designated, secondary contact recreation also includes shellfishing, including human consumption of shellfish.

314 CMR 4.02 (emphasis added).

[76] Gloucester's comment indicates that requirements applied by MassDMF would not allow shellfishing in the area immediately adjacent to the City's discharge outfall regardless of whether secondary treatment is in place. Because of this, the City argues that the State's water quality standards for shellfishing do not apply to the receiving waters for Gloucester's discharge. EPA has explained its disagreement with this argument above. Here, EPA also wants to be clear that it not basing its denial of Gloucester's application for renewal of its modified permit limits under Section 301(h) of the CWA on MassDMF restrictions on shellfishing that apply due to the presence of Gloucester's sewage discharge. *See* 40 CFR § 125.62(d)(2). Rather, EPA concludes that Gloucester's application does not demonstrate that renewal of the City's primary treatment-based limits would satisfy the requirements of 40 CFR §

In addition, not only is shellfishing a "designated use" of the waters receiving Gloucester's discharge, but it is also an "existing use" of those waters under federal and state regulations. *See* 40 CFR § 131.3(e); 314 CMR 4.02 (definition of "existing use").[77] Shellfishing is an "existing use" of the area because the use existed and was attained prior to the WPCF's outfall being relocated to the area in 1991. (EPA notes that in the Permittee's 2006 301(h) Permit Application, the City responded to Section II.C.3.a, which asks whether commercial or recreational fisheries are located in areas potentially affected by the discharge, by stating, "Yes, both commercial and recreational fisheries are located in areas potentially affected by the discharge."[78]) As an existing use, shellfishing may not be removed as a designated use through a "use attainability analysis" or a water quality standards variance under 40 CFR § 131.10(g) and 40 CFR § 131.14, respectively, *see also* 314 CMR 4.03(4); 314 CMR 4.04(1), and no such use attainability analysis or water quality standards variance has been proposed.

In sum, Gloucester's proposed interpretation is unsupported and would be contrary to the language of the State's water quality standards regulations. Indeed, it would make little sense to bar the application of water quality standards to waters classified for shellfishing because those waters are not also satisfying more stringent DMF requirements for determining whether the waters can actually be used for that purpose. Taking such an approach to waters not currently clean enough to make the goal use of shellfishing safe would tend to lock in lesser water quality rather than helping to promote improved water quality consistent with State goals specified in the water quality standards. Regardless of whether MassDMF bars the harvesting of shellfish from the waters receiving Gloucester's discharge, that State's designated uses and criteria apply and EPA sets water quality-based NPDES permit limits to ensure that they are not violated by the City's discharges.[79] *See* 33 U.S.C. § 1311(b)(1)(C); 40 CFR § 122.44(d)(1).

Gloucester also comments that even if the State water quality criteria for shellfishing waters do apply in the vicinity of the outfall, the City has satisfied the application Section

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125.59(b)(1) and (3) (compliance with State water quality standards) and/or 40 CFR § 125.62(a)(1)(i) (compliance with water quality standards) because, as discussed further in the body of this Response 14, above, the data indicates that the City's primary treated discharge would result in exceedances of the state's water quality criteria for bacteria.

[77] "Existing uses" are uses actually attained in a water body on or after November 28, 1975, whether or not they are specified in the water quality standards. *See* 40 CFR § 131.3(e); 314 CMR 4.02 (definition of "existing use").

[78] City of Gloucester's NPDES 301(h) Permit Application, 2006, Section II. General Information and Basic Data Requirements, C. Biological Conditions, 3.a, page 20, "3. a. [Permit Application Question:] Are commercial or recreational fisheries located in areas potentially affected by the discharge? [40 CFR § 125.62 (c) and (d)]. [City of Gloucester's Answer:] Yes, both commercial and recreational fisheries are located in areas potentially affected by the discharge. There is recreational and commercial fishing for lobsters both inside Gloucester Harbor and out around the site of the Gloucester outfall. Commercial fishing for finfish is prohibited within three miles of shore. Recreational fishing, mostly seasonal based on weather conditions, occurs both inside and outside the harbor. This is concentrated in the spring through fall and directed at species such as cod, winter flounder, mackerel, pollock, smelt and striped bass. There is an active commercial and recreational lobster fishery."

[79] EPA also notes that contrary to the suggestion in the last paragraph of the comment, the quantity, variety, or perceived marketability of the shellfish species in the area has no bearing on whether a body of water designated for shellfishing should be protected for that designated use.

301(h) requirements because data from 2009 shows those criteria being met at nearby sampling sites, including at the edge of the ZID. Gloucester further comments that EPA's TD ignored the trend of improvement evident in the 2009 data, and that the City's 301(h) waiver request should be granted because "the discharge from the WPCF meets all water quality criteria." EPA disagrees with these comments. EPA has considered whether improvements are evident in the bacteria data, as well as whether State water quality criteria are likely to be met going forward if Gloucester continues discharging primary treated effluent, but EPA finds that the data, including recent data, indicates that the City's primary treated discharge would continue to cause or contribute to intermittent exceedances of both the applicable water quality criteria and NPDES permit limits based on those criteria. As a result, the City's application does not satisfy 40 CFR §§ 125.59(b)(1) and (3) or 125.62(a)(1)(i). This is discussed in more detail below.

As explained above and in the TD, p. 13, 40 CFR §§ 125.59(b)(1) and (3) bar issuance of a "section 301(h) modified permit" if it would not assure compliance with State water quality requirements. *See also* 40 CFR §§ 122.4(d) and 122.44(d). The City's existing permit was issued in 2001 and includes limits on discharges of fecal coliform bacteria that apply at the end of the discharge pipe. The 2001 Permit set an average monthly limit of 200 cfu/100 ml and a maximum daily limit of 400 cfu/100 ml. 2001 Permit, Part I.A.1 and n.6, pp. 2-3. In the TD, p. 19 (Table 5), EPA explained that the City's effluent data showed intermittent violations of these limits between June 1, 2006, and February 28, 2009. The TD, p. 22, also pointed out intermittent exceedances of water quality criteria for fecal coliform bacteria at Sampling Station 3A, which lies at the edge of the ZID.

While Gloucester comments that the City's performance had improved in 2009, and EPA agrees that the data showed fewer violations of the 2001 Permit's fecal coliform limits, but it is also true that since the 2001 Permit was issued, Massachusetts modified its water quality standards to set more stringent criteria for fecal coliform in waters designated for shellfishing. Since 2006, the State's water quality criteria for SA waters have provided as follows:

> 4. Bacteria.
> a. Waters designated for shellfishing: fecal coliform shall not exceed a geometric mean Most Probable Number (MPN) of 14 organisms per 100 ml, nor shall more than 10% of the samples exceed an MPN of 28 per 100 ml ….

314 CMR 4.05(4)(a)4.a (2021). See also 314 CMR 4.05(4)(a)4.a (2013); 314 CMR 4.05(4)(a)4.a (2006). Current NPDES permit limits would be based on these current water quality criteria and would apply at the end of the discharge pipe because, as explained above, Massachusetts does not allow the use of mixing zones to determine compliance with water quality criteria for bacteria (i.e., mixing zones may not be applied to allow exceedances of water quality criteria for bacteria within the zone). Moreover, since the state does not allow mixing zones for this purpose, EPA's regulations under

Section 301(h) do not allow a ZID to be applied for this purpose. See 40 CFR § 125.58(dd).

EPA compiled the City's primary treatment effluent data from the last 5 years, compared it against the state's current, above-quoted water quality criteria, 314 CMR 4.05(4)(a)4.a (2021), and found that the discharges have intermittently, but persistently, exceeded the criteria at the point of discharge. *See* Appendix A. As a result, EPA concludes that renewal of the City's modified permit limits under Section 301(h) of the CWA would not assure compliance with the state's current water quality standards. To the contrary, the data indicates that if the City is allowed to continue discharging its primary treated effluent, it would likely result in continued intermittent exceedances of the Massachusetts water quality criteria limiting the presence of bacteria in SA waters of the Commonwealth. See also 40 CFR § 125.59(b)(3) (permit limits should not be modified under Section 301(h) if the permit would conflict with applicable provisions of State law). Conversely, the WPCF would be expected to have substantially lower levels of bacteria discharges with secondary treatment. *See* Response 1 (Table 1).

Comment 15.

V. The Discharge Will Allow Maintenance Of A Balanced Indigenous Population Of Shellfish, fish and Wildlife As Well As Recreational Activities In And On The Water. Despite acknowledging that actual biological monitoring in the vicinity of the outfall has revealed no adverse impacts on shellfish, fish and wildlife, EPA improperly relies on end-of-the pipe WET test results to conclude that the 301(h) waiver should be denied. Also, with regard to recreational impacts, EPA relies on the same incorrect bacteria impact analysis discredited in Section IV, above. These conclusions are arbitrary and capricious and incorrect as a matter of law.

Response 15

EPA disagrees with these comments. Gloucester has also raised these issues in various other comments and EPA has responded to them in detail in other responses. *See* Response 10 (WET violations), Responses 16 and 17, (WET testing and demonstration of a balanced indigenous population) and Reponses 13, 14 and 19 (bacteria discharges and recreational impacts).

Comment 16.

V.A. EPA Incorrectly Ignores Biological Data Demonstrating a Balanced Indigenous Population and Instead Relies on Unreliable WET Testing. Pursuant to 301(h), Gloucester's discharge "must allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife" beyond the ZID boundary. 40 CFR 125.62(c)(1-2). EPA's Amended Section 301(h) Technical Support Document prescribes the use of a biological assessment (not laboratory toxicity testing) to address this criterion (see pp. 78-92). Despite its own conclusion that biological monitoring data show no adverse effects from the Gloucester WPCF outfall, EPA relies solely on laboratory toxicity testing to conclude that "the applicant has failed to demonstrate that a modified discharge would

not interfere with the attainment or maintenance of that water quality which assures protection and propagation of a balanced indigenous population." This conclusion does not comport with the approach laid out in the Amended 301(h) Technical Support Document. [Footnote: The waiver denial quotes a different guidance document, the Technical Support Document for Water Quality-based Toxics Control, for the premise that toxicity testing results can trump field-based biological monitoring. However, that guidance is not appropriate for the 301(h) evaluation because it is intended to be used for the purpose of establishing end-of-pipe water quality based effluent limits.]

Response 16

As explained below, EPA disagrees with several aspects of this comment. In Response 10, EPA pointed out that under Section 301(h)(2) of the CWA, 33 U.S.C. 1311(h)(2), an applicant seeking modification of secondary treatment requirements under Section 301(h):

> … must demonstrate[ ] to the satisfaction of the Administrator that … (2) the discharge of pollutants in accordance with such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which assures … the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife … in and on the water ….

Consistent with the statute, and as noted by the comment immediately above, EPA regulations at 40 CFR § 125.62(c)(1) also require that "[t]he applicant's modified discharge must allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife." The term "assures" is not defined in the statute or regulations, but according to the dictionary definition, to *assure* something is to make it a sure or certain thing. *See Merriam-Webster Dictionary (online)* (definition of "assure") (www.merriam-webster.com/dictionary/assure (last visited on Nov. 15, 2021)). Congress' use of the term "assures" indicates that the applicant must establish to EPA's satisfaction that EPA can have a high degree of confidence that pollutant discharges under the requested modified requirements will provide for water quality that supports the protection and propagation of a "balanced, indigenous population of shellfish, fish, and wildlife" ("BIP").[80]

The WET limits in the City's existing permit address acute toxicity. In deriving these limits, the dilution provided by the ZID was accounted for. Nevertheless, the City's

[80] For purposes of Section 301(h) of the CWA, BIP is defined in 40 CFR § 125.58(f) as follows:

> (f) *Balanced indigenous population* means an ecological community which:
> (1) Exhibits characteristics similar to those of nearby, healthy communities existing under comparable but unpolluted environmental conditions; or
> (2) May reasonably be expected to become re-established in the polluted water body segment from adjacent waters if sources of pollution were removed.

discharges of primary effluent have persistently violated the WET limits. *See* Response 10, above. Furthermore, benthic organism monitoring data shows long-term reduced aquatic organism density and reduced species richness at Station 3A, the monitoring site located at the edge of the ZID, and at Station 7A, the next-closest monitoring site.[81] As explained in Response 10 above, EPA has determined that given persistent WET violations by the City's primary treated discharge, the City has not demonstrated to EPA's satisfaction that allowing this discharge to continue will result in water quality that "assures" the protection and propagation of a BIP in the receiving water.[82] While the WET limit violations are sufficient to support EPA's conclusion, EPA finds additional support in the above-mentioned data indicating possible harm from the discharge to benthic life within and immediately beyond the ZID. *See also* Response 17, below.

According to the commenter, using effluent toxicity data to assess whether the quality of the effluent assures the protection and propagation of a BIP is inappropriate because EPA's 1994 Amended Section 301(h) Technical Support Document (the "1994 Amended TSD") "prescribes the use of a biological assessment (not laboratory toxicity testing)." EPA disagrees with this comment for three primary reasons, as discussed below.

First, the 1994 Amended TSD does not "prescribe" requirements for EPA evaluation of applications under Section 301(h) of the CWA. It merely provides guidance for applicants and regulators to consider when developing or reviewing, as the case may be, applications for modifications under Section 301(h) of the CWA. Thus, the 1994 Amended TSD, p. viii, states that it "provides municipal dischargers with technical guidance on preparing applications for section 301(h) modified permits and evaluating the effects of 301(h) discharges on water quality." Moreover, the TSD explains that:

> [t]he guidance provided in this TSD is a general statement of policy. It does not establish or affect legal rights or obligations. It does not establish a binding norm and is not finally determinative of the issues addressed. Agency decisions in any particular case will be made by applying the law and regulations to the specific facts of the case.

Id. Second, while the 1994 Amended TSD suggests that biological sampling (particularly of benthic organisms) may be used to assess compliance with 40 CFR § 125.62(c), which addresses the biological effects of a discharge under a Section 301(h) modification, it does not indicate that whole effluent toxicity data cannot or should not be considered when determining compliance with Section 301(h)(2) of the CWA and 40 CFR § 125.62(c). To the contrary, the 1994 Amended TSD suggests that considering the WET data for this purpose is reasonable and appropriate. Indeed, in EPA's view, ignoring the

[81] EPA memorandum from Alexa Sterling and Steven Wolf to Janet Deshais, EPA, Review of Gloucester WPCF 301(h) monitoring Reports Relative to Potential Environmental Impacts from the Discharge, April 27, 2022.
[82] While the commenter labels the WET test results as "unreliable," EPA has explained in other responses to comments (*see* Responses 10, 18 and 53) that the WET tests are not unreliable and that using them in this case is consistent with both federal and state regulation and policy.

results of tests demonstrating acute toxic effects from the City's primary treated effluent would be unreasonable in this context.

Finally, 1994 Amended TSD explains that biological communities can be affected by POTW discharges in a number of ways, including by the "[i]nduction of diseases in marine organisms by contact with contaminated sediments, ingestion of contaminated organisms, or exposure to effluent." *Id*., pp. 78-79. Thus, considering the toxicity of the facility's effluent makes perfect sense. The 1994 Amended TSD also suggests that a low potential for adverse impact from a discharge would be indicated by, among other things, "[t]he absence of known or suspected sources of toxic pollutants and pesticides or low concentrations of these substances in the effluent." *Id*., p. 82. It stands to reason, therefore, that the converse is also true: i.e., that a low potential for adverse impact to biological communities from a discharge would *not* be shown if data establishes that the effluent is toxic to aquatic life. Therefore, it is appropriate for EPA to consider the WET test results in determining whether the City has satisfactorily demonstrated that its discharge of primary treated effluent would produce water quality that assures the protection and propagation of a BIP.

In addition, considering the WET test results is generally consistent with EPA's longstanding policy to consider all available assessments – including WET testing, chemical-specific testing, ambient water quality and sediment data, and biological monitoring data – and apply them independently in determining whether a water body is attaining aquatic life uses or identifying the potential for pollution sources to cause or contribute to non-attainment of aquatic uses.[83] Thus, as EPA noted in the 2010 TD, at p. 23, where different types of monitoring data are available for assessment, any one assessment is sufficient to identify an existing or potential impact or impairment and no single assessment can be used to override a finding of existing or potential impact or impairment based on another assessment.

EPA disagrees with the City's comment urging that EPA was incorrect to rely on EPA's Technical Support Document for Water Quality-based Toxics Control to support its analysis of the City's application for a modification under Section 301(h). Specifically, in a footnote in the comment, the City argues that EPA should not rely on "the Technical Support Document for Water Quality-based Toxics Control for the premise that toxicity testing results can trump field-based biological monitoring … [because] that guidance is not appropriate for the 301(h) evaluation because it is intended to be used for the purpose of establishing end-of-pipe water quality based effluent limits." This takes too narrow a view of how EPA can use a guidance document. It is within EPA's discretion to utilize any substantively relevant guidance documents to inform its analysis. In the case at hand, EPA was evaluating whether Gloucester's primary treated discharge had toxic effects on aquatic organisms in the vicinity of the outfall, which is relevant to the application of the requirements of Section 301(h)(2) of the CWA and 40 CFR § 125.62(c)(1), and EPA finds that the Technical Support Document for Water Quality-based Toxics Control

[83] "Transmittal of Final Policy on Biological Assessment and Criteria, T. Davies (June 19, 1991) 822/R-91-101.

provides useful guidance for how to evaluate the potential for toxic effects from pollutant discharges. Therefore, it was appropriate for EPA to rely on the Technical Support Document for Water Quality-based Toxics Control, noting in the 2010 TD that "in assessing the impacts of the proposed discharge on aquatic life, EPA policy (i.e., the TSD) recommends the 'independent application' of three types of data: chemical-specific water quality data, whole effluent toxicity data and biological monitoring data." (TD, at 23).[84] Consistent with the TSD's reasoning, not only was it appropriate for EPA to consider the WET test results in determining whether Gloucester's primary treated discharge would satisfy the Massachusetts narrative standard for toxicity, *see* 40 CFR § 125.62(a)(1)(i) and Response 10, above, but it also made sense, and continues to make sense, for EPA to consider those toxicity test results when determining whether continuing the primary treated discharge would produce water quality that assures the protection and propagation of a BIP.

That said, EPA did not base its evaluation *solely* on the WET test data. EPA also considered "the relevant chemical-specific data … and biological monitoring data to assess the impact of the WPCF's discharge on shellfish, fish, and wildlife." TD, p. 23. In the TD, EPA stated that:

> [a]s part of its biological monitoring program under the existing section 301(h) variance-based permit, Gloucester has compared the benthic community found close to the discharge to the community at control sites. The applicant found the discharge and control sites to have very similar abundance, composition and diversity of species. In addition, EPA has not found any reasonable potential for the WPCF's effluent to violate chemical-specific standards established to protect aquatic life.

Thus, EPA relied upon the WET test results but also considered chemical-specific data and benthic data and acknowledged the conclusion drawn by the City about the latter. Having considered all three types of data, it is true that EPA's ultimate conclusion was driven by the results of the WET tests. Contrary to the comment, however, EPA did not ignore the other types of results. EPA explained, however, that if any one of the three types of results revealed a toxicity problem, then that result would drive the decision about toxicity. *See* TD, p. 23.

Beyond the analysis for the 2010 TD, EPA has also reviewed ambient benthic life data collected since 2010. EPA's assessment of this more recent data reaches a different conclusion than the City reached after reviewing benthic data from prior to issuance of the 2010 TD. This is not surprising since biological impacts can become evident quickly in some cases and less quickly in other cases. The data collected from 1990 through 2020 (i.e., since the WPCF began discharging primary treated effluent from the new outfall and

[84] EPA finds that the Technical Support Document for Water Quality-based Toxics Control provides useful guidance for how to evaluate the potential for toxic effects from discharges of pollutants, which is a relevant task when applying the requirements of Section 301(h)(2) of the CWA and 40 CFR § 125.62(c)(1).

diffuser) demonstrate declining species richness and faunal density at Stations 3A and 7A, which are the two closest stations to the outfall. In addition, the opportunistic polychaete *Polygordius jouinae,* which prefers sediments high in organic matter, is reported as a distinguishing species closest to the outfall.[85] Therefore, the more recent biological data adds an additional reason that EPA concludes that the City has not demonstrated that its primary treated effluent would maintain "water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife," as required by Section 301(h)(2) of the CWA and 40 CFR § 125.62(c)(1). *See* Permit Administrative Record, Ambient Monitoring Data, 2017 - 2020.[86]

Finally, fish and many other types of organisms that may come into contact with the WPCF's discharge plume are not stationary. Therefore, the WPCF's toxic effluent is likely to harm aquatic organisms beyond the boundary of the ZID as well as within the ZID. This also contributes to EPA's determination that the City has not adequately demonstrated that continuing its primary treated discharge would result in water quality that assures the protection and propagation of the BIP.

Comment 17.

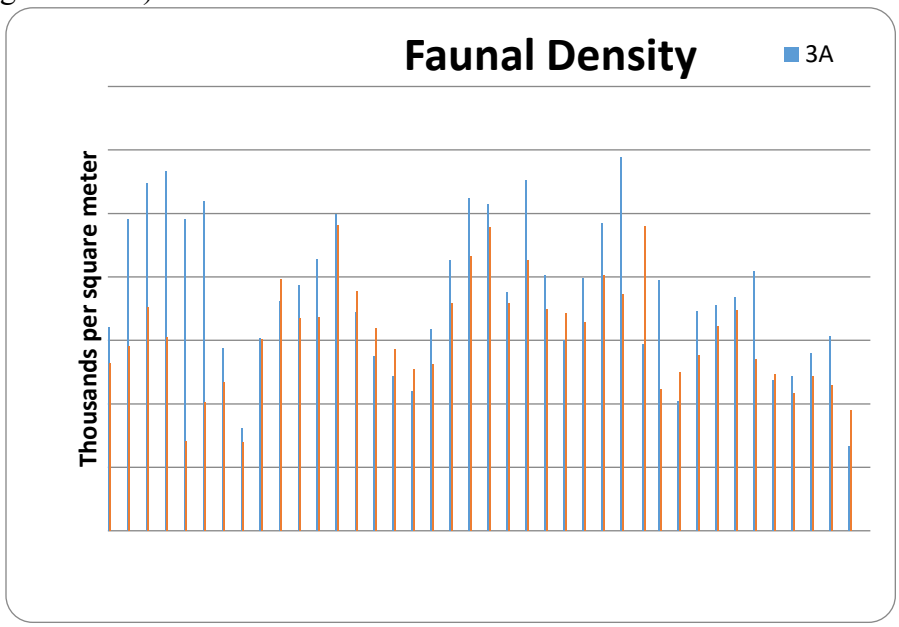
V.A.1. Biological Monitoring Demonstrates the Presence of a Balanced Indigenous Population. The City has spent in excess of $3 million over the last 20 years conducting an extensive EPA-approved monitoring program designed in accordance with the Amended 301(h) Technical Support Document to identify any possible effects of the effluent on the receiving waters. The city believes that EPA has erred in ignoring this powerful data set which clearly demonstrates no impacts from the Gloucester effluent and instead, inconsistently with its own 301(h) guidance, basing its decision on a laboratory test which produces highly variable results of questionable relevance.

The key focus of the monitoring program is the benthic community. These small organisms living in the sediments on the sea floor do not move significant distances and are subject to any organic and contaminant loadings that reach the sediments. There is a very well established base of ecological theory developed over the last 40 years and supported by thousands of peer-reviewed scientific papers that identifies benthic community changes induced by organic loading or contaminant stress. See, e.g., Pearson and Rosenberg (1978); Rhoads and Germano (1982). Pearson and Rosenberg described the differences in community structure (number of species, faunal densities, and species composition) along a gradient from a highly contaminated point source to an uncontaminated area. Changes in the benthic fauna caused by organic loading and contaminants range from very subtle differences in species composition to major reduction in species richness and densities (Figure 6). Gloucester's monitoring program has provided a

[85] EPA memorandum from Alexa Sterling and Steven Wolf to Janet Deshais, EPA, Review of Gloucester WPCF 301(h) monitoring Reports Relative to Potential Environmental Impacts from the Discharge, April 27, 2022.
[86] Gloucester's 301(h) Monitoring Reports for 2017, 2018, 2019, and 2020 by Allan D. Michael & Associates. (The Report for 2020 includes data from 1990-2020.)

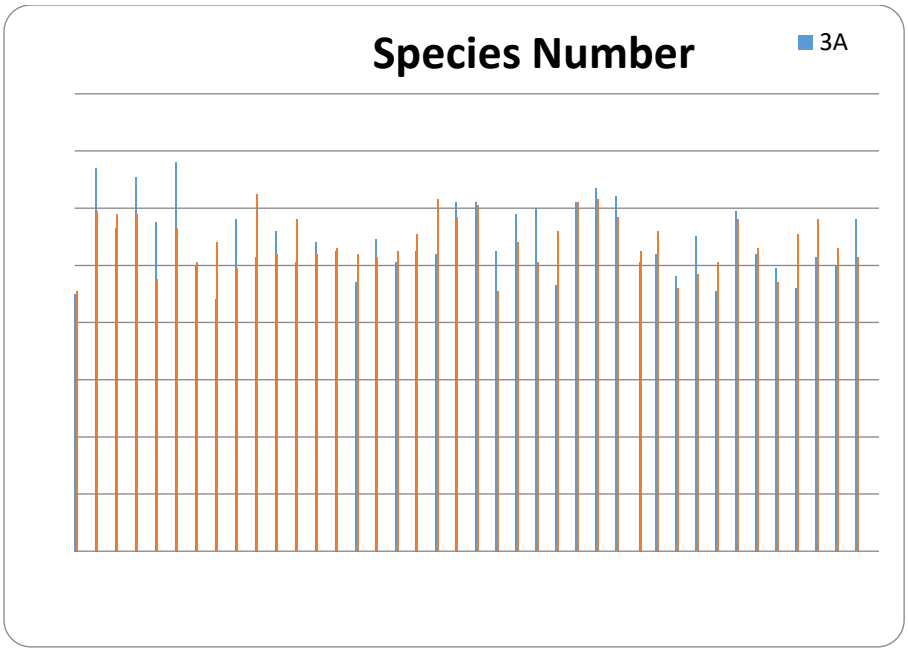
wealth of data that the City has used to evaluate whether the outfall has led to any changes in the benthic community.

One parameter is species density. In the monitoring program, the five replicate benthic grab samples at each site collect show densities of from 20,000 to more than 50,000 organisms per square meter. Densities are highly variable and are affected by the time of sampling with respect to breeding cycles. A recent settlement of juveniles out of the water column produces much higher densities. While the numbers vary widely, there has been no trend of decreasing density at Station 3A, 30 m from the outfall, when compared with a control site, Station 5. Annual variations in faunal density at Station 3A parallel that at Station 5, located more than 500 m distant (see figure below).



Faunal density at Station 3A, 30 m from the outfall, and control Station 5, 1990 - 2009

A more conservative index is species richness, the total number of species found in 5 replicate grabs. This has ranged from about 85 to 130 species in each sampling for the period from 1990 to 2009. There has been no trend of either an increase or decrease in species richness at either the outfall site, Station 3A or the control site, Station 5 (see figure below).



Species richness at Station 3A, 30 m from the outfall, and control Station 5, 1990 – 2009

An even more sensitive parameter is species composition. The slightest environmental stress, be it natural or due to some anthropogenic source, will cause changes in species composition which can be dramatic or very subtle. There have been no such changes in the fauna near the outfall. There has always been a very high level of similarity between the fauna at Station 3A, near the outfall and the other sampling sites (Figure 7). Multivariate classification is an analysis based on all the species present in individual samples. A similarity coefficient is calculated between all possible pairs of samples and a clustering strategy is used to group samples based on the resulting similarity indices. In a very uniform environment, Bray/Curtis similarity between replicate samples taken at the same site will be on the order of 70 – 80%. In Figure 7 it is clear that there is a very high degree of similarity between all sampling sites around the Gloucester outfall after 20 years.

Finally, an inspection of the dominant species at Stations 3A , located 30 m from the diffuser, shows that there has been no change in community structure over a very long time period. In March 1993, 18 months after discharge started at the new outfall, a small polychaete worm, Prionospio steenstrupi, was the most abundant organism followed by a small bivalve, Nucula delphinodonta (Table 7). The same two species were dominant organisms at the outfall station 16 years later. Most of the sub-dominant species were small polychaetes all of which were found in both samplings at the site. Prionospio has been the most common species in all samplings at stations near the outfall except in 1992 when a physical disturbance that affected the whole area allowed more opportunistic polychaetes of the genus Polydora to dominate the fauna for a short period of time. Prionospio was still present but not as the dominant species (ADM, 1994). The benthic community recovered by the end of the year and has shown remarkable stability and persistence over the 20-year period, clearly not affected by the presence of the Gloucester outfall.

The 20 year biological monitoring program conducted by Gloucester has consistently demonstrated that the discharge from the WPCF allows for a balanced indigenous population of shellfish, fish and wildlife.

Response 17

EPA disagrees that Gloucester's biological monitoring data demonstrates the presence of a balanced indigenous population of shellfish, fish and wildlife either within or just beyond the zone of initial dilution. EPA is concerned that the data, instead, indicates that species richness and abundance have decreased over time in the vicinity of Gloucester's discharge. In addition, the opportunistic polychaete *Polygordius jouinae,* which prefers sediments high in organic matter, is reported as a distinguishing species at the two sampling stations closest to the outfall (i.e., Station 3A and 7A).[87]

Given that no baseline data was collected to characterize benthic conditions prior to the outfall coming online in order to allow for comparison with post-discharge conditions, a long-term trend analysis is presented in this Response to Comments. The annual monitoring reports[88] present trend analyses with regard to species richness and faunal density and describe shifts in the specific types of organisms present. Given that benthic conditions can display significant seasonal variability in New England, the spring and late summer/fall data presented in the annual reports were separated out and presented in

[87] EPA memorandum from Alexa Sterling and Steven Wolf to Janet Deshais, EPA, Review of Gloucester WPCF 301(h) monitoring Reports Relative to Potential Environmental Impacts from the Discharge, April 27, 2022.
[88] Gloucester 301(h) Ambient Monitoring Reports for 2017, 2018, 2019, 2020 by Allan D. Michael & Associates.

Figure 3 for species richness and Figure 4 for faunal density below. Note that Station 6 data was not provided in the City's ambient monitoring reports.

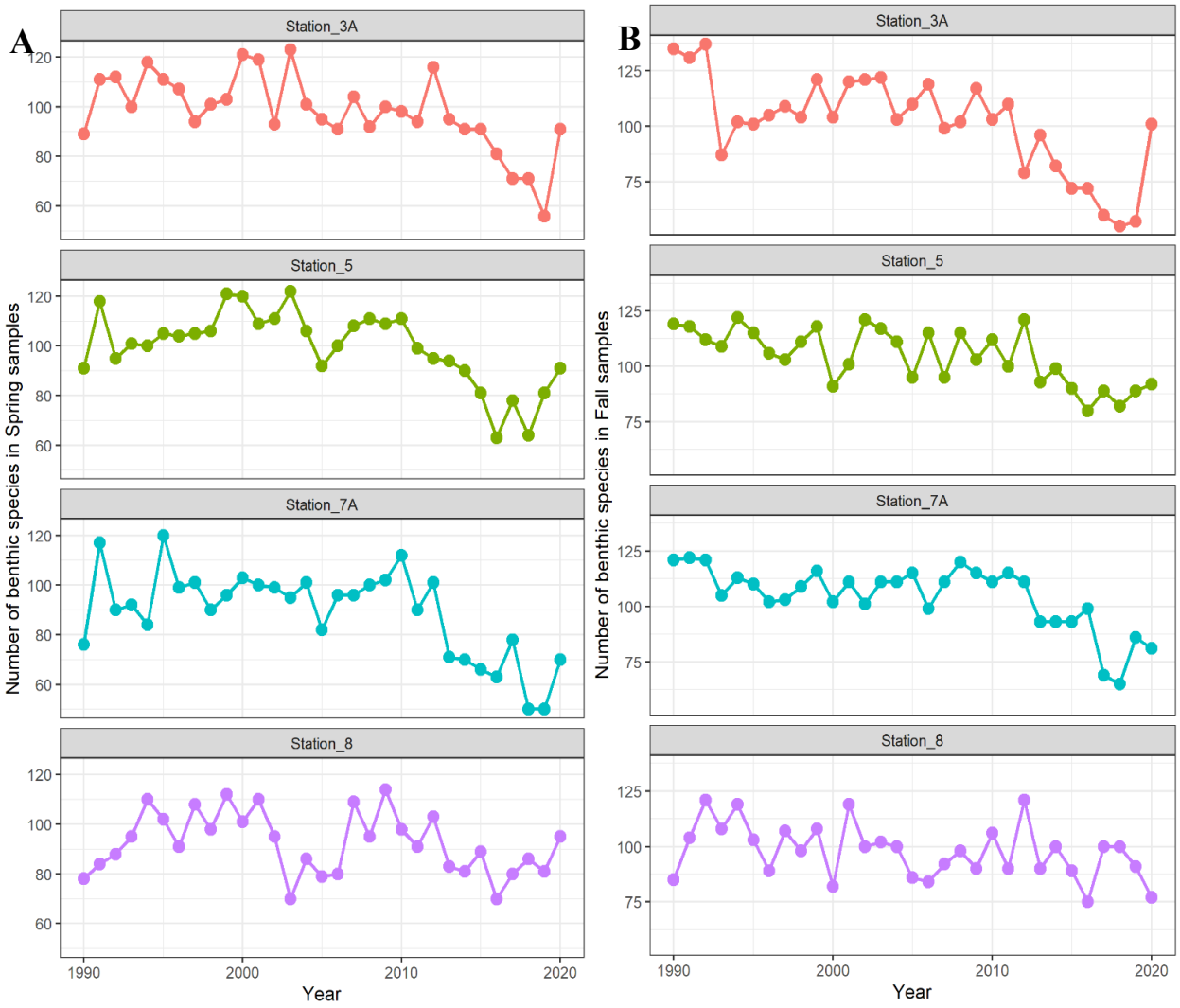


Figure 3. Trends in benthic organism sampling (number of species) across time at four of the five biological sampling sites from 1990 – 2020. These figures were created from estimates of values taken from the graphs presented in the Gloucester 2020 Annual Report, with the seasons separated onto different graphs. **[A]** Number of unique benthic taxa (species richness) observed in the spring sampling event. **[B]** Number of unique benthic taxa (species richness) observed in the late summer/fall sampling event.

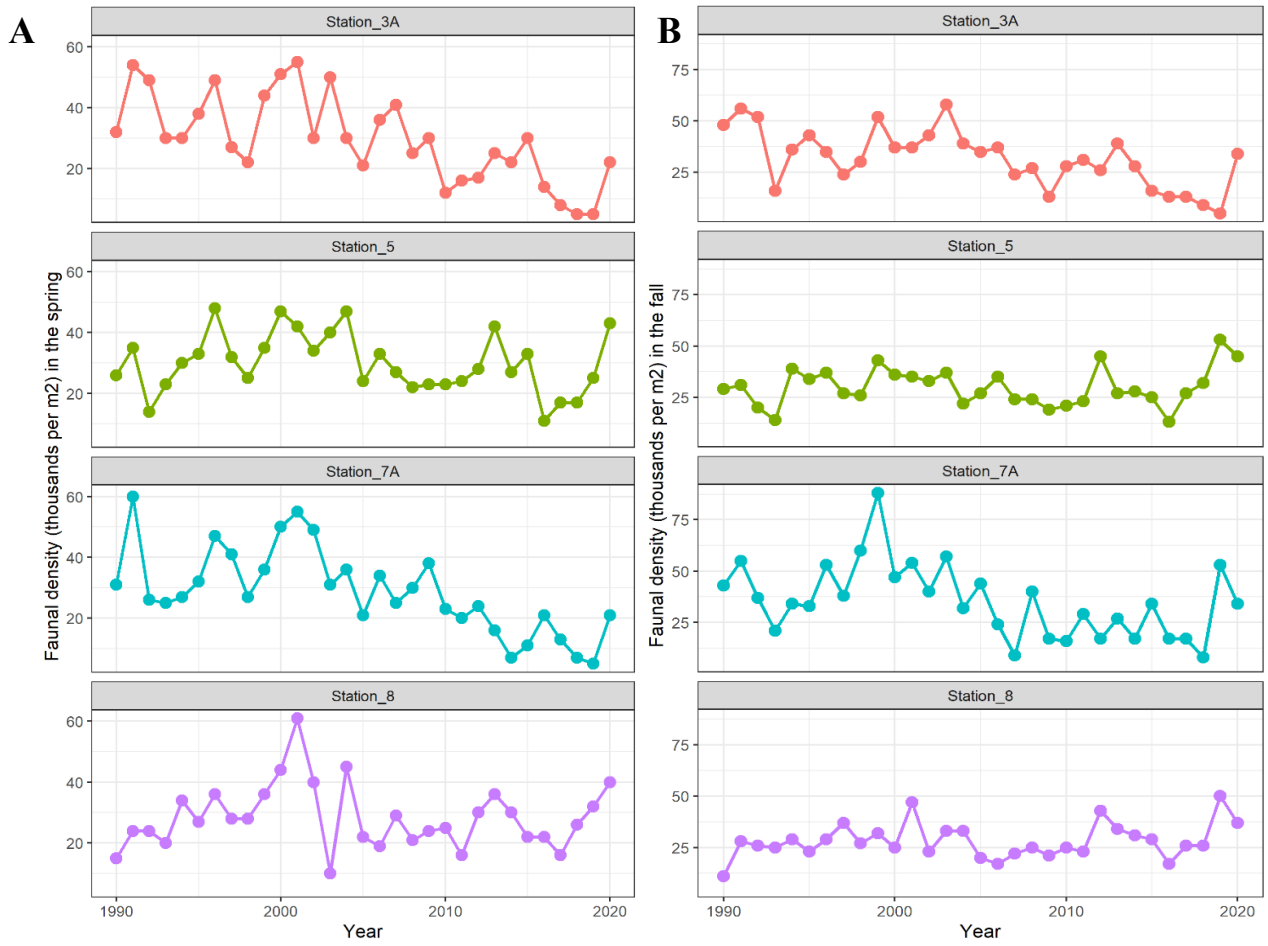


Figure 4. Trends in faunal density from benthic organism sampling across time at four of the five biological sampling sites from 1990 – 2020. These figures were created from estimates of values from graphs presented in the Gloucester 2020 Annual Report, with the seasons separated onto different graphs. **[A]** Density of benthic organisms (thousands of organisms per m^2) in the spring sampling event. **[B]** Density of benthic organisms (thousands of organisms per m^2) in the late summer/fall sampling event.

The data shows a decreasing trend in species richness and aquatic life density at ambient monitoring Stations 3A and 7A, located at the edge of the ZID and beyond the edge of the ZID, respectively. The data also shows that the opportunist polychaete *Polygordius jouinae*, which prefers sediments high in organic matter, is among the dominant benthic species at Stations 3A and 7A, the two stations closest to the outfall. This is an indication of potential adverse impacts related to suspended solids and organic carbon loading from the primary treated wastewater discharge. Given the adverse biological effects indicated by this data, EPA has determined the following: (1) that Gloucester has not established to EPA's satisfaction that continuing its discharge under permit limits modified pursuant to Section 301(h) of the CWA will result in attainment or maintenance of water quality that assures the protection and propagation of a BIP in the receiving water, as required by Section 301(h)(2) of the CWA and 40 CFR § 125.62(c)(1); and (2) that the City has not established that a BIP has been maintained immediately beyond the edge of the ZID and

at least as far as Station 7A, which is inconsistent with the requirements of 40 CFR § 125.62(c)(2)(i). *See also* Responses 6, 16, and 25.

Comment 18.

WET Toxicity Testing is Not an Appropriate Tool for Evaluating Impacts from the WPCF's Discharge. Consistent with the 301(h) guidance, there are many reasons that a biological assessment is most appropriate for evaluating the impacts of Gloucester's discharge and WET testing should not be used. First, a toxicity test is nothing more than a screening tool which tells little or nothing about what actually happens in the environment. The WET testing of Gloucester's effluent does not replicate ambient conditions at the outfall, for a number of reasons, as discussed in Section IV.B. Second, toxicity test results can be quite variable from laboratory to laboratory. Quality assurance testing done annually by regulatory agencies has demonstrated wide variability in results on the same toxicant among various laboratories. Similarly, in a "split-sample" test done during the TIE study on the Gloucester effluent, the effluent passed the test at one laboratory but failed at the other (Brown and Caldwell, 2007). WET testing is unreliable and should not be considered to the exclusion of the 20 years of biological monitoring data demonstrating a balanced indigenous population. Finally, EPA's regulations specify that "[a] balanced indigenous population of shellfish, fish, and wildlife must exist…beyond the zone of initial dilution." 40 CFR § 125.62(c)(2) (emphasis added). Beyond the zone of initial dilution, the effluent is diluted by at least a 59:1 ratio. Thus, WET testing of 6.25% - 100% effluent (1:1 – 16:1 dilutions) provides no information on conditions at and beyond the zone of initial dilution.

Response 18

Gloucester's comment that WET tests are merely "a screening tool" is unsupported. As a general matter, EPA has found that WET testing provides valuable information about the general toxicity of the effluent, especially with regard to possible synergistic effects between two or more pollutants and for pollutants for which chemical-specific toxicity data are not available. Moreover, EPA regulations specifically require that NPDES permits include WET limits and testing requirements if the permitting authority finds that there is reasonable potential for a discharge to cause or contribute to a violation of a state numeric or narrative toxicity criterion. *See* 40 CFR § 122.44(d)(1)(i) – (v). Furthermore, EPA regulations also require that the POTWs with design flows greater than 1 MGD that are seeking permit renewal must submit valid WET test results with their applications. *See* 40 CFR §122.21(j)(5). To the extent that Gloucester is trying to challenge the requirements of the regulations, the time for mounting any such challenges is long since past and the City cannot do so here in comments on the 2010 Draft Permit and TD. In addition to Gloucester's existing permit, examples of other NPDES permits issued to POTWs in Massachusetts that include WET testing requirements include the permits for

South Essex Sewer District,[89] Massachusetts Water Resources Authority,[90] and Fall River.[91]

The commenter also asserts that variability between laboratories renders WET data useless for regulatory purposes. While EPA concedes that there may be some variability between laboratories, that is not the relevant issue here. Based on the City's own testing, the results of which it has submitted to EPA, the WPCF's effluent has persistently exceeded toxicity limits, including in the most recent five years for which data has been submitted (i.e., from 2016 through 2021). These results show that tests using the Inland Silverside exceeded the LC50 limit in 17 out of 20 samples, while tests using the Mysid Shrimp exceeded the LC50 limit in 8 out of 20 samples. *See* Response 10 for a more detailed discussion of this matter.

Finally, the City comments that EPA regulations only require that a BIP be protected at and beyond the edge of the ZID and that the WET test results provide no useful information about conditions at and beyond the edge of the ZID because more dilution is provided there (at least 59:1) than is used in the WET tests in the laboratory. While the City is correct that 40 CFR § 125.62(c)(2) states that a BIP must exist immediately beyond the ZID and in any additional areas more distant from the point of discharge that are affected by the discharge, Section 301(h)(2) of the CWA, as well as 40 CFR § 125.62(c)(1), provide only that the discharge authorized by a Section 301(h) modification must allow for water quality that assures the protection and propagation of a BIP in the receiving water.

In addition, Gloucester's comment makes a similar argument to an argument it presented in Comment 10 and which EPA has already responded to in Response 10. As EPA explained in Response 10, the WET limits in Gloucester's permit apply at the end of the discharge pipe but, consistent with both the Massachusetts Toxics Policy and the Massachusetts Mixing Zone Policy, those limits take into account the dilution provided within the ZID. While EPA has established that a dilution of 59:1 is provided within the ZID, and that the WET limits take that dilution into account, EPA also explained in Response 10 that the WET limits would be the same even if the dilution was as high as 100:1. In light of the City's persistent violations of these WET limits, EPA still finds that Gloucester has not established that continuation of the WPCF's primary treated discharge will allow for water quality that assures the protection and propagation of the BIP either within, or immediately beyond, the ZID. *See also* Response 16.

[89] See EPA's website: "epa.gov/npdes-permits/Massachusetts-final-individual-npdes-permits." SESD WWTF, NPDES No. MA0100501.
[90] See EPA's website: "www3.epa.gov/region1/npdes/mwra.pdf" MWRA WWTP, NPDES No. MA0103284.
[91] See EPA's website: "epa.gov/npdes-permits/Massachusetts-final-individual-npdes-permits." Fall River WWTP, NPDES No. MA0100382.

Comment 19.

In its tentative decision, EPA claims that "the WPCF is very likely currently causing violations of the single sample, primary contact water quality criterion for Class SA waters under the MSWQS," and thus "reflects a threat to the health of persons engaged in water-contact recreation in these waters" (p. 24). As discussed in Section IV.E, above, EPA's claim that the WPCF is "very likely" violating bacteria water quality criteria is unfounded. Further, it is highly unlikely that anyone is engaged in water-contact recreation in the immediate vicinity of the outfall. In its July 2001 Final Decision Document (V.C.4), EPA concluded that the location of the relocated outfall "…has never been identified as a popular scuba diving location." In fact, the closest potential area to the outfall for diving or other recreational activities is the shipwreck Chester C Poling. It is located more than a third of a mile from the outfall. For these and other reasons, EPA determined in 2001 that the "…primary discharge at the relocated outfall site is not impacting recreational activities." Recreational use of the area near the outfall has not changed since 2001, and EPA's conclusion that the discharge is not impacting recreational activities remains valid.

Response 19

This comment raises two issues. First, it questions EPA's view stated in the 2010 TD that the WPCF's discharges were likely causing violations of the Massachusetts water quality criteria for bacteria in Class SA waters used for primary contact recreation. As discussed in Response 13, however, EPA confirms the TD's conclusions underlying this point: namely, that Gloucester has not consistently met the fecal coliform limits in its 2001 permit and no information has been submitted to indicate that it would be able to consistently meet effluent limits based on the primary contact recreation criteria for enterococci that Massachusetts added to its water quality standards to after the 2001 permit was issued to the City. Consistent with the state's standards, and with Section 301(b)(1)(C) of the CWA and 40 CFR § 122.44(d)(1)(i), the State's enterococci criteria will be reflected in the Final Permit's effluent limits for the WPCF.

Second, the City comments that water quality standards to protect primary contact recreation should not apply to the waters receiving Gloucester's discharge because, according to the City, no primary contact recreation occurs in the vicinity of the discharge. In support, Gloucester states that EPA's July 2001 Final Decision indicated that the new discharge location was not affecting recreational activities in the water. EPA disagrees with the City's comment. The fact remains that Massachusetts has made primary contact recreation a designated use for these SA waters. EPA is not free to ignore that. Furthermore, whatever EPA concluded in 2001 about recreational use of these waters, EPA now finds that these waters are, in fact, used for primary contact recreation. This is also discussed in Response 13, above. As EPA explained in the 2010 Tentative Decision, p. 20, "[t]he Nina T and the Poling are two shipwrecks that are popular diving sites and are within a thousand meters of the outfall." (2010 TD, at 20). *See also* Response 13, Figure 1 (depicting relative locations of the outfall and the two dive sites). These two wrecks have been active dive sites for many years, as indicated in Response

13.[92] Thus, it is evident that primary contact recreation has occurred, and continues to occur, in the waters near the outfall. As a result, as discussed in Response 13, above, primary contact recreation is not only a designated use for Class SA waters, it is also an existing use in the area of Massachusetts Bay into which the WPCF discharges its effluent. Thus, the Final Permit includes limits based on the state's current primary contact bacteria criteria to ensure that recreational activities, such as scuba diving,[93] will be protected consistent with State standards and as a result of the implementation of secondary treatment as required by this Final Decision.[94]

In light of the WPCF's history of intermittent bacteria violations, EPA concluded in the TD, p. 24, that "the applicant has not demonstrated that its proposed [primary treated] discharge would allow for the attainment or maintenance of water quality which allows for recreational activities beyond the ZID." (TD, at 24). This remains EPA's view in light of the most current bacteria data, as discussed in Response 13.

Comment 20.

The Discharge Will Comply With Provisions Of Other State, Local And Federal Laws. VI.A. Ocean Sanctuaries Act. The waiver denial states (pp. 28-29) that the WPCF is covered by the "grandfathering" provisions of the Massachusetts Ocean Sanctuaries Act, M.G.L. c. 132A §§ 12A-18, which would require a variance for any flow increase.

This statement is incorrect. Gloucester's WPCF is not subject to the requirements of the Massachusetts Ocean Sanctuaries Act. A Special Act of the General Court made a specific exception for the Gloucester facility (see Attachment A):

> Notwithstanding the provisions of sections fourteen, fifteen, sixteen and eighteen of chapter one hundred and thirty-two A of the General Laws, the city of Gloucester may build and discharge from a primary wastewater treatment facility with an extended outfall as described in the application submitted to the administrator of the Environmental Protection Agency of the United States for a waiver of the secondary wastewater treatment requirement as provided by 33 USC 1343.

Chapter 120 of the Acts of 1981 (May 1, 1981).

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[92] The Chester A. Poling sunk in 1977, while the Nina T was scuttled in 1997. http://www.seconndivers.org/new-england-diving/wreck-of-the-chester-a-poling/ (last visited on Feb. 18, 2022); https://northernatlanticdive.com/shipwrecks/nina-t/ (last visited on Feb. 18, 2022).

[93] EPA notes that the dive sites mentioned in the 2010 Tentative Decision as being within 1000 meters of the outfall pipe are actually closer: the Nina T is located approximately 100 meters from the end of the outfall pipe and the Chester A. Poling lies approximately 608 meters from the outfall. *See* Response 13, Figure 1 (depicting the relative locations of the outfall and the two wrecks). *See also, e.g.*, divedaybreaker.com which advertises trips to the Chester Poling stern and the Nina T on a regular basis (last visited October 22, 2020).

[94] The concerns about the health impacts for recreational users of Massachusetts Bay near the outfall were also raised by the Surfrider Foundation (*see* Comments 66-75).

The application Gloucester had submitted to the Environmental Protection Agency described a facility with design average flow of 7.24 MGD and design maximum flow of 15 MGD (see Attachment A); the facility was constructed as designed, and Gloucester is not proposing to significantly increase flow at all, much less beyond the design flow of the plant as contemplated in Chapter 120 of the Acts of 1981. Thus, the discharge from the Gloucester WPCF is exempt from the requirements of the Massachusetts Ocean Sanctuaries Act.

Response 20

As previously explained, EPA has concluded that Gloucester's request for a 301(h) modification must be denied and the City's NPDES permit must include secondary limits. EPA agrees with the commentor, however, that an effluent flow increase by the WPCF will not require a variance from the Massachusetts Ocean Sanctuaries Act, M.G.L. c. 132A §§ 12A-18 ("MOSA"), as long as any such flow increase does not exceed the parameters set forth in Gloucester's original application from 1981 which described a potential average monthly design flow of 7.24 MGD and a maximum design flow of 15 MGD. EPA, after consultation with MassDEP, agrees that Chapter 120 of the Acts of 1981 specifically stated that Gloucester could extend its outfall and discharge primary effluent if it did so within the parameters specified in its original application to EPA requesting a waiver of secondary treatment requirements. Thus, while Gloucester is not exempt from the MOSA, as long as it keeps its effluent flow within the bounds of the application made in 1981, it does not need a variance from MOSA. Furthermore, the 2014 revisions to MOSA, see Chapter 132A, Section 16H, specifically state that "[n]othing in this chapter is intended to alter the effect of the previous exemptions granted under chapter 120 of the Acts of 1981 and chapter 369 of the Acts of 1984."

In order to more specifically reflect the MOSA requirement and the 1981 application, the Final Permit language under Part I.A.1., footnote 2, notation number 4 has been replaced with the following language, "no variance from the Massachusetts Ocean Sanctuary Act, Ch 132A §§ 12A-18, is necessary as long as the average monthly design flow does not exceed 7.24 MGD and the maximum design flow does not exceed 15 MGD."

EPA notes that Gloucester still must comply with other requirements as set forth in the Final Permit before a flow limit increase is deemed appropriate (*see* Final Permit, footnote 2).

Comment 21.

VI. B. Compliance with Other State and Federal Laws. The relevant state and federal agencies concurred with EPA's 2001 waiver decision, and there are no changed circumstances that would warrant disapproval of this waiver renewal now. Moreover, EPA has not stated any reason to believe that renewal of Gloucester's 301(h) waiver would fail to comply with other state or federal laws, and does not appear to have even contacted any of the relevant state or federal agencies to seek their opinions.

Response 21

EPA disagrees with Gloucester's comment suggesting 1) that there are no changed circumstances since 2001 that would warrant disapproval by "[t]he relevant federal and state agencies" of the City's requested renewal of the Section 301(h) modification, 2) that EPA has not stated any reason to suggest that renewal of the 301(h) modification would not comply with *other* state and federal laws, and 3) that EPA has not contacted other state and federal agencies to seek their opinions.

While it is true that relevant state and federal agencies concurred with the City's 2001 permit, which included effluent limits based on a modification under Section 301(h) of the CWA, past approval of a Section 301(h) modification does not guarantee approval of future requests for renewal of that Section 301(h) modification by either EPA or other state or federal agencies with applicable regulatory responsibilites. Under Section 301(h), a permittee must obtain a renewal of its Section 301(h) modification with every subsequent NPDES permit renewal, and with every permit cycle, the POTW must show that the statutory and regulatory requirements of Section 301(h) continue to be met and EPA and other agencies must look at existing circumstances when undertaking their regulatory responsibilities. *See* 40 CFR §§ 125.59(c)(4), (d)(5), and (f)(1)(ii). *See also* 40 CFR § 125.9(b)(3) ("No section 301(h) modified permit shall be issued: … [w]here such issuance would conflict with applicable provisions of State, local, or other Federal laws or Executive Orders.").

EPA also disagrees with the commenter's suggestion that "there are no changed circumstances that would warrant disapproval of this waiver renewal now." In the Responses to Comments above, EPA has detailed a variety of facts establishing that Gloucester's discharge does not currently satisfy the standards for obtaining a 301(h) modification. These facts include the following: (a) WET limits and testing requirements were included in the 2001 Permit for the first time and the WPCF has intermittently, but persistently, been unable to meet those limits (*see* Response 10); (b) TPH limits were also added to the 2001 permit and Gloucester has intermittently violated those limits (*see* Response 12); and (c) the facility's discharge has caused or contributed to exceedances of water quality crteria in the MA WQS for toxicity (Response 10), oil and grease (Response 11), and bacteria (*See* Responses 13, 14, 19). Furthermore, MA adopted new water quality criteria for enterococci in 2006 that Gloucester must now meet and EPA has concluded that it is unlikely that the City will be able to do so given its inability to consistently meet the applicable fecal coliform standards. (*See* Response 13; TD. pp. 20-21). As a result of these problems, EPA has decided that it must reject the City's request for renewal of the 2001 Permit's effluent limits based on a modification under Section 301(h) of the CWA, and other state and federal agencies would also be unlikely to approve of such a renewal under their regulatory responsibilities. This is discussed in more detail below.

Contrary to the comment, EPA has consulted with relevant state and federal agencies about this permit, including the following:

- Massachusetts Department of Environmental Protection (MassDEP);
- Massachusetts Coastal Zone Management Office (MassCZM);
- Massachusetts Division of Marine Fisheries (MassDMF);
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Gloucester, MA;
- U.S. Department of Interior, U.S. Fish and Wildlife Service (US F&WS), and
- U.S. Coast Guard (USCG).

The Administrative Record for this permit reissuance documents EPA's ongoing consultation with MassDEP as well as with other federal and state agencies.[95]

For the current permit proceeding, EPA's consultation with the MassDEP began with the initial permit and state license reissuance meeting held with Gloucester on January 6, 2007, and has continued through development of the new Final Permit. Consistent with the Draft Permit, Gloucester's Final Permit based on the implementation of secondary treatment is being issued jointly with the MassDEP as both a federal and state discharge permit. In addition, MassDEP has certified under Section 401 of the CWA that the Final Permit with secondary treatment-based limits will be protective of Massachusetts water quality standards. Given the WPCF's problems meeting water quality standards described above, it seems unlikely that the MassDEP would have been able to certify a permit with limits that allowed continuation of Gloucester's primary treated discharge under a Section 301(h) modification.

On August 8, 2008, EPA began a dialogue with the MassCZM by email. EPA has continued to coordinate with MassCZM as the permit development process proceeded. As a result of delays in the permit process, MassCZM ultimately publicly noticed the Draft Permit in the Massachusetts Environmental Monitor on May 20, 2022. MassCZM concurred on June 22, 2022, with the Permittee's certification that the Final Permit would be consistent to the maximum extent practicable with the enforceable policies of the Massachusetts Coastal Zone Management Program. Given the above-discussed problems with the primary treated discharge, EPA finds it unlikely that MassCZM would have been able to concur with a determination that the permit authorizing the continued discharge of primary treated effluent would be consistent with the state's Coastal Zone Management Program. *See* 40 CFR § 125.59(b)(3).

EPA's public notice for the Draft NPDES permit and the 2010 Tentative Decision on the City's Section 301(h) waiver application was also sent to NOAA, NMFS, the US F&WS, and the USCG. With regard to the proposed NPDES permit based on secondary

[95] The Administrative Record consists of documents which are available for public inspection at EPA's Boston Office. Because of the volume of the documents, EPA has not listed them individually in this response.

treatment, EPA completed consultation with NMFS under the Endangered Species Act (ESA), as documented in a letter dated April 13, 2016, from NMFS to EPA. EPA also completed consultation with NOAA with regard to essential fish habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act in 2016. In 2021, EPA reached out to NOAA again and confirmed that consultations were complete under both ESA and EFH requirements. Finally, EPA also determined that the new Final Permit for Gloucester will comply with the ESA with respect to species under the jurisdiction of the US F&WS.

Beyond the above communications with state and federal agencies, EPA also published the public notices of availability of the Draft Permit and Tentative Decision for review and comment in the Gloucester Daily News. Additionally, the public notices were emailed to over 50 additional entities, including both government offices and non-governmental organizations, who had previously requested such notification, and EPA also made the Draft Permit and Tentative Decision publicly available on its Regional NPDES permit website.

Comment 22.

VII. COMMENTS ON DRAFT NPDES PERMIT REQUIRING SECONDARY TREATMENT. At the same time it issued its draft denial of the 301(h) waiver, EPA also released a draft NPDES permit for the Gloucester WPCF incorporating secondary treatment requirements. As stated to EPA in a letter dated January 5, 2011, the City believes that drafting of the NPDES permit should take place after EPA has issued its final decision on the 301(h) waiver. Nonetheless, the City is preparing comments on the draft permit, which it will submit before the close of the public comment period, which has been extended until the date of the public hearing in this matter, currently scheduled for March 24, 2010.

Response 22

EPA disagrees with the City's comment suggesting that EPA should not have issued the Draft Permit containing secondary treatment requirements for public comment at the same that it issued the Tentative Decision proposing to deny the City's request for renewal of its Section 301(h) modification. EPA's simultaneous issuance of the two documents for public review and comment was procedurally proper. EPA issued the Tentative Denial for public review and comment consistent with 40 CFR § 125.59(h) (issuance of tentative denials), and issued the Draft Permit for public review and comment consistent with 40 CFR §§ 125.59(i)(4)(i) and 124.6 and 124.10(a). Given EPA's Tentative Decision to deny the request for renewal of the Section 301(h) modification, it was appropriate for EPA to include requirements based on secondary treatment in the Draft Permit. Moreover, EPA is now issuing its Final Decision denying Gloucester's 301(h) waiver request, as well as these Responses to Comments and the Final Permit based on secondary treatment requirements.

EPA acknowledges receipt of Gloucester's comments on the Draft Permit that are mentioned in the comment above and responds to them below (*see* Responses 31- 61).

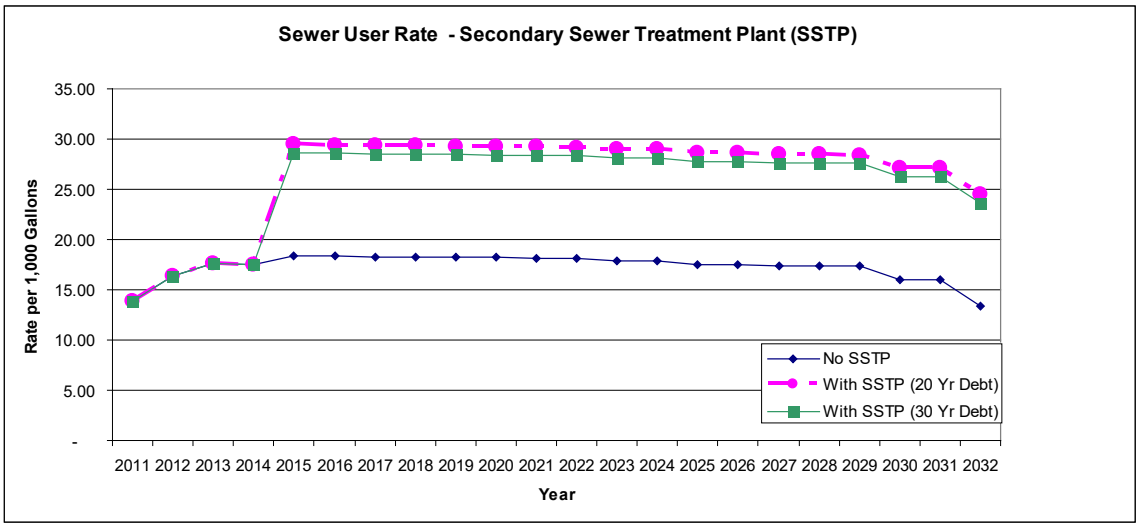
Comment 23.

VIII. Sound Public Policy Favors The Issuance Of a 301(h) Waiver For The WPCF. VIII.A. The Financial Impacts to the City of a Secondary Treatment Plant Would Be Enormous. The City has completed a preliminary evaluation of the impacts of this proposed waiver denial on the financial situation of the City and affordability to ratepayers [which is available in the Administrative Record for this permit.] The analysis is based on preliminary estimates of the capital and operating costs of a new secondary wastewater treatment plant to replace the existing advanced primary plant. Preliminary estimates indicate that a new secondary facility would cost approximately $60,000,000, not including land and other ancillary costs. Annual operation and maintenance costs would be approximately $1,000,000 per year above the existing operating costs.

The following would be the consequences of EPA's proposed action:

1. Without the Construction Grants program, which EPA instituted in 1972 to pay 75% of the cost of secondary treatment plant for communities that did not receive a 301(h) waiver, the full cost of the new facility would fall on the ratepayers of Gloucester. There are currently no federal grants available for secondary treatment plant construction, as there were for all of the secondary plants built between 1972 and 1990.

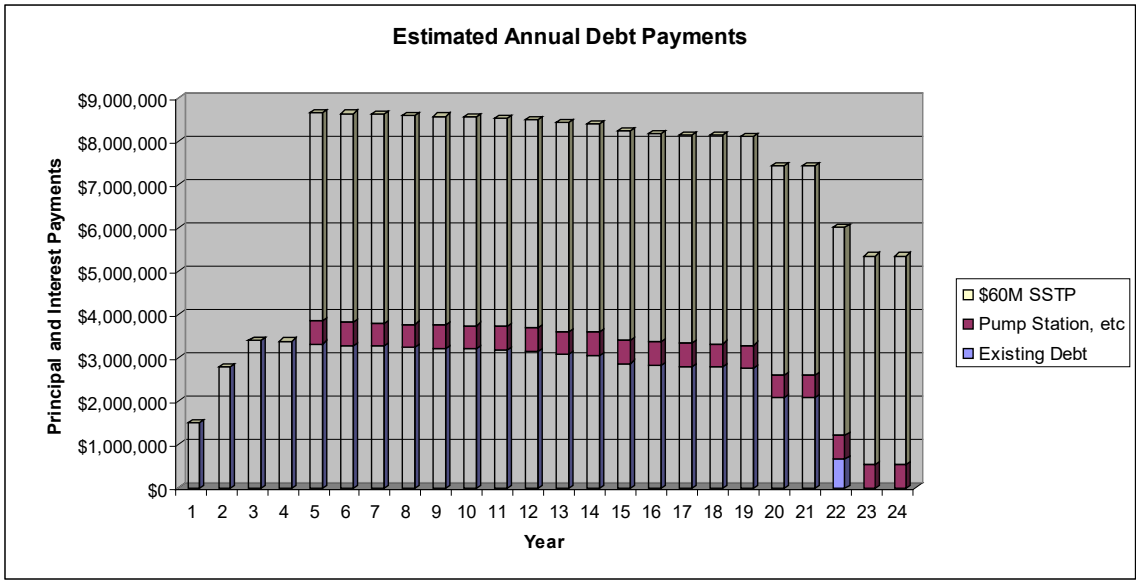
2. Including the increased operations and maintenance costs with capital costs, annual charges for the average Gloucester household would increase from $1,251 per year presently to approximately $2,570 per year (see figure below). By comparison, the average 2009 rate per household in Massachusetts was $584 per year. The highest rate in Massachusetts in 2009 was $1,632.96



[96] 2009 Massachusetts Sewer Rate Survey, Tighe & Bond.

3. This annual charge would be about 5.4% of the Median Household Income in the City, almost three times the percentage that EPA considers a "very high" burden on residential customers in its guidance on affordability of sewer infrastructure improvements.

4. The total sewer enterprise debt of the City would more than double, which could have a significant impact on the City's bond rating (see figure below).



5. Because of the current high employment [we assume the commenter meant "unemployment rate"] and foreclosure rates and the high number of citizens on fixed incomes, such an increase in user charges would likely result in payment defaults and decrease user charge collection percentages.

6. The large increase in rates could cause Gloucester to lose businesses to other towns or areas of the country, exacerbating the unemployment rate and increasing residential user rates (above those estimated above) as operating and debt service costs are reallocated from the commercial – industrial base to the residential base.

7. The ability of the City to operate, maintain, repair and replace aged sewerage infrastructure, as well as comply with existing commitments to CSO control in addition to new EPA regulations on stormwater, would be seriously limited. The risk and danger of the failure of critical existing equipment and systems would increase, adding additional burden to municipal budgets.

In the current and probable future economic climate, the mere perception of dramatically increased future costs of public utilities, especially water and wastewater services such as those

that would be required in this case, could be expected to have serious and immediate repercussions in the business and real estate sectors of the City. The very large increases in user rates resulting from EPA's proposed decision might be justified by clear, beneficial environmental improvements that would increase property values, quality of life, or other social or economic conditions in a community. In this case, the threat of quantum increases in the cost of wastewater service, combined with no measurable environmental improvement, only poses a long-term economic threat to the City of Gloucester, with no associated benefits. In summary, EPA's tentative decision creates a very critical and serious economic threat to the City.

Response 23

Two significant issues are raised by this comment: first, that EPA should take the cost of constructing secondary treatment into account in rendering its decision on Gloucester's request for an ongoing 301(h) modification; and, second, that the costs of construction and ongoing maintenance will raise Gloucester's sewer rates to excessive levels that will result in other significant negative economic impacts to the City and its residents.

With respect to the first issue, EPA plainly acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester, but the criteria that the Clean Water Act and EPA regulations specify are to be considered when making decisions on requests for Section 301(h) waivers focus solely on environmental factors and do not address economic considerations. *See* 33 U.S.C. § 1311(h); 40 CFR Part 125, Subpart G. *See also NRDC v. U.S. Env. Prot. Agency,* 656 F.2d 768, 784 (D.C. Cir. 1982); *In re Guam Waterworks,* 15 EAD 437, 466 (EAB 2011). Moreover, the primary treated effluent discharges from Gloucester's WPCF satisfy neither State water quality standards nor the statutory and regulatory criteria that must be met to support approval of a Section 301(h) modification. (*See* Responses 1, 10 – 19). Again, as EPA has also explained in denials of other Section 301(h) waiver applications, the decision on whether to issue or renew a 301(h) waiver does not factor in cost considerations.[97]

With respect to the second issue – while increases to sewer rates and other affordability issues cannot be factored into our analysis for whether to approve a 301(h) modification, they do provide relevant information for determining an appropriate schedule for the needed future treatment plant upgrades. Consistent with the environmental standards of the CWA (as well as various state environmental laws), nearly all municipal sewage treatment plants in the Nation already provide secondary (or even more advanced) wastewater treatment. For some communities, however, this is more financially difficult than it is for others.

[97] See e.g., Response to Comments on Tentative Decision to Deny the City and County of Honolulu's Request for a Variance at the Sand Island Wastewater Treatment Plant under Section 301(h) of the Clean Water Act, page 66, United States Environmental Protection Agency, Region 9 (January 5, 2009).

EPA works closely with municipalities to ensure that CWA compliance schedules are sustainable and within municipal financial capability. User rates are a critical measure of affordability and EPA is committed to working with Gloucester to develop an appropriate schedule for upgrading the WPCF to provide secondary treatment. Over the years, EPA has engaged with many New England communities who have confronted the challenge of meeting NPDES effluent limits in the face of other competing municipal financial obligations.[98] As EPA has indicated to the City on many occasions, and we reiterate here, it is EPA's intent to factor the City's financial capability, including consideration of other environmental obligations and fiscal challenges faced by Gloucester, into any compliance schedule that determines the amount of time that Gloucester needs to design and construct its secondary treatment facility (*See* Response 1, footnote 2). *See also Guam*, 15 EAD at 467 n. 46.

Gloucester raises a number of other economic considerations in this comment that are not properly considered in the context of 301(h) decision-making, although some of them may, as stated above, be factored into considerations relevant to affordability and the amount of time Gloucester is given for the design and construction of its secondary treatment facility. EPA notes that while implementing secondary treatment will be costly, it is also true that more than 11 years have gone by since Gloucester submitted its comments and the City has not yet been required to make significant expenditures toward secondary treatment. EPA is hopeful that this benefited the City from a financial standpoint. EPA also notes again that once secondary treatment is implemented, Gloucester is likely to be in a position to receive approval for an increase in its permitted flow, which could result in additional businesses being able to utilize the wastewater system.

Finally, EPA strongly disagrees with the comment's statement that secondary treatment would have negative financial impacts while providing "no measurable environmental improvement …." EPA has detailed in the Responses to Comment above the many environmental improvements that will come with providing secondary treatment, including reduced effluent toxicity and reduced discharges of bacteria and oil and grease.

Comment 24.

VIII.B. Congress Recognized the Financial Burden of Upgrading to Secondary Treatment and Enacted Section 301(h) to Alleviate the Burden. On passage of the Clean Water Act in 1972, Congress recognized the very heavy financial burden of secondary treatment being mandated on publicly owned treatment plants. In light of this burden, Congress enacted two interrelated provisions that allowed cities to meet the enormous capital and operating requirements:

[98] *See* compliance schedules in final permits for Pittsfield (MA0101681) and for Springfield, MA (MA0101613) for examples of compliance schedules to meet water quality based effluent limits in permits. In addition, many facilities are subject to compliance schedules in administrative orders in addition to, or in lieu of, compliance schedules including in the applicable permit.

1. The 301(h) waiver provisions; and

2. The Construction Grants Program that provided 75% grants to communities for upgrade to secondary treatment.

Response 24

EPA acknowledges receipt of these comments and responds more fully in Responses 23, 25 and 26.

Comment 25.

VIII.B.1. Waiver Intent. Congressional intent in creating the § 301(h) waiver provision was to establish an alternative to costly secondary treatment for municipalities that are located near coastal waters with adequate assimilative capacity when there would be no significant impact on the marine environment. [Footnote: See H.R. Rep. 97-270, at 17 (1981), *reprinted in*, 1981 U.S.C.C.A.N. 2629, 2645.]. The legislative history contains numerous references to Congress' concern about the enormous costs associated with secondary treatment especially in contrast with the small marginal benefits when the outfall was in an active, deep-water marine environment. [Footnote: See H.R. Rep. No. 97-270, at 17 (1981), reprinted in 1981 U.S.C.C.A.N. 2629, 2645 ("In view of these factors, and *in order to achieve needed savings in the cost of treatment of municipal wastes,* the Committee considers it desirable to make the operation of ocean discharges available where it can be shown that unacceptable adverse environmental effects will not result.") (emphasis added); *see* 95 Cong.Rec. S19,679 (1977) (daily ed. Dec. 7, 1977); *see also Rite-Research, Etc. v. Costle*, 650 F.2d 1312, 1318 (5th Cir. 1981) ("There are a number of communities that have been and will be subjected to administrative burdens way beyond their financial and administrative capacity because of the need to comply with the secondary treatment requirement … [T]he Congress has announced its intention to put some sense into the treatment of municipal wastes"); see S. Rep. No. 95-370, at 44 (1977), *reprinted in* 1977 U.S.C.C.A.N. 4326, 4369 ("This provision's goal is to limit unnecessary treatment for treatment's sake").] A key congressional report stated it clearly: There have been continuing increases in [the cost to construct secondary treatment]. In view of these factors, and in order to achieve needed savings in the cost of treatment of municipal wastes, the Committee considers it desirable to make the operation of ocean discharges available where it can be shown that unacceptable adverse environmental effects will not result. [Footnote: *See* H.R. REP. NO. 97-270, at 17 (1981), *reprinted in* 1981 U.S.C.C.A.N. 2629, 2645 (emphasis added).]

Federal courts have also emphasized the importance Congress placed on the avoidance of the unnecessary cost of constructing secondary treatment facilities by municipalities that can discharge to an active ocean environment. For example, the United States Court of Appeals for the District of Columbia Circuit said that § 301(h) was designed to "allow some savings in sewage treatment through harmless marine discharges." [Footnote: *Natural Resources Defense Council, Inc.* v. *U.S. Environmental Protection Agency*, 656 F.2d 768, 780 (D.C. Cir. 1981) (citation omitted)]. Furthermore, the Court found "[t]he purpose of § 301(h) is to permit some coastal municipal sewage treatment plants to avoid costs associated with secondary treatment so

long as environmental standards can be maintained. If a treatment plant can discharge a pollutant and meet the criteria of § 301(h), unnecessary expenditures may be avoided." [Footnote: *Id*. At 784 (emphasis added)].

EPA rightfully granted Gloucester a 301(h) waiver in 1985, consistent with the intent of Congress and consistent with the provision that a 301(h) waiver was appropriate "where it can be shown that unacceptable adverse environmental effects will not result." As shown in this document, and in light of the total absence of any evidence from EPA to the contrary, 20 years of monitoring and testing at the site of the discharge has shown that there are no adverse environmental impacts and that EPA's decision to grant the waiver was justified and in accordance with the intent of the law.

Response 25

Congress enacted the Clean Water Act to restore and maintain the health of the nation's waters. *See* 33 USC § 1251(a). As part of this effort, it mandated secondary treatment as the baseline sewage treatment technology to be provided by publicly owned treatment works ("POTWs"). 33 USC § 301(b)(1)(B). Furthermore, the statute provides that even more advanced treatment requirements might have to be met to satisfy state water quality standards. *See* 33 USC § 1311(b)(1)(C). Gloucester is correct, however, that Congress acknowledged, and was concerned about, the significant financial costs that municipalities would incur to implement secondary treatment. As a result, in the Clean Water Act of 1972, Congress established a construction grant program to assist POTWs with the expense of secondary treatment. *See* 33 USC § 1281.

In addition, Congress also provided in Section 301(h) of the Clean Water Act, 33 USC § 1311(h), the opportunity for a municipal sewage treatment plant discharging into marine waters to obtain a modification (or waiver) of the otherwise applicable secondary treatment requirements if it could demonstrate its ability to meet the criteria specified in Section 301(h) and EPA's implementing regulations. These standards for obtaining a Section 301(h) modification include a series of environmental criteria and do not include cost or affordability considerations.[99] Only under these limited circumstances did Congress provide that a POTW could avoid needing to provide secondary treatment for its sewage.

For its part, Gloucester initially chose to pursue a Section 301(h) modification rather than seek federal funds to assist with the construction of secondary treatment facilities. The City's initial applications for a modification were granted by EPA, but under Section 301(h), a permittee must obtain a renewal of its Section 301(h) modification with every subsequent NPDES permit renewal. *See* 40 CFR §§ 125.59(c)(4), (d)(5), (f)(1)(ii). Thus,

[99] As EPA stated in its Response to Comments ("RTC") denying the City of Honolulu's request for an ongoing 301(h) modification: "[n]either the court decision [Natural Resources Defense Council v. U.S. EPA, also cited by Gloucester] cited by the commenter nor the legislative history of section 301(h) suggests in any way that a 301(h) variance [modification] can be granted because of cost considerations when the applicant fails to satisfy the specific statutory criteria." RTC, City of Honolulu, pages 66-67. *See also NRDC,* 656 F.2d at 784; *Guam,* 15 EAD at 466.

with every permit cycle, the POTW must show that the statutory and regulatory requirements of Section 301(h) continue to be met. Gloucester's application has not, however, made such a demonstration. (*See* Responses 1, 10-19).

The City's comment seeks to emphasize the cost-avoidance aspect of Section 301(h), but the passages of legislative history and judicial decisions cited by Gloucester cannot be interpreted to override the application of the statutory and regulatory criteria which must be met in order to justify granting a Section 301(h) modification request. Moreover, the language quoted in the comment clearly indicates that the cost of secondary treatment can be avoided only if the environmental standards are met. EPA has addressed these sorts of arguments before in the context of other Section 301(h) modification requests and reached similar conclusions. *See NRDC,* 656 F.2d at 784; *Guam,* 15 EAD at 466; RTC, City of Honolulu, pages 66-67.

The preamble to EPA's regulations under Section 301(h) explains that because "a number of municipalities, primarily from the West Coast, argued to both Congress and the EPA that secondary treatment of municipal ocean discharges is not necessary to protect the marine environment or to assure the attainment and maintenance of water quality in ocean waters, … Congress added section 301(h), which allows a municipal marine discharger to present its case to EPA." *See* 44 FR 34784 (June 15, 1979) (Final Rule). Thus, the burden to support a 301(h) modification request rests with the applicant for such a modification to present sufficient evidence to demonstrate the basis, as set forth in the 301(h) requirements, that a treatment plant with a modification from secondary treatment will nevertheless adequately protect the marine environment.[100] Indeed, Gloucester acknowledges in its comments that Congressional intent in creating the 301(h) modification program was based on ensuring that there would be no "significant impact to the marine environment."[101] As we reiterate throughout this Response to Comments document, Gloucester's primary treated discharge is unable to satisfy the statutory and regulatory criteria that must be met to support a 301(h) modification 40 CFR § 125.59(b)(1). (*See* Responses 1, 10-19).

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[100] As stated in the preamble to EPA's regulations, "Section 301(h) provides that the Administrator, upon application of a POTW and with the concurrence of the State, may issue an NPDES permit which modifies EPA's secondary treatment requirements if the applicant: (1) discharges into certain ocean and estuarine waters; and (2) demonstrates, to the satisfaction of the Administrator, that the modification will not result in any increase in the discharge of toxic pollutants or otherwise impair the integrity of the receiving waters." 44 Fed. Reg. 34784 (June 15, 1979).

[101] Gloucester acknowledges in its comments that: "Congressional intent in creating the § 301(h) waiver provision was to establish an alternative to costly secondary treatment for municipalities that are located near coastal waters with adequate assimilative capacity when there would be no significant impact on the marine environment." [Footnote: See H.R. Rep. 97-270, at 17 (1981), *reprinted in*, 1981 U.S.C.C.A.N. 2629, 2645.] and also cites: H.R. Rep. No. 97-270, at 17 (1981), reprinted in 1981 U.S.C.C.A.N. 2629, 2645 ("In view of these factors, and *in order to achieve needed savings in the cost of treatment of municipal wastes,* the Committee considers it desirable to make the operation of ocean discharges available where it can be shown that unacceptable adverse environmental effects will not result.") (emphasis added); *see* 95 Cong.Rec. S19,679 (1977) (daily ed. Dec. 7, 1977).

Similarly, the judicial decision cited by Gloucester upholds this reading of the legislative intent of 301(h) and states unequivocally that the statutory standards of 301(h) must be met and indicates that only "harmless" marine discharges are permitted under 301(h). [102] *See NRDC*, 656 F.2d at 780. The court in *NRDC* stated as follows:

> [t]he purpose of section [301(h)] is to allow treatment plants that can discharge into marine waters and meet certain environmental standards to demonstrate those facts to the Agency and receive a permit [citations omitted]. Although fiscal concerns are not paramount under section 301(h), Congress has determined to allow some savings in sewage treatment through harmless marine discharges. The overriding purpose of the Act is still the prevention of water pollution.

Id. at 780. Gloucester's application for renewal of its Section 301(h) modification has not demonstrated that the WPCF has met, or will meet, the requirements for obtaining such a modification, as effluent monitoring results show that the City's discharge intermittently exceeds MA water quality standards for WET, TPH, oil and grease, and bacteria (with respect to the criteria set to protect recreational use, as well as the criteria set to protect shellfishing use, of these Class SA Waters). *See* Responses 6, 10, 14, 16, and 17.

Comment 26.

VIII.B.2. Construction Grants Provision. Most municipal secondary wastewater plants built under the Clean Water Act received 75% grants to pay for the construction of the facilities. The $5 billion per year authorized through the first 12 years of the Act recognized that cities could not handle the financial burden without government financial support. Where appropriate, POTWs were granted 301(h) waivers to avoid unnecessary government spending in situations with no contingent environmental benefits.

With the elimination of the Construction Grants program over 20 years ago, for EPA to reverse an appropriate 301(h) waiver decision that has stood for 25 years, including a renewal confirming that there were no impacts of the discharge, without any reasonable basis is not only unwarranted, but places Gloucester is an extremely untenable financial position. Such a decision

[102] EPA finds that Gloucester's reference to *Rite-Research, et al. v. Costle*, 650 F.2d 1312, 1318 (5th Cir. 1981), is misleading. First, the language quoted in the parenthetical that Gloucester provides with the case citation is not language from the court but, instead, is language quoted by the court from congressional testimony by Senator Gravel (one of the original drafters of Section 301(h)) who was clarifying that it was not his intention that the provision be limited to a few specific communities or locations. At the same time, Senator Gravel's comments, as quoted by the court, made clear that only communities that could meet all the specified criteria could quality for a modification under Section 301(h). *See* 650 F.2d at 1318 (emphasis added) ("When I introduced the measure I did not intend to limit the application of the provision to Anchorage, Seward, and a few other cities. I intended to allow any city that can meet the geographical requirements to come forward and *attempt to prove their case …*"; and Section 301(h) provides for a "modification procedure *for coastal communities that qualify*.") The remarks by Senator Gravel that are quoted in Gloucester's comment were not intended, as the City's comment implies, to indicate that secondary treatment requirements should or could be modified for any coastal community that establishes that installing secondary treatment would be challenging for it to afford.

would result in a gross waste of public moneys with no measurable environmental benefit and is a clear violation of the intent of the Clean Water Act and public policy.

Response 26

EPA agrees with Gloucester's suggestion that the purpose of the 1977 Construction Grants Program was to help municipalities with the significant construction costs of secondary treatment, but disagrees with any suggestion implied in its comment that Congress' termination of the construction grants program is relevant to EPA's decision on an application for a modification under Section 301(h) of the CWA. Neither the statute nor the regulations make that a relevant criterion, and neither the statute nor regulations suggest that municipalities that did not take advantage of construction grant funds are entitled forever to be granted renewal of an existing Section 301(h) waiver. *See* Response 25. The burden to establish that the Section 301(h) requirements are met rests with the waiver applicant for each permit renewal (*see* Responses 21 and 25) and the number of times that a municipality may have previously received permits with 301(h) waivers is also irrelevant. The question is whether the applicant has established that it meets the Section 301(h) criteria and, as explained in Responses to Comments presented above, EPA has concluded that Gloucester has not. Gloucester's comment declares that providing secondary treatment would yield no environmental benefits, but EPA's responses above establish that secondary treatment would provide environmental benefits, such as reduced discharges of toxic wastewater, reduced discharges of bacteria and other pathogens, reduced discharges of oil and grease, and more. That said, EPA understands that the costs of secondary treatment are significant and is committed to work with Gloucester on an appropriate schedule for the design and construction of secondary treatment.

Comment 27.

VIII.C. Sustainability Principles Favor Granting the 301(h) Waiver. There is an emerging focus on the benefits of integrating principles of sustainability into environmental solutions and decisions. Sustainability can be defined as "Meeting the needs of the present generation without compromising the ability of future generations to meet their needs." [Footnote: United Nations General Assembly (March 20, 1987). Report of the World Commission on Environment and Development: Our Common Future; Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment; Our Common Future, Chapter 2: Towards Sustainable Development; Paragraph 1. United Nations General Assembly. http://www.un-documents.net/ocf-02.htm. Retrieved 1 March 2010.]. The following assessment analyzes the environmental, social and economic benefits, of secondary treatment as compared to advanced primary treatment at the Gloucester WPCF. The clear conclusion of this assessment is that EPA's decision to deny the waiver would violate the principles of sustainability, burdening the citizens of Gloucester for this and at least the next generation with severe economic and social consequences that would compromise their ability to operate, maintain, repair and replace their existing water and wastewater infrastructure, as well as provide for public safety, education and other basic services with no measurable environmental

improvement in water quality or beneficial water uses. On this basis, the EPA decision violates the often-stated priorities of both the Federal Government and Commonwealth of Massachusetts that environmental decisions should produce sustainable environmental quality results commensurate with the commitment of resources.

Response 27

The type of "sustainability" considerations and/or metrics mentioned in the comment are not included in the statutory criteria listed in section 301(h) of the CWA or the implementing regulations and, as a result, EPA cannot make secondary waiver decisions based on such considerations. Having said that, EPA disagrees that denying Gloucester's 301(h) waiver is a decision that promotes an unsustainable outcome; rather the opposite is true for a variety of reasons, as discussed below.

Gloucester's WPCF's outfall is located in Massachusetts Bay, which the Commonwealth has designated as a Class SA water – the highest quality designation for the state's coastal and marine waters. Such waters are "designated as an excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. … These waters shall have excellent aesthetic value." 314 CMR 4.05 (a). Furthermore, the SA waters receiving the WPCF's discharge lie within the boundaries of the North Shore Ocean Sanctuary, one of five ocean sanctuaries established by the Massachusetts Ocean Sanctuaries Act ("MOSA"), M.G.L. c. 132A § 13. The WPCF's primary treated discharge to these waters has persistently exceeded permit limits and water quality criteria, including limits and criteria that restrict excessive effluent toxicity and excessive levels of oil and grease and bacteria. Allowing these discharges to continue, as is, is not compatible with principles of environmental sustainability.

The City of Gloucester is one of the last communities in the country with design flows at or above 5 MGD that has yet to implement secondary treatment, and is the last such municipality in New England.[103] While many communities across the country made an early commitment to secondary treatment and benefitted from government subsidization of their projects through the construction grant program, a smaller number of others, like Gloucester, pursued 301(h) waivers hoping to avoid upgrading to secondary treatment. Like Gloucester, many of the latter group of communities ultimately did not satisfy the criteria of Section 301(h) and then had to face the difficult, but legally-required and environmentally beneficial, task of implementing secondary treatment after the termination of the construction grants program in order to satisfy State water quality standards and other environmental protection requirements of the CWA.

[103] In New England, only a small number of very small municipal systems continue to have only primary treatment. Portsmouth, NH, no longer has permit limits based on a Section 301(h) modification and finished construction and commenced operation of its secondary treatment facility in 2021. *See* https://www.cityofportsmouth.com/publicworks/wastewater/peirce-island-wastewater-facility (last visited Mar. 1, 2022).

Even with its current "advanced primary treatment" system, the WPCF effluent still contributes to violations of applicable water quality standards. *See* Appendix A (noting water quality violations as recently as 2021). Furthermore, as part of its municipal vulnerability and climate preparedness planning conducted in 2015, the WPCF was identified as being a significant, municipally-owned infrastructure asset that is vulnerable to flooding within a time horizon of 2030.[104]

In terms of the economic impact, EPA understands that installing secondary treatment is expensive for Gloucester. In response, EPA has indicated it is committed to working with the City on an implementation schedule for secondary treatment that takes the City's financial challenges into account.

In addition, there could be certain economic benefits to pursuing secondary treatment sooner rather than later. As Gloucester set forth in a May 2019 report it commissioned to look at the costs of various secondary treatment options, the longer Gloucester waits to implement secondary treatment, the more money it may need to spend to upgrade its existing facility. Additionally, installing secondary treatment could facilitate increased economic development in the City because unlike the existing primary treatment plant, a new secondary treatment could accommodate wastewater from new industrial users and increased flows from existing industrial users.

Relevant to the issue of "sustainability," as opposed to the requirements of Section 301(h) and the pertinent regulations, EPA has considered the climate change ramifications of moving to secondary treatment. In 2005, a study found that primary treatment plants emitted less carbon dioxide (CO2)-equivalent/m3 (0.005 kg) than conventional activated sludge secondary treatment plants (0.26 kg). Gloucester may choose, however, to take steps to reduce such greenhouse gas emissions. For example, a 2019 study showed that secondary treatment plants with constructed wetlands or sequential batch reactors (SBR) do not contribute to global climate change.[105] Also, to the extent possible, taking advantage of new, energy efficient equipment will also help. Secondary treatment plants can be designed to produce and/or use renewable energy that offsets operational costs and greenhouse gas emissions. An example in New England is the Massachusetts Water Resource Authority (MWRA) sewage treatment facility that serves the Greater Boston area.[106] This advanced secondary treatment facility uses renewable energy that it produces as a source of electricity to operate its treatment facilities. EPA strongly recommends researching sustainability measures available for sewage treatment plants in the U.S. Taking such steps can minimize the greenhouse gas contributions of a secondary treatment plant while gaining the substantial water quality benefits that it will provide.

[104] *See* "Gloucester Climate Change Vulnerability Assessment and Adaptation Plan," pg 38 (June 29, 2015).
[105] *Sustainability Assessment of Wastewater Treatment Plants*, by Basak Kilic Taseli, Published July 30, 2019.
[106] *Update on MWRA's Energy Program for Wastewater Advisory Committee (WAC) & Water Supply Citizens Advisory Committee (WSCAC)*, pdf, May 15, 2020.

Comment 28.

VIII.C.1. Sustainability Metrics. The Gloucester WPCF currently uses polymer addition to enhance settling, which provides for advanced primary treatment; this is considered as the baseline alternative. The sustainability metrics evaluation of this alternative is based on plant processes, operation, and performance. For comparative purposes, it was assumed that a secondary treatment plant would be built and that the existing primary treatment facilities would remain. [Footnote: This is probably not the case. The existing WPCF is on a site with serious expansion limitations. The land requirements for secondary treatment would most probably require relocating the existing WPCF to a new site of 10 acres or more. Given the land availability in Gloucester this would be extremely difficult and expensive.]. The main differences between these two alternatives, then, are that secondary treatment would require several (as many as six) additional processes, but would eliminate the need to add polymer at the primary clarifiers.

The following goals were selected to compare the sustainability of the change from advanced primary treatment to secondary treatment, as measured by the environmental and social impact that would result from that change:

- Biosolids. Minimize the generation of wastewater residuals. The potential impact of increased residuals generation on regional residuals processing, demand and disposal capacity is a significant factor. [Footnote: There is a general need to greatly reduce the volume of all forms of solid waste, including wastewater residuals, to extend the useful life of available landfills, and not create unnecessary additional waste. Although the Gloucester WPCF currently sends its processed residuals to New England Fertilizer for beneficial reuse, there is no certainty that this market will continue. In addition, all disposal options have their own environmental consequences and sustainability problems.].
- Greenhouse Gas Emissions. Minimize greenhouse gas (GHG) pollution from electricity and fuel consumption (and related transportation) during construction and operation.
- Other Air Pollutants. Minimize other air pollution other than GHG emissions, primarily criteria pollutants from electricity and fuel consumption (and related transportation) during construction and operation.
- Water Quality. Minimize water quality impacts from the effluent discharge.
- Land Resources. Conserve land resources for beneficial uses by future generations.
- Economic Impacts. Maximize the benefit/cost ratio of environmental decisions to ensure the most environmental benefit for limited public moneys in an increasingly difficult municipal financial setting.
- Social Impacts. Ensure that environmental decisions provide maximize sustainability of local employment, promote environmental justice and minimize negative secondary and tertiary impacts (higher commuting distances, housing prices, etc.).

Response 28

EPA disagrees with the comment that a 301(h) modification decision should be based on a site alternative analysis or sustainability metrics. As stated in Response 27, the

proposed "sustainability metrics" are not included in the determination of whether a § 301(h) waiver should be granted. Siting decisions and associated costs, as well as employment effects and air pollution considerations, etc., are also not included in a section 301(h) waiver analysis. EPA also notes that on a site visit conducted on January 22, 2020, plant officials suggested that the current undeveloped land near the existing WPCF is sufficient for the construction of secondary treatment options being considered by Gloucester, and that, as mentioned in Response 27 above, the City has identified the existing WPCF as being vulnerable to flooding resulting from sea level rise.

Comment 29.

VIII.C.2. Sustainability of Denial of 301(h) Waiver for Gloucester WPCF. The following table demonstrates that EPA's decision to require a secondary WPCF violates the above sustainability metrics.

Sustainability Issues Related to the EPA's Waiver Denial Decision

Sustainability Metric	Sustainability Outcome	Magnitude of Change
GHG Emissions	Reduced	There would be an increase of CO2(e) (carbon dioxide equivalent; a combination of CO2, CH4 and N2O) emissions during construction; and an increase of CO2(e) annual emissions during operation.
Air Pollutant Emissions	Reduced	There would be an increase of CO, NOx, particulate matter (PM10 and PM2.5), and SO2 during construction. Additional power consumption required for operating a secondary treatment facility would increase NOx and SO2 emissions.
Biosolids Impact on Landfill Capacity	Reduced	Biosolids quantities would increase by more than two-fold, with associated solids disposal issues. (It is well-established that secondary treatment generates significantly more sewage sludge for disposal compared to the amount produced by primary treatment. In fact, a Federal court noted this as one of the main reasons it rejected secondary treatment for San Diego, California, in United States v. City of San Diego, 1994 WL 521216, *5-6 (S.D. Cal. 1994).
Land resources	Substantially Reduced	Additional requirement for 10 to 12 acres for a new wastewater plant would severely strain very limited land resources in the City.
Economic impacts	Substantially Reduced	Burden to the ratepayers in Gloucester of between $50 M and $70M in new debt, as well as substantially higher operating costs, which, along with other regulatory requirements (CSO, stormwater, CMOM, etc.), will seriously inhibit the ability of the town to operate,

		maintain, repair and replace it existing water and wastewater infrastructure and create a debt burden that severely compromises the financial capacity of the town to provide other basic municipal services.
Social Impacts	Substantially Reduced	Increased wastewater user rates would seriously impact local business survival, especially in the food processing industry, resulting in further relocations out of the City, consequent reduction in jobs, reduction in City revenues, further reallocation of the costs of services to residential customers, resulting in extreme unaffordability and associated negative impacts to the already stressed housing market and the provision of public services such as education and public safety. (See Financial Assessment and Affordability section).
Water Quality Benefits	No change	There would be no measurable improvement in water quality, no increase in human use benefits and no measurable reduction in risk to either human or aquatic. water uses. There would be a reduction of effluent BOD and TSS loads; however, these are not pollutants of concern and the existing plant meets permit and water quality requirements for the parameters.
Noise/Odor/Traffic Impacts to the Community	Reduced	There would be a relatively large increase in noise/odor/traffic impacts during construction. These impacts would be reduced, but still incrementally present, during operation due to increased solids management and disposal needs.

The following impacts are not included in the above analysis, but are still very real and not avoidable if the WPCF were to be converted from advanced primary treatment to secondary treatment.

- Fuel consumption associated with shipping the materials to the point of distribution and fuels used by the vehicle and machinery of manufacturing facilities
- Harvesting of raw material for manufacturing
- Travel of construction and operations personnel to and from the site

Thus, the resource needs and associated impacts for converting from advanced primary treatment to secondary treatment are understated in this analysis.

In conclusion, EPA's tentative decision to deny the 301(h) waiver for the Gloucester WPCF, which has been in place for over 25 years, is directly in conflict with critical sustainability principles as outlined above. The EPA decision seriously violates the goal of both the federal

government and the Commonwealth of Massachusetts that environmental decisions produce sustainable environmental quality results commensurate with the commitment of resources. The 301(h) waiver should be granted.

Response 29

As stated in Response 27, the "sustainability metrics" urged by the City's comment are not included in the determination of whether a Section 301(h) modification should be granted. While EPA is cognizant of the sustainability issues raised by the commenter, EPA must follow the established laws and regulations for assessing whether a permittee is eligible for a continued Section 301(h) waiver. Furthermore, as also stated more fully in Response 27, there are positive sustainability outcomes that could result from the implementation of secondary treatment at the WPCF, including accommodation of new or increased wastewater flows from new or increased economic development, construction of a new or improved municipal wastewater treatment plant that provides an opportunity to address the threat of future flooding associate with sea level rise, and job creation to design, construct and operate a new secondary treatment plant. In addition, while EPA agrees that secondary treatment poses different sewage sludge management concerns than primary treatment, this is at least partly the result of removing more pollution from the wastewater prior to discharging it into the waters of the United States. The vast majority of POTWs provide secondary treatment and manage their residual solids and Gloucester will need to determine a method of doing the same. Finally, as discussed in prior responses, EPA strongly disagrees with Gloucester's suggestion that there will be no water quality benefits from secondary treatment. Rather, secondary treatment will reduce effluent toxicity and discharges of bacteria, TPH, and oil and grease. (*See also* Response 1)

Comment 30.

IX. Conclusion. The City's comments have demonstrated the following points:

1. EPA's assertion that the WPCF discharge will not meet water quality standards as required by Section 301(h) is incorrect. In fact, the Gloucester discharge satisfies MWQS criteria at and beyond the boundary of the ZID, and the permit limit exceedances noted by EPA were either corrected by upgrades to the WPCF or are due to minor operational problems common in virtually every wastewater treatment plant, regardless of the level of treatment provided. Based on a sustainability analysis, the current discharge is preferable to secondary treatment and has less impact on environmental resources.

2. EPA has cited no actual impacts to human, aquatic or other environmental uses of the waters in the area of the discharge. Twenty years of data from the discharge location confirm that there is, in fact, no measurable impact due to the discharge.

3. The tentative denial is founded on mis-application and mis-interpretation of fundamental principles of water quality impairment, dilution and dispersion in the

marine environment and risk to human and aquatic uses. It is based on technicalities of policies and regulations that point to minor operational issues that have already been or are being corrected, to justify enormous capital expenditure that will provide no improvement to water quality or beneficial uses, thus subverting the express intent of the 301(h) provision in the law.

4. The enormous additional capital and operating cost of secondary treatment will dramatically and negatively impact the ability of the City of Gloucester to sustain its critical infrastructure and its basic social, economic and environmental quality of life, including its ability to provide basic public services such as public safety and infrastructure.

The capital expenditure of $60 million for a secondary treatment facility is not the answer to historical problems that have been fundamentally operational in nature and have, in fact, been corrected. The expenditure and resulting annual debt resulting from construction of an unnecessary secondary WPCF would severely threaten the ability of the City to commit adequate O&M budgets necessary to ensure proper operation, maintenance and performance of the facility. The City is committed to providing sufficient operating budget into the future to ensure proper maintenance and operation of the existing facility, which will enable it to continue to meet all of the criteria of Section 301(h). [Note: all references and tables within this comment provided by the Permittee can be found in the Permit Administrative Record, within the commenter's original letter sent to EPA.]

Response 30

For responses to these concluding points, please refer to prior responses:

For the response to Point 1 raised by this comment, see Responses 1, 9-19 and 27-29;

For the response to Point 2 raised by this comment, see Responses 10-19.

For the response to Point 3 raised by this comment, see Responses 1, 9-19, 23.

For the response to Point 4 raised by this comment, see Responses 1, footnote 2, 23-26.

B. Comments from City of Gloucester, Mayor Carolyn Kirk, Office of the Mayor, February 4, 2011.

Comment 31.

Thank you for extending the public comment period for the city of Gloucester pertaining to EPA's decision to deny our 301(h) waiver request and on the draft NPDES permit. As our letter of January 5, 2011 stated, we continue to be of the belief that the two issues are very different in nature, and the structure of our public comment represents that belief.

In this initial submission, we are providing detailed comments only regarding the denial of the 301(h) waiver, and the consequences of the denial on the city's and citizen's ability to afford expensive secondary treatment that provides no appreciable environmental benefit. In advance of

the public hearing currently scheduled for March 24, 2011, we will submit our detailed public comment regarding provisions of the draft NPDES Permit for secondary treatment.

City of Gloucester Summary - EPA Denial of the 301(h) Waiver Request. Enclosed you will find detailed technical, legal, scientific and financial arguments prepared by the city of Gloucester team. However, as the elected official compelled to represent the best interests of the citizens of Gloucester, I offer EPA this commentary:

• The ratepayers and taxpayers of the city of Gloucester have just made a $35 million dollar investment in an EPA-mandated CSO project. In addition, the ratepayers and taxpayers of the city of Gloucester have also just made a $20 million investment in the Waste Water Treatment Plant. Permanent financing for both these projects is just commencing and there is no debt relief for another 20 years. Rates would double from their already current high levels with secondary treatment expenses.

Response 31

EPA acknowledges receipt of these comments and they are included in this Response to Comments document for the record. This comment describes and summarizes the detailed comments submitted by the City and EPA has responded to these detailed comments in the Responses set forth above.

Comment 32.

As demonstrated in our comments, the Wastewater Treatment Plant satisfies the 301(h) criteria. The positive impacts of the CSO work and the Wastewater Treatment Plant upgrades are likely to improve the situation further, so it is premature at best to deny the waiver.

Response 32

EPA disagrees with the City's comment that it satisfies the criteria for a Section 301(h) modification and that it is premature to decide on the City's 301(h) modification. On the contrary, the Permittee has had more than ample time to demonstrate compliance with state water quality standards and federal regulations, but, as discussed in the above Responses to Comments, the current operations of the WPCF do not satisfy 301(h) criteria. *See* Responses 1, 9-19. While EPA applauds Gloucester's efforts toward satisfying its CSO permit requirements and to upgrade its primary treatment plant (*see* Response 4), current effluent data demonstrates that water quality violations are still occuring. *See* Appendix A.

Comment 33.

The city of Gloucester acknowledges EPA's concerns about a lack of professional and consistent management over many years of our wastewater system. However, we have recently switched contract operators, and together we have stabilized and made dramatic improvements to operations at the plant.

Response 33

EPA acknowledges the City's comment stating it has made improvements to operations at the plant. However, the primary treatment upgrades at the WPCF have not improved the discharge to an extent that would change EPA's final 301(h) decision. EPA acknowledges the City's update regarding its contract operator status and this information is included in this Response to Comments document for the record.

Comment 34.

The city of Gloucester needs an over-arching master asset plan. We cannot look at wastewater issues in isolation. The ratepayers of Gloucester will also bear the $15 million we have invested in our drinking water system over the past 18 months - with more urgent projects needed. We need for EPA to take the whole of Gloucester's infrastructure and ability to afford improvements into account. An asset master plan is a missing piece of the puzzle presently.

Response 34

EPA acknowledges these comments and they are included in this Response to Comments document for the record. While EPA acknowledges Gloucester's stated intention to look at its overall infrastructure issues, and that the City must consider the costs associated with secondary treatment upgrades in this larger context, this does not change the fact that the City is not meeting its NPDES permit limits, or that cost is not a factor that the Clean Water Act prescribes should be considered when making determinations on whether a 301(h) modification request should be granted. *See* Responses 1, 23, 25. Secondary treatment is the baseline requirement for municipal sewage treatment plants and municipalities can only qualify for a modification (or waiver) of effluent limits based on that baseline requirement if all the environmental standards of Section 301(h) and the implementing regulations are satisfied. Gloucester's primary treatment plant has been unable to meet those standards and, therefore, EPA is denying the City's request for a Section 301(h) modification and issuing a Final Permit with secondary treatment-based limits. In addition, as explained in a prior response above, EPA is prepared to work with the City to develop a compliance schedule for installing secondary treatment that appropriately takes the City's financial considerations into account.

Comment 35.

From an environmental standpoint, we are asking EPA to look long and hard at the cost/benefit analysis of what we consider to be questionable environmental benefit vs. the enormous cost burden that would be placed on the city in order to provide secondary treatment. The 301(h) waiver that EPA has applied to the Gloucester water pollution control facility for the last 26 years is in complete accord with the letter and intent of the 301(h) provisions Congress put in the Clean Water Act for just the purpose in which Gloucester finds itself, as witnessed by the Congressional record:

There have been continuing increases in [the cost to construct secondary treatment]. In view of these factors, and in order to achieve needed savings in the cost of treatment of municipal wastes, the Committee considers it desirable to make the operation of ocean discharges available where it can be shown that unacceptable adverse environmental effects will not result." (See H.R. Rep. No. 97-270, at 17 (1981), reprinted in 1981 U.S.C.C.A.N. 2629, 2645).

As we have maintained all along throughout this ongoing dialogue, the city of Gloucester is committed to preserving and protecting the ocean resources that have played a major role in the history of the city, and which are a vital part of Gloucester's identity.

We are asking for a reasonable balance. With the city unable to assume additional debt for at least the next 20 years, we believe that the investment that we can make would better be spent on CSO control, stormwater management and other wastewater infrastructure improvements that would provide real benefits to beaches. waterfronts, and neighborhoods in Gloucester. We hope that EPA agrees. Thank you. Carolyn Kirk, Mayor, City of Gloucester.

Response 35

EPA has carefully considered the views presented by the City and appreciates the difficult challenges that it must address. At the same time, EPA has explained in the Responses to Comments set forth above why it concludes that Gloucester does not satisfy the requirements for obtaining modified treatment limits under Section 301(h) of the CWA. Furthermore, the statute does not allow a cost/benefit analysis to substitute for consideration of the criteria specified in Section 301(h) and the applicable EPA regulations. *See also* Response 25 (discussing the legislative history of 301(h)). All of that being said, EPA has indicated its willingness to work with the City to develop a reasonable compliance schedule for installing secondary treatment that takes the City's financial situation into account.

C. City of Gloucester, Mayor Carolyn A. Kirk, Office of the Mayor, January 5, 2011

Comment 36.

Dear Mr. Spalding: I am writing with regard to the Environmental Protection Agency's recent draft decision to deny the 301(h) waiver application for the City of Gloucester's wastewater treatment plant and to issue the related draft secondary treatment permit for the City's POTW.

As an initial matter, I want to emphasize that the City of Gloucester is committed to preserving and protecting the ocean resources that have played a major role in the history of the City, and which are a vital part of Gloucester's identity. Nonetheless, it will come as no surprise that Gloucester disagrees with EPA's decision to deny the City's 301(h) waiver application. Requiring the City to spend tens of millions of dollars on an upgrade to secondary treatment will have a profoundly negative impact on Gloucester's ability to provide basic services to our citizens, with no appreciable environmental benefit.

We are preparing a detailed set of technical and legal comments describing our concerns with the draft 301(h) decision, which we will submit in advance of the close of the period for written comments on February 2, 2011. In addition to submitting written comments, the City is hereby requesting that EPA schedule a public hearing on the draft 301(h) decision soon after February 2. We have already seen a significant degree of public interest in the EPA's decision, and believe that a public hearing is necessary to adequately air the concerns of the City and its residents. I would appreciate your prompt confirmation that a public hearing will be scheduled in this critically important matter.

Also, as a result of the proposed denial of the 301(h) waiver, EPA issued a draft secondary treatment permit for the City's POTW. Thus far, the City has given the draft permit a preliminary review, which was sufficient to reveal that it contains significant flaws. We remain hopeful that after reviewing our response to the draft 301(h) decision, EPA will ultimately grant the City's 301(h) waiver application, which would make the secondary permit moot. Therefore, rather than requiring the City to expend significant additional resources to prepare a detailed set of legal and technical comments on the draft secondary permit, we are requesting that EPA extend the public comment period for the draft secondary permit to a date that is sixty days after a final decision is made on the City's 301(h) waiver application.

Please feel free to contact me at (978) 281-9700 if you would like to discuss any of these issues directly. Sincerely, Carolyn A. Kirk, Mayor

Response 36

EPA acknowledges that Gloucester's comment states that it shares EPA's commitment to preserving and protecting the ocean resources that have played a vital role in the history and identify of the community. EPA disagrees, however, with the City's assertions that the Draft Permit is significantly flawed and that upgrading to secondary treatment would have no appreciable environmental benefit. EPA's reasons are explained throughout this Response to Comments document. EPA acknowledges the remainder of the City's comments here and notes that they mirror other comments made by the City which EPA has responded to in the Responses to Comments set forth above. EPA includes this comment letter from the City here for the record. In addition, EPA notes that it agreed to Gloucester's request and held a public hearing on March 31, 2011. EPA's responses to comments made at the public hearing are set forth below in Responses 109-139.

D. City of Gloucester, Carolyn A. Kirk, Office of the Mayor, Comments on the Draft NPDES Permit, March 22, 2011

Comment 37.

Dear Mr. Spaulding [EPA Region 1, Regional Administrator at the time]: Please find enclosed the comments of the City of Gloucester on the draft NPDES permit for Gloucester's Water Pollution Control Facility, issued jointly by EPA and MassDEP on November 5, 2010. As you

know, we provided detailed comments on February 4, 2011, regarding EPA's tentative denial of the facility's 301(h) waiver. The City believes that this tentative denial is not consistent with Section 301(h) of the Clean Water Act, and that EPA should grant the waiver and issue a revised NPDES permit based on advanced primary treatment. Without waiving that argument, the City is now submitting comments on the provisions of the draft NPDES permit. Thank you. Sincerely, Carolyn A. Kirk, Mayor, City of Gloucester.

Response 37

EPA disagrees with the City's comment that the Tentative Decision is not consistent with Section 301(h) of the CWA, and that EPA should grant a modification. EPA acknowledges these March 22, 2011, comments by the City and they are included in this Response to Comments document for the record. EPA also acknowledges Gloucester's detailed comments of February 4, 2011, addressing the TD under Section 301(h) of the CWA, and EPA responds to those comments in Responses 1 – 30 in this Responses to Comments document.

Comment 38.

The City of Gloucester, Massachusetts ("Gloucester" or the "City") submits the following supplemental comments regarding the draft National Pollutant Discharge Elimination System (NPDES) and Massachusetts Clean Waters Act permit ("permit") to discharge wastewater from the Gloucester Water Pollution Control Facility ("WPCF") and combined sewer overflows ("CSOs"). This draft permit was released for public comment with EPA's tentative § 301(h) waiver denial on November 5, 2010.

I. Background. Pursuant to § 301(h) of the Clean Water Act, the U.S. Environmental Protection Agency ("EPA"), with concurrence from the Massachusetts Department of Environmental Protection ("Massachusetts DEP"), granted a variance from secondary treatment requirements for Gloucester's WPCF in 1985 and renewed the variance in 2001. Both of these waivers were for the current advanced primary treatment plant, which has a design flow of 7.24 million gallons per day ("MGD") average flow, with a peak hydraulic loading of 15 MGD. The current average monthly flow is 5.08 MGD. The effluent receives chemically enhanced primary treatment and chlorination/dechlorination.

In 1990, with the approval of EPA and Massachusetts DEP, Gloucester relocated the discharge from the existing WPCF to a location in Massachusetts Bay, more than a mile beyond Gloucester Outer Harbor, through an outfall approximately 15,000 feet long. The effluent is discharged through a diffuser on the ocean floor into a water depth of 90 feet. The 2001 waiver reflected the extension of the plant's outfall to its current location.

In 2006, the City submitted an application to EPA Region I and Massachusetts DEP for a renewal of its 301(h) variance and its NPDES permit. On November 5, 2010, the EPA Regional Administrator issued a tentative decision denying the variance. At the same time, EPA and Massachusetts DEP issued a draft joint discharge permit for the Gloucester WPCF and five

CSOs. The draft permit limits for the WPCF effluent are based on secondary treatment.

On February 4, 2011, Gloucester submitted comments on EPA's tentative denial of the 301(h) waiver. The City believes that this tentative decision is not consistent with Section 301(h) and that EPA should grant the waiver and issue a revised NPDES permit based on advanced primary treatment. Without waiving that argument, the City is now submitting comments on the provisions of the secondary permit in order to preserve its objections to those provisions.

Response 38

EPA disagrees with Gloucester's comment that the Tentative Decision is not consistent with Section 301(h) of the CWA and a that a 301(h) modification for primary treatment should be granted. EPA acknowledges the City's background comments and they are included in this Response to Comments document for the record (*See* Response 2 for the current average monthly flow of 3.35 MGD reported in 2021). EPA responds to Gloucester's specific comments on the Draft Permit below, *see* Responses 39 – 61.

Comment 39.

II. General Comments. As stated in its comments to EPA on February 4, 2011, the City continues to believe that the denial of the 301(h) waiver and requirement to construct a secondary treatment plant is unfounded on the basis of federal law, state law, or environmental protection. The following objections that the City raised in its comments regarding the denial of the 301(h) waiver are also applicable to the proposed secondary permit.

Benefit-cost Ratio: The benefit-cost ratio of requiring Gloucester to construct a secondary treatment plant is inestimably low. As shown through 20 years of data collected at the outfall location, there will be no measurable benefits from a secondary treatment plant in terms of water quality improvement and the cost will result in user rates for Gloucester customers that would be by far the highest in Massachusetts.

Response 39

These comments repeat comments by Gloucester that have already been presented and responded to farther above. Having said that, EPA disagrees that there will be no measurable water quality benefits from upgrading the WPCF to provide secondary treatment – in prior Responses, EPA has discussed in detail the problems with the City's primary treated effluent and the benefits that secondary treatment will provide (e.g., the primary effluent persistently violates the permit's WET limits, whereas secondary treatment achieves greater removal of toxic constituents, *see, e.g.*, Response 1 (Table 1); Responses 10-19 (discussing adverse effects on water quality and aquatic organisms) – and EPA also disagrees with the City's suggestion that cost considerations or a cost/benefit comparison should drive EPA's decision under Section 301(h) of the CWA. *See,* Response 23 (explaining that cost considerations are not among the factors to be considered by EPA in determining whether to grant a modification under Section 301(h) of the CWA, though also expressing EPA's understanding of the significant cost of

secondary treatment and its continued willingness to work with the City on an implementation schedule for secondary treatment that takes the City's financial challenges into account).

Comment 40.

Regulated Parameter Criteria: There have been no exceedances of numeric or narrative water quality criteria in the vicinity of the Gloucester discharge. Permit limit exceedances have been due to operational issues that have been corrected or are of the minor, sporadic type common in virtually every wastewater treatment plant, regardless of the level of treatment provided. Construction of a secondary plant is not the solution to these occasional issues.

Response 40

EPA disagrees with Gloucester's assertion that there have been no exceedances of numeric or narrative water quality criteria in the vicinity of the Gloucester discharge or that permit limit exceedances are of the "minor, sporadic type." As discussed more fully in the Responses above, Gloucester's discharge monitoring reports (*see* Appendix A) demonstrate ongoing effluent water quality violations for WET (*see* Response 10), oil and grease (*see* Response 11), TPH (*see* Response 12), and bacteria (*see* Responses 13, 14, 19). Moreover, secondary treatment should improve the quality of Gloucester's effluent with respect to each of these parameters. *See, e.g.*, Response 1 (Table 1).

In addition, Gloucester's ambient monitoring reports demonstrate that a balanced indigenous population of aquatic organisms has not been maintained in the waters receiving Gloucester's primary treatment effluent, despite the City's improvements to its primary treatment plant. This indicates that the discharge is causing or contributing to an impairment of the applicable Class SA designated use for aquatic life, which specifies that SA waters are to provide an "excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions". 314 CMR 4.05(4). As discussed in Responses 15 through 17, maintenance of the balanced indigenous population is also required to support a 301(h) modification request (*See* Responses 15-17).

Comment 41.

Sustainability: Construction of a secondary plant in place of the current well-operated advanced primary plant is dramatically contrary to the basic principles of sustainability. A secondary facility produces more greenhouse gases and uses far more energy than a primary plant and results in environmental impacts that are not offset by environmental gains.

Response 41

As more fully discussed in Responses 27-29, sustainability considerations are not relevant to whether a 301(h) modification should be granted. In addition, in those responses, EPA also discussed the greenhouse gas and energy use issues, as well as the substantial water quality benefits that will be provided by secondary treatment.

Comment 42.

Lack of Environmental Impacts: EPA cited no demonstrated impacts to human, aquatic or other environmental uses of the waters in the area of the discharge. The City has conclusively demonstrated with 20 years of data from the discharge location that there is, in fact, no measurable impact from the discharge. Requiring the construction of a secondary treatment plant will have no meaningful effect on the receiving waters in the area of the discharge.

Response 42

The bottom-line is that Gloucester has been unable to satisfy the criteria under Section 301(h) of the CWA for obtaining a modification of the generally applicable secondary treatment-based effluent limits. Gloucester cannot substitute a test of its own design for the requirements enacted by Congress in the CWA. That said, EPA disagrees with Gloucester's comment that its discharge has not had environmental impacts on the receiving water. Indeed, the opposite is true and the City's comment is not supported by the data.

Gloucester's WPCF's outfall is located in Massachusetts Bay, which the Commonwealth has designated as a Class SA water – the highest designation for coastal and marine waters within the state. Such waters are "designated as an excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. … These waters shall have excellent aesthetic value." 314 CMR 4.05 (a). Furthermore, these SA waters that receive Gloucester's discharge also lie within the boundaries of the North Shore Ocean Sanctuary, one of only five ocean sanctuaries established by the Massachusetts Ocean Sanctuaries Act ("MOSA") M.G.L. c. 132A § 13.

As discussed more fully above in several responses, Gloucester's discharge has intermittently, but persistently, violated water quality criteria applicable to Class SA waters for toxicity (*see* Response 10), oil and grease (*see* Responses 11 and 12), and bacteria (*see* Responses 13, 14 and 19). Moreover, the City's primary treated discharge fails to support a balanced indigenous population of marine organisms in the receiving water (*see* Responses 15-17). Furthermore, dichlorodiphenyldichloroethylene (4,4-DDE)[107] was recently found in the area of the discharge. Even with its current upgraded primary treatment system (reported by Gloucester to have been completed over the last 10-15 years), the WPCF is still not meeting applicable water quality standards. *See* Appendix A (noting water quality exceedances as recently as 2021). Finally, the outfall is located within a short distance of two popular scuba diving sites at which primary contact recreation occurs and adverse public health effects are threatened by discharges that

[107] Gloucester 301(h) 2018 Ambient Monitoring Report by Allan D. Michael & Associates, page 1. Dichlorodiphenyldichloroethylene (4,4-DDE) is a bioaccumulating contaminant that exceeded water quality standards in the effluent in 2017 and was found at quantifiable concentrations in the sediment in 2019 (*See* Responses 6 and 10).

exceed water quality criteria for bacteria intended to protect primary contact recreation (*see* Responses 13 and 19).

EPA also disagrees that the City has shown no "measurable impact" to the environment through its "20 years of data from the discharge location." Ambient monitoring by the City, particularly at Station 3A, the closet monitoring station to the discharge pipe, has shown increasing detrimental environmental impacts. Specifically, EPA has reviewed recent ambient monitoring results and the data demonstrates declining faunal density and declining species diversity at Station 3A near the edge of the ZID in 2017, 2018, and 2019. In addition, data from 2017 – 2020 demonstrates problematic ambient sediment and benthic conditions, as discussed in Response 16.[108] (*See also* Responses 6, 16, and 17).

Finally, EPA disagrees with Gloucester's comment that "requiring the construction of a secondary treatment plant will have no meaningful effect on the receiving waters in the area of the discharge." As discussed above in other responses, secondary treatment will greatly reduce the City's discharges of pollutants to the receiving water which will result in meaningful improvements to water quality in the area.

Comment 43.

Basis for Decision: EPA's decision to require secondary treatment is not founded in sound science and is not consistent with the Clean Water Act or EPA's 301(h) regulations and guidance.

Response 43

EPA disagrees with this conclusory comment. EPA's conclusion that Gloucester's discharge fails to support a 301(h) modification is, in fact, based on sound science and consideration of the available data, as explained in the Responses presented above (*see* Responses 9-19 and Appendix A). Furthermore, as discussed more fully in earlier responses, EPA's decision-making for this matter is consistent with the Clean Water Act and the 301(h) regulations.

Comment 44.

Financial Impacts: The enormous additional capital and operating cost of secondary treatment will dramatically and negatively impact the ability of the City of Gloucester to sustain its critical infrastructure and its basic social, economic, and environmental quality of life, including its ability to provide basic public services such as public safety and infrastructure.

In addition, early in the implementation of the Clean Water Act, Congress recognized the extreme burden that secondary treatment would impose on communities and, therefore, instituted the wastewater construction grants program that provided 75 percent grant funding for secondary treatment facilities. The construction grants program was abandoned decades ago after

[108] Gloucester 301(h) Monitoring 2019 Interim Report by Allan D. Michael & Associates, page 1.

communities that did not merit waivers had completed their secondary plants. Consequently, 100 percent of the approximately $60 million cost of a secondary facility in Gloucester would fall on the local rate payers. This unwarranted change in application of law and policy by EPA is unfair financially to the City of Gloucester. If EPA requires secondary treatment, the City requests federal grant funding for the capital costs of the secondary facilities.

Response 44

As set forth in this document, and as EPA has discussed with Gloucester many times, EPA will, to the fullest extent possible, work with the City to develop a schedule for the design, construction and implementation of a secondary treatment facility that takes into account the City's competing financial commitments. *See also*, Response 46. EPA disagrees with Gloucester's characterization of the legislative intent of section 301(h) (*see* Response 25). There is no provision in section 301(h) that allows for the consideration of the cost of secondary treatment when making determinations on requests for 301(h) modifications (*see* Response 25). In addition, Congress' decision to end the construction grants program for POTWs does not provide a justification for granting renewal of Gloucester's Section 301(h) modification when the City does not satisfy the applicable criteria. There is no unfairness at work here. Most communities went forward and installed secondary treatment whereas a relatively small number sought Section 301(h) modifications. Gloucester decided to take the latter approach. Subsequent to that decision, Congress terminated the construction grants program and Gloucester does not now qualify for a 301(h) modification. Congress did not provide for additional construction grants for communities that fail to obtain renewal of a Section 301(h) modification after termination of the construction grants program. At the same time, even after terminating the construction grants program, Congress did not provide a guarantee that facilities with Section 301(h) modifications would be able to renew them indefinitely into the future. Thus, Gloucester is not the only community that has had to move to secondary treatment since termination of the construction grants program (e.g., Portsmouth, NH). None of this, however, is to say that the cost of installing secondary treatment is not significant for Gloucester and, as stated above, EPA is ready to work with the City to develop an implementation schedule for secondary treatment that takes account of the City's financial circumstances.

Comment 45.

Also, the space requirements of secondary treatment in Gloucester will probably require siting of the new facility at a different location in the City. Finding a site in Gloucester that is technically suitable, environmentally appropriate, and publicly acceptable would be problematic. Even if a site were physically available, an extended schedule would be required for planning, siting (including performing and publicly reviewing environmental impact analyses), acquiring property, permitting, designing, and constructing a new wastewater plant, as well as potentially relocating the major interceptors required to feed it. This would result in costs substantially above the $60 million currently estimated. During this extended period, technology advances in advanced primary treatment, improvements in design and operation of the existing facility,

reduction of loads to the plant resulting from completion of on-going CSO, stormwater and IPP initiatives, and additional confirmatory data on the lack of impacts at the outfall will almost certainly continue to underscore the lack of benefit (and in fact, negative impacts) associated with converting to secondary treatment.

Response 45

This comment raises several issues: 1) Gloucester's concerns regarding siting of a secondary treatment plant; 2) the need for an extended schedule for the design and construction of a secondary treatment plant; 3) the significant costs associated with the design and construction of a secondary treatment plant; and 4) the alleged lack of benefits associated with an upgrade to secondary treatment.

First, on January 22, 2020, EPA and the MassDEP attended a meeting with City officials that included a site visit at the Gloucester Water Pollution Control Facility ("WPCF") at which time the City indicated to EPA and MassDEP that a secondary treatment facility would likely be sited on land adjacent to the existing WPCF. EPA takes no position on where Gloucester should locate its secondary treatment plant, and such a decision on the part of the Permittee is not a factor that EPA considers in making determinations on 301(h) modification requests; EPA is simply noting what it perceives to be Gloucester's recent thinking on siting issues.

Second, as stated numerous times, EPA will work with the City to develop a compliance schedule that takes the City's financial challenges into account (*see* Response 46).

Third, as stated earlier in these Responses to Comments, EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester. However, financial considerations are not included in the statutory and regulatory criteria that apply under Section 301(h) of the Clean Water Act (*see* Response 23).

Fourth, as discussed elsewhere in this RTC, there are many important benefits that will result from the implementation of secondary treatment at the WPCF. *See* Responses 10-19 (discussing failure by Permittee to meet water quality standards using only primary treatment); *see* Responses 42 (discussion of environmental benefits) and 27 (discussion of environmental and sustainability benefits).

Comment 46.

Finally, the permit provides no implementation schedule for secondary treatment, despite the acknowledgement in EPA's Fact Sheet that construction of secondary treatment facilities would be a lengthy process. Although the City does not believe it should be required at all, in the event that secondary treatment is imposed, the City will require a significant amount of time to plan, design and construct such a facility. The permit should reflect this.

Response 46

EPA agrees with the commenter that it may take significant time to plan, design and construct a secondary treatment facility. EPA expects that simultaneously with the issuance of the permit, or shortly thereafter, EPA and Gloucester will negotiate a compliance schedule that sets forth a mutually agreeable timeframe for Gloucester to proceed with the necessary steps for design and construction of its secondary treatment facility. A compliance schedule for secondary treatment is not included in the Final Permit, *see* 40 CFR § 122.47(a), but will, instead, be in a separate enforceable document.

Comment 47.

III. Comments on Draft Permit. A. Flow Limit (Fact Sheet pp. 11-2; Draft Permit Part I, A.1. (table and footnote 2)). EPA's draft permit imposes an initial flow limit of 5.15 MGD annual average and requires that a number of conditions be met before the limit can be increased to 7.24 MGD. The key justifications for these requirements and the conditions that EPA imposes are improper and not required by relevant laws or regulations. [Footnote: Although not directly relevant to its determination of the flow limit for the draft secondary permit (but directly relevant to EPA's 301(h) decision), EPA is also wholly incorrect in stating that CWA § 301(h)(8) and 40 CFR § 125.67 required that the facility's flow limit be maintained at 5.15 MGD in the 2001 permit (and, by implication, would require the same limit if the 301(h) waiver were renewed). In fact, the regulatory history of 40 CFR § 125.67 clearly demonstrates that the requirement of "no new or substantially increased discharges of the pollutant to which the modification applies" only applies over the five-year permit term. EPA stated in the preamble to the 1979 final 301(h) rule: Section 125.65 [now 125.67] of the final regulations has been changed to allow for reasonable growth through the five-year period of a modified permit. Flows will continue to be limited to the applicant's existing design capacity, where such design capacity provides for normal growth during the life of the modified permit. If an applicant's current design capacity does not provide for normal growth, the applicant must develop a projection of the increased flows necessary to accommodate normal growth over the period of the modified permit…." In 1982, EPA added § 125.65(c)(now 125.67 (c)), explaining the addition as follows: "[T]o assure a clear understanding of the requested effluent limits in the context of planned or projected POTW increases, EPA proposes to require applicants to submit data on projected effluent volumes and mass loadings in five year increments over the design life of the facility (proposed § 125.65(c))." It would be nonsensical for EPA to request information on projected future effluent volumes and mass loadings if the same regulatory section prohibited any future increases. Thus, 40 CFR §125.67(a) clearly only prohibits increases during a given permit term.]. First, EPA requires that the flow increase be deemed appropriate by a state anti-degradation review. As an initial matter, neither EPA's antidegradation and anti-backsliding regulations, nor the antidegradation provisions of the Massachusetts Water Quality Standards, require EPA to limit average flow from the WPCF to a level below the design flow of 7.24 MGD. See, e.g., 40 CFR § 122.45(b)(1) ("In the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow."). In any case, EPA has itself already determined that the federal anti-degradation requirements would be met if the permit flow limit were increased to

7.24 MGD. There is no reason to conclude that the state requirements would not also be satisfied during the current permitting process, so this condition is not necessary. Second, EPA requires that Gloucester support the increased permit flow limit with a comprehensive wastewater management plan ("CWMP"), purportedly pursuant to 310 CMR 11.00, the implementing regulations for the Massachusetts Environmental Policy Act. Even assuming that MEPA review would be required to increase the flow limit at the treatment plant to the design flow, there is no requirement in the MEPA regulations for a CWMP. Third, EPA assumes that increasing the flow limit to the design flow will require MEPA review. Because MEPA defines an Expansion in Capacity based on design capacity, MEPA review should not be required at all as long as the design flow is not exceeded. See 301 CMR 11.02.

Fourth, EPA states that Gloucester is required to obtain a Massachusetts Ocean Sanctuaries Act variance authorizing the increased discharge, M.G.L. c. 132A § 12A, et seq." (Draft Permit, p. 2 n.2). This is incorrect; no variance is required under MOSA. A Special Act of the General Court made a specific exception for the Gloucester facility:

> Notwithstanding the provisions of sections fourteen, fifteen, sixteen and eighteen of chapter one hundred and thirty-two A of the General Laws, the city of Gloucester may build and discharge from a primary wastewater treatment facility with an extended outfall as described in the application submitted to the administrator of the Environmental Protection Agency of the United States for a waiver of the secondary wastewater treatment requirement as provided by 33 USC 1343. [Footnote: Chapter 120 of the Acts of 1981 (May 1, 1981).].

The application Gloucester had submitted to the Environmental Protection Agency in 1979 described a facility with design average flow of 7.24 MGD and design maximum flow of 15 MGD; the facility was constructed as designed. Thus, the discharge from the Gloucester WPCF is not required to obtain a variance under MOSA.

In addition, the meaning of the second row titled "Flow" in the table in Part I, A.1. of the Draft Permit is unclear and should be clarified or deleted.

Response 47

This comment raises four issues regarding permit requirements that must be met before an increase to the permit's flow limit could be approved: 1) whether an anti-degradation review is necessary; 2) whether Gloucester must support its flow increase with a Comprehensive Wastewater Management Plan pursuant to 310 CMR 11.00; 3) whether an increase up to the prior design flow will require MEPA review; and 4) whether Gloucester is required to obtain a variance under MOSA.

First, with respect to whether an anti-degradation review is necessary, since Gloucester has never received permission through a federal NPDES permit to discharge an annual average monthly flow that is greater than its current permit limit of 5.15 MGD, MassDEP

has confirmed[109] that a state anti-degradation review will be required under 314 CMR 4.04 to authorize an increased flow limit in the permit. After a state anti-degradation review is completed and the proposed increased flow limit is approved by MassDEP, Gloucester must comply with the terms of footnote 2 in the Final Permit before the increase will be deemed authorized under its NPDES Permit.

Second, with respect to Gloucester developing a Comprehensive Wastewater Management Plan (CWMP), MassDEP's practice has been to require permittees to complete a CWMP as part of fulfilling the requirements for Massachusetts Environmental Policy Act ("MEPA") review under Massachusetts regulations at 301 CMR 11.00.

Third, the state has confirmed that an increase in permitted flow will require MEPA review, consistent with 301 CMR 11.03(5).

Fourth, with respect to the application of the requirements of MOSA, *see* Response 20.

Finally, the comment also states that the "meaning of the second row titled "Flow" in the table in Part I, A.1. of the Draft Permit is unclear and should be clarified or deleted." To address this concern, EPA has made the following three changes to Part 1.A.1., Table 1: (1) the term "Flow" has been changed to "Rolling Average Effluent Flow" to clarify that this limit is a rolling average, (2) the requirement to report the daily maximum "Flow" has been changed to a requirement to report "Effluent Flow," and (3) the text has been changed to include a "5.15 MGD" flow limit which will remain effective unless and until footnote 2 conditions are met.

Comment 48.

B. Biological Oxygen Demand and Total Suspended Solids Limits (Fact Sheet pp. 14-15; Draft Permit Part I, A. 1. (table and footnote 4)). The limits in the draft permit for biological oxygen demand and total suspended solids fail to take into account the effect of Gloucester's combined sewer system. First, the average weekly mass limit eliminates the flexibility afforded by the average weekly concentration limit during high flow events. It must be recognized that during high flow weeks, flows in excess of 7.24 MGD will be processed. A weekly average for mass loading is impracticable during these times; therefore, pursuant to 40 CFR § 122.45(d), weekly limits should not be imposed. Second, percentage removal requirements should be set according to the provisions of 40 CFR § 133.103, which addresses secondary treatment in combined sewer systems during wet weather: "the decision must be made on a case-by-case basis as to whether any attainable percentage removal level can be defined, and if so, what the level should be." At a minimum, the 85% removal requirement is unattainable and not required under § 133.103; the removal requirement should be set at a more realistic level, which should be determined on the basis of actual performance data from periods of wet weather flows at the plant.

[109] Email correspondence from Susanna King of MassDEP to Anne Leiby of EPA, dated February 4, 2021.

Response 48

The limits for BOD and TSS in the Draft Permit were derived from the monthly, daily and weekly BOD and TSS limits prescribed in 40 CFR § 133.102. Gloucester's comment urges that these limits should be adjusted, as allowed by the regulations, in light of the effect on treatment plant performance of high flows that would be conveyed to the plant during wet weather by the City's combined sewer system.

First, Gloucester urges that under 40 CFR § 122.45(d), the permit should not impose weekly average mass limits because meeting the mass-based limits is "impracticable" during high flows from wet weather. EPA disagrees with this comment. The weekly average mass limits set by EPA are consistent with 40 CFR §§ 122.45(f) (mass limits), 122.45(d)(2) (limits for POTWs), 133.102(a)(2) and (b)(2) (secondary treatment limits). While Gloucester is correct that 40 CFR § 122.45(d) allows for an exception to the requirement that limits for POTWs with continuous discharges be stated as average weekly and average monthly limits if such limits would be impracticable, EPA finds that this exception does not apply here. As discussed in comment and Response 4 above, Gloucester has addressed its combined sewer overflow (CSO) problems by, among other things, separating a significant portion of its formerly combined sewer lines. This, in turn, has reduced the amount of wet weather flow that otherwise would have been conveyed to the treatment plant. As a result, meeting the permit's weekly mass limits should not be impracticable for a new secondary treatment plant.

Second, the City argues that under 40 CFR § 133.103(a), the permit's requirement for 85 percent removal of BOD and TSS, *see* Final Permit Part I.A.1.e, should be relaxed due to the high level of wet weather flows conveyed to the treatment plant by Gloucester's combined sewers. Gloucester urges that EPA should only set the percent removal limits based on "actual data" from wet weather operations by the new secondary treatment plant. EPA does not agree that these limits need to be relaxed for Gloucester. EPA set the 85 percent removal requirements consistent with 40 CFR §§ 133.102(a)(3) and (b)(3). Although the City is correct that 40 CFR § 133.103(a) allows for a case-by-case adjustment of these requirements for POTWs unable to meet them due to wet weather flow conveyed to the POTW by combined sewers, EPA finds that the City's success at separating its sewers means that the treatment plant no longer faces the problem of greatly increased influent flows during wet weather. In addition, although Gloucester has yet to indicate what type of secondary treatment it would expect to use, EPA notes that it has not found relaxed effluent limits necessary for activated sludge secondary treatment facilities in Massachusetts with combined sewer systems. *See, e.g.,* Final NPDES Permits for Haverhill (MA0101621), Greater Lawrence Sanitary District (MA0100447), Lowell Regional (MA0100633), Springfield Water and Sewer Commission (MA0101613), and Holyoke (MA0101630). Therefore, EPA is not removing or relaxing the percent removal requirements for BOD or TSS in the Final Permit. If after installation and commencement of operations of the secondary treatment plant, Gloucester is unable to meet the percent removal requirements because of wet weather flow conveyed to the plant by the

remaining combined sewers, then the City may seek a modification of the permit limits pursuant to 40 CFR §§ 122.62(a)(2) and (16), and 40 CFR § 133.103(a).

Comment 49.

C. Water-Quality Based Effluent Limits. Under the Clean Water Act and EPA regulations, EPA must ensure that permit effluent limits will achieve water quality standards for all pollutants which "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard... ." 40 CFR § 122.44(d)(1)(i). EPA's regulations and guidance provide clear instructions as to how water quality standards should be translated into permit effluent limits. EPA did not follow these regulations and guidance in development of water quality based effluent limits for the Draft Permit.

Response 49

Gloucester's comment correctly states that EPA's NPDES permits must include effluent limits to ensure compliance with state water quality standards, *see* Section 301(b)(1)(C) of the CWA, and that such limits must "control all pollutants or pollutant parameters … which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 CFR § 122.44(d)(1)(i). The comment is incorrect, however, in stating that EPA did not properly follow applicable regulations and guidance in setting water quality -based effluent limits for the City's permit. The specific permit effluent limits at issue are discussed below.

Comment 50.

1.Oil and Grease (O&G) Limit (Fact Sheet pp. 12-14; Draft Permit Part I, A. 1. (table and footnote 8)). EPA's determination of a 0.0 mg/I effluent limit for oil and grease (O&G) is wholly unjustified and unreasonable. First, EPA is wrong to say that the Massachusetts water quality standard for oil and grease in SA waters is, essentially, zero. EPA provides no justification for interpreting the Massachusetts narrative water quality standard for oil and grease for SA waters ("free from oil and grease") as requiring that "there shall be no measurable oil and grease present in the receiving waters." First, EPA has already determined with regard to other NPDES permits discharging into marine SA waters that the Massachusetts water quality standard does not mandate essentially non-detectable levels of oil and grease in the receiving waters. See, e.g., the fact sheet for the 2008 South Essex Wastewater Treatment Facility draft permit (recognizing that allowing 15 mg/l of oil and grease in the discharge "meets the narrative `free from oil and grease and petrochemicals' in the SA criteria"). Moreover, if analytical methods for oil and grease became advanced enough, this interpretation would result in numerical limits for oil and grease being set lower than limits for some highly toxic chemicals. This is an arbitrary interpretation of the narrative standard. Moreover, EPA's interpretation of the narrative standard does not comport with any of the options specified by 40 CFR § 122.44 (d)(1)(vi) for translation of narrative to numeric standards, which provides several methods for establishing numeric standards, including (1) calculating the numeric criteria using a proposed

state criterion or a state policy or regulation, (2) using EPA's water quality criteria published under § 304(a) of the Clean Water Act, or (3) using an indicator parameter. [Footnote: 40 CFR § 122.44(d)(1)(vi) provides: "Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits using one or more of the following options: (A) Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such a criterion may be derived using a proposed State criterion, or an explicit State policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information which may include: EPA's Water Quality Standards Handbook, October 1983, risk assessment data, exposure data, information about the pollutant from the Food and Drug Administration, and current EPA criteria documents; or (B) Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 304(a) of the CWA, supplemented where necessary by other relevant information; or (C) Establish effluent limitations on an indicator parameter for the pollutant of concern …."] Instead, EPA arbitrarily interprets the standard to be zero, with compliance measured at the current method detection limit.

Second, even if it were correct that the Massachusetts water quality standard for oil and grease were zero, EPA would be wrong to translate that standard into a "zero discharge" effluent limit. EPA states in the fact sheet for the draft WPCF permit that "the treatment plant discharge contains measurable quantities of oil and grease and, therefore has the reasonable potential to exceed the `free from oil and grease and petrochemicals' criterion." This is inconsistent with the position EPA took in the fact sheet for the South Essex Wastewater Treatment Facility 2008 draft permit, in which it specifically recognized that a 15 mg/I effluent limit would satisfy the "free from oil and grease" standards. In addition, EPA's regulations at 40 CFR § 122.44(d)(1) and EPA's key guidance on water-quality-based effluent limits [Footnote: See Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001 (March 1991); NPDES Permit Writers' Manual, EPA/833/K-10-001 (September 2010).] clearly require that dilution of the effluent in the receiving water be taken into account in the determination of "reasonable potential to cause, or contribute to an excursion above any State water quality standard." Based on the initial dilution of 65:1 posited by EPA in the Gloucester fact sheet, even the current effluent concentration of 25 mg/I will result in an ambient concentration of 0.38 mg/1 at the edge of the mixing zone allowed by Massachusetts' water quality standards. This is an order of magnitude below the detection limit for O&G and TPH. Thus, the effluent limitation of 25 mg/l in the current permit for the WPCF is appropriate and even conservative based on the initial dilution. Because the current discharge consistently meets this limitation, there is no basis to conclude that the effluent will result in any violations of the criterion at the edge of the mixing zone.

Further, compliance with the Massachusetts water quality standards in the receiving waters has been well demonstrated. For the first 12 years of Gloucester's 301(h) monitoring program, levels of oil and grease were measured in the receiving waters. Samples were taken from surface and bottom waters at four stations around the diffuser and at two control sites. In spite of commercial and recreational boat traffic through the area, positive detects were exceedingly rare. [Footnote: In 2000 and 2001 there were no detects for oil and grease in more than 500 samples.] As a result, EPA has not required sampling for oil and grease in the waters around the outfall since 2002.

Finally, the City is unaware of any permits for Massachusetts POTWs discharging to SA waters for which the O&G limit is set at the level EPA says is required. Below are some examples from the EPA Region I website of permits for POTWs discharging to SA waters. None of these even have an O&G limit, much less a 0 mg/I requirement.

- Cohasset Wastewater Treatment Plant (NPDES Permit MAO100285, 7/18/2007): No O&G limit or monitoring requirement.
- Rockport Wastewater Treatment Plant (Draft NPDES Permit MAO100145, public notice date 5/20/2009): No O&G limit or monitoring requirement.
- South Essex Wastewater Treatment Facility (NPDES Permit MAO100501):
  - Permit dated 2/9/2001: O&G monitoring/reporting requirement only.
  - Draft permit (2008): No O&G limit or monitoring requirement.
- Dartmouth Water Pollution Control Facility (NPDES Permit MAO101605, 6/19/2009): No O&G limit or monitoring requirement.

There no basis to conclude that O&G from the WPCF discharge has a "reasonable potential to cause, or contribute to an excursion above any State water quality standard," and certainly no basis to impose an effluent limitation which is far lower than necessary to meet water quality standards and which has not been applied to other WCPFs discharging to marine SA waters. The O&G limit should remain at 25 mg/1.

Response 50

Partly in response to the City's comments questioning the Draft Permit's effluent limit for O&G, EPA has changed the limit from 0.0 mg/L to "no detectable discharge of oil and grease or TPH." Final Permit, Part I.A.1 n. 8. Otherwise, EPA disagrees with this comment's critique of the basis of the proposed O&G limit in the Draft Permit and the suggestion that the limit is too stringent. The O&G permit limits correctly reflect the MAWQS for Class SA waters. EPA well explained its interpretation of the Massachusetts water quality criteria for O&G in the TD, p. 17, and the Fact Sheet, pp. 12, 14. EPA's explanation of the permit limits for O&G set forth in Response 11 also responds to this comment by the City, including the part of the City's comment related to NPDES permits issued to certain other POTWs. That said, EPA notes that Gloucester's comment points to the NPDES permits issued to Cohasset, Rockport, SESD, and Dartmouth, but all four of these municipal treatment plants discharge to Class SB waters subject to the state's

qualified "free from" criterion for oil and grease, while Gloucester discharges to Class SA waters subject to the unqualified "free from" criterion. This is discussed in detail in Response 11. Finally, EPA also responds here to Gloucester's comment that EPA's water quality-based limit for O&G is inconsistent with EPA regulations because it was not developed using one of the methods specified in 40 CFR §§ 122.44(d)(1)(vi)(A) – (C). EPA disagrees with this comment. This regulation does not apply to the O&G limit for the Gloucester permit.

The regulation cited by Gloucester, 40 CFR § 122.44(d)(1)(vi), applies when a state has not established a water quality criterion for a specific pollutant but the permitting authority determines it must set a limit for that pollutant because it is present in the effluent at levels that cause, have a reasonable potential to cause, or contribute to an excursion above a particular narrative criterion. For example, if a state narrative criterion prohibited the presence of pollutants that made a water body aesthetically undesirable and a discharge included a specific pollutant that could cause the water to be discolored in an aesthetically undesirable way, then the permitting authority could set a permit effluent limit for that pollutant using one of the methods specified in 40 CFR §§ 122.44(d)(1)(vi)(A) – (C) in order to ensure that the state's narrative criterion would be met. The O&G limit for the Gloucester permit presents a different situation. Massachusetts *has* set a water quality criterion for O&G in SA waters and that criterion prohibits the presence of O&G and petrochemicals in such waters. 314 CMR 4.05(4)(a)(7) ("These waters shall be free from oil and grease and petrochemicals"). The plain language of this criterion means that no (i.e., zero) O&G or petrochemicals are allowed.[110] As explained in the 2010 TD, p. 17, and Response 11, above, EPA's interpretation of the criterion for O&G in SA waters is straightforward and shared by MassDEP. As a result, the O&G limit set by EPA for the Gloucester permit is required under 40 CFR § 122.44(d)(1)(i) and § 122.44(d)(1)(vi) does not apply.[111]

[110] The Massachusetts water quality standards use the phrase "free from" for a number of different criteria, but apart from the criterion for O&G in SA waters, the phrase is typically used in a qualified sense. In other words, the phrase "free from" is conjoined with some additional characteristic that is described in narrative terms. For example, and as discussed in Response 11 above, Massachusetts requires SB waters to be "free from oil, grease and petrochemicals *that produce[, among other things,] a visible film on the surface of the water* …." 314 CMR 4.05(4)(b)(7) (emphasis added). As another example, the state requires that SB waters "shall be free from color and turbidity *in concentrations or combinations that are aesthetically objectionable or would impair any uses assigned to this class*." 314 CMR 4.05(4)(b)(6) (emphasis added). SA waters, on the other hand, must be *unqualifiedly* free from O&G and petrochemicals.

[111] Even if the Massachusetts SA criterion for O&G and petrochemicals was deemed to be a narrative criterion covered by 40 CFR § 122.44(d)(1)(vi), the permit effluent limit for O&G derived from that criterion by EPA would be consistent with 40 CFR § 122.44(d)(1)(vi)(A). This is because the limit would then be based upon a calculated numeric water quality criterion for O&G that EPA has demonstrated will attain and maintain the applicable narrative water quality criterion ("free from oil and grease and petrochemicals) and would fully protect the designated uses of the SA waters.

Comment 51.

2. Total Petroleum Hydrocarbons (TPH) Limit (Fact Sheet pp. 12-14; Draft Permit Part I, A. 1. (table and footnote 8)). EPA's translation of the "free from... petrochemicals" water quality standard into a 0.0 mg/I permit limit for TPH suffers from the same flaws as the oil and grease limit: "free from" does not translate to "no measurable," and the 65:1 dilution should be taken into account in calculating effluent limits based on water quality standards.

The fact that the existing TPH standard is appropriately protective has also been demonstrated in the results of sediment sampling in the vicinity of the outfall reported annually since 1991. Priority pollutants scans for volatile and semi-volatile organics were originally performed on samples from both the water column and sediments. Water column sampling was discontinued in 1991 due to the failure to detect any of these compounds. Sediment sampling has continued for the last 20 years at sites ranging from 30 meters to 1500 meters from the diffuser. Only a few pyrogenic semi-volatile hydrocarbons have been detected and these were at very low levels (parts per billion) typical of background levels for Massachusetts Bay. The sampling site nearest the outfall usually has the lowest concentrations of these compounds. There have been no indications of increases in the concentrations of any of these materials in the 20-year time period. The sources are most likely atmospheric deposition, runoff and boat traffic. There is simply no basis to conclude that TPH from the WPCF discharge has a `'reasonable potential to cause, or contribute to an excursion above any State water quality standard." The TPH standard should remain at 5 mg/l.

Response 51

First, EPA notes that consistent with the above comment, the limit of 0.0 mg/L for TPH proposed in the Draft Permit has been changed to a limit of "non-detect" with the compliance level being measured at the ML of 5.0 mg/L. That said, EPA disagrees that it has misapplied Massachusetts water quality criteria in setting the permit limit for TPH for this permit. EPA's Response 12, above, is also responsive to this comment and explains the TPH limit in greater detail.

Also, EPA disagrees with the comment that "[t]he sources [of semi-volatile hydrocarbons found in sediments near the outfall] are most likely atmospheric deposition, runoff and boat traffic." There have been numerous detections of priority pollutants, including semi-volatile hydrocarbons, in the effluent at the treatment plant which suggests that the sources of semi-volatile hydrocarbons found in sediments near the outfall are not limited *only* to atmospheric deposition, runoff and boat traffic and, instead, that the WPCF's effluent has likely contributed to the presence of these pollutants in sediments near the outfall. *See* 40 CFR § 125.62(f) ("An applicant must demonstrate compliance with paragraphs (a) through (e) of this section [i.e., 40 CFR § 125.62] not only on the basis of the applicant's own modified discharge, but also taking into account the applicant's modified discharge in combination with pollutants from other sources."). Not only have semi-volatiles been detected in WPCF effluent as recently as 2017, 2018, 2019, and

2020, but these contaminants have also been detected in the sediments near the edge of the zone of initial dilution at Station 3A. *See also* Response 6.

Comment 52.

3. Bacteria Limits (Fact Sheet pp. 15-17; Draft Permit Part 1, A. 1. (table and footnotes 1 and 6)). In setting bacteria effluent limits, EPA once again fails to take dilution into account. EPA justifies its approach by making the following assertions (fact sheet pp. 15-16):

- "Historically, MassDEP has required that bacteria limits be applied `end-of-pipe' (i.e., at the point of discharge) with no allowance for dilution."
- The MassDEP Implementation Policy for Mixing Zones requires a demonstration that the mixing zone at the WPCF discharge does not encompass important shellfish areas, which has not been made.
- A 2008 internal EPA memo regarding zones of dilution for bacteria in rivers and streams should be relied on to prohibit a mixing zone for bacteria at the WPCF discharge.

None of these justifications is supportable. EPA cites no reference for its claim that MassDEP requires that bacteria limits be applied without dilution factors. There is no such statement in the Massachusetts Water Quality Standards, the MassDEP Implementation Policy for Mixing Zones, the MassDEP Surface Water Discharge Permit Program regulations, or any other MassDEP water quality regulatory or guidance document that the City is aware of

Also, the years of biological monitoring in the vicinity of the outfall, documented in the City's annual 301(h) reports to EPA, make it clear that there is no potential for shellfishing in the area of the outfall, much less "important shellfish areas." There are only two species found in the area of the discharge that could be considered potential resource species. These are the soft-shell clam, Mya arenaria, and the ocean quahog, Arclica islandica. Both of these species are typically found in "beds" where high densities make it feasible to collect enough individuals to make the effort worthwhile. However, Mya arenaria beds are found in intertidal areas and ocean quahog beds in sandier sediments offshore, not in the vicinity of the Gloucester outfall. Small numbers of juveniles of both these species have been reported in benthic grab samples in the monitoring program, but fewer than 10 adult individuals of Arctica islandica and no adult specimens of Mya arenaria were collected in more than 1000 benthic grab samples taken over 20 years. Further, there is not presently a commercial or recreational market for Arctica islandica in Massachusetts. Finally, the entire area around the WPCF discharge, and up and down the coast in the vicinity, is classified as "Prohibited" by the Massachusetts Division of Marine Fisheries under the National Shellfish Sanitation Program. The WPCF outfall is considered a point source under that program; thus, extensive water quality sampling would be required to open the area to shellfishing (regardless of the level of treatment provided by the WPCF). That sampling is unlikely to take place due to the lack of shellfish habitat; further, the Massachusetts DMF typically prefers to

maintain a buffer "Prohibited" around all point sources in case of plant failures. [Footnote: Based on discussions with the Gloucester Shellfish Constable.].

Finally, the 2008 memorandum EPA cites is inapplicable. The memorandum is not found on EPA's list of water quality standards policy and guidance documents, [Footnote: http//water.epa.gov/scitech/swguidance/waterquality/standards/library index.cfm (last visited March 12, 2011)] and it contradicts statements in EPA's formal guidance. The preamble to EPA's regulation promulgating water quality criteria for bacteria for coastal recreation waters responds to comments on mixing zones for bacteria as follows:

> EPA appreciates the concerns of commenters regarding human health risks of exposure to fecal contamination within mixing zones. However, EPA has determined that the Agency's existing guidance provides sufficient direction to permitting authorities as they implement State or Territorial mixing zone policies. EPA's Water Quality Standards Handbook: Second Edition (EPA-823-B-94-005a, August 1994) as well as EPA's Technical Support Document, for Water Quality Based Toxics Control (EPA-505-2-90-001, March 1991) advise against the use of mixing zones where the location may pose a significant health risk. These documents stress the importance of determining the appropriate placement and size of mixing zones depending on the potential effects to human health and the environment. As a result, EPA is not prohibiting the application of mixing zones in the final rule in cases where they would be allowed under existing State and Territorial programs. [Footnote: Environmental Protection Agency, 40 CFR Part 131: Water Quality Standards for Coastal and Great Lakes Recreation Waters; Final Rule 69 Fed. Reg. 67128, 67229 (November 16, 2004) (emphasis added).]

EPA's Water Quality Standards Handbook states, "For protection of human health, the presence of mixing zones should not result in significant health risks using reasonable assumptions about exposure pathways" (emphasis added). [Footnote: Water Quality Standards Handbook: Second Edition (EPA-823-B-94-005a, August 1994) at 5-7.]. It is not reasonable to assume that people will be recreating in the mixing zone for the WPCF discharge, which is below the water's surface, in deep water, well offshore and well away from diving sites. Finally, even if the 2008 memorandum cited in the fact sheet did represent official EPA guidance, its discussion of potential exposures in "...rivers and streams..." would have no relevance for the WPCF discharge.

Response 52

EPA disagrees with this comment which repeats issues raised in Comments 13, 14, and 19. EPA's responses are discussed more fully above. *See* Responses 13 and 19 (bacteria limits for primary contact recreation). *See* Response 13, footnote 65 (November 12, 2008 memorandum prepared by EPA's Office of Science and Technology). *See* Response 14 (bacteria limits for shellfishing).

Comment 53.

4. Whole Effluent Toxicity (WET) Limits (Fact Sheet pp. 18-20 and Draft Permit Part I, A.1. (table and footnotes 9, 10 and 11)). The WET limits in the draft permit are inappropriate because exceedance of the limits does not indicate any actual toxicity in the vicinity of the WPCF outfall. In the fact sheet, EPA acknowledges that testing of the WPCF effluent "demonstrates an absence of reasonable potential for the priority pollutants to cause or contribute to an exceedance of state water quality criteria" (p. 18). EPA also acknowledges that "biological and receiving water quality monitoring data does not indicate any significant changes to the biota outside the zone of initial dilution" (p. 18). In other words, there has been no toxicity seen at the outfall, and no pollutants have been detected in the effluent at levels that could cause toxicity. Nonetheless, EPA states that WET testing is required to "reveal the additive, antagonistic, and/or synergistic effects of combining various pollutants" and to "reveal the presence of previously unidentified pollutants" (p. 19). This requirement has no rational basis, given that chemical and biological sampling show no evidence of toxicity.

In addition, the results of WET testing of the WPCF effluent are almost certainly an artifact of test conditions not present at the outfall. The laboratory toxicity tests are conducted at either 20 or 25 degrees Celsius, but the temperature at the outfall never approaches these temperatures. The diffuser releases the effluent at 30 meters depth in Massachusetts Bay where the maximum summer temperature is 10 - 11 degrees C. For most of the year the temperature is well below 10° C. A toxicity identification evaluation (TIE) study conducted on the WPCF effluent identified ammonia as the likely primary cause of toxicity. [Footnote: Brown and Caldwell, Draft Phase II Voluntary Toxicity Identification Evaluation. Prepared for the City of Gloucester]. The percentage of un-ionized ammonia, i.e. the fraction toxic to marine organisms, is greatly affected by pH and temperature. Higher temperature and pH increases the amount of unionized ammonia. At a pH of 8 and salinity of 32 ppt (approximate conditions at the outfall), the percentage of un-ionized ammonia changes from 1.44% at 10°C degrees to 2.98% at 20° C and 4.28% at 25° C. [Footnote: European Inland Fisheries Advisory Commission, 1986. Report of the working group on terminology, format and units of measurement as related to flow-through and recirculation system. Tech. Pa. 49.]. Clearly, the temperature of the seawater during the laboratory tests has a dramatic effect on results, essentially doubling or tripling the toxicity of the ammonia component; the pH and salinity of the test also tend to increase toxicity compared to conditions at the outfall.

EPA's guidance on developing water-quality based effluent limits specifically cautions against misinterpretation of test results in this scenario:

> There may be a few unusual situations where the pH, temperature, hardness, salinity, and solids requirements of the testing procedures differ greatly from the worst environmental conditions for these parameters. In these situations, theeffluent toxicity tests may either over or under predict the toxicity in the

> ambient receiving water. An example of this is where ammonia is present and the highest expected ambient water temperature is 20° C whereas the chronic toxicity test must be conducted at 25° C. Since a higher temperature causes more ammonia toxicity, the temperature requirements of the test may induce toxicity not found in the ambient water. In such an instance, the regulatory authority must look carefully at the test protocols and all the data collected to determine if the facility is actually contributing to toxicity in the receiving water. A toxicity identification evaluation may be necessary to make this determination. If this analysis shows a toxicity test result to be artificial due to environmental parameters, that that test should be overridden by subsequent valid toxicity tests conducted. [Footnote: EPA, Technical Support Document for Water Quality Based Toxics Control (EPA-505-2-90-001, March 1991), at 24-25.]

For the WPCF permit, the toxicity test conditions should be modified to reflect conditions at the outfall, or the requirement should be eliminated altogether. The City requests that the WET limits be replaced by a Compliance Plan focused on developing alternative, EPA-approved test methods to avoid the continual reporting of meaningless false positive results. This compliance plan would also reevaluate the frequency of sampling to be required. Additionally, the WET limit should reference that compliance will be assessed under the conditions of a mixing zone established in accordance with state standards and guidance.

Response 53

EPA disagrees with this comment, which primarily repeats issues raised in Comment 10 that EPA has already responded to in Response 10. At the outset, the comment argues that the permit's WET requirements are inappropriate because WET test results do not indicate any actual toxicity from the discharge of the WPCF's effluent in the area of the City's outfall. In a related argument, the commenter also asserts that there is "no rational basis" for EPA stating on page 19 of the Fact Sheet for the 2010 Draft Permit that "WET testing is required to 'reveal the additive, antagonistic, and/or synergistic effects of combining various pollutants' and to 'reveal the presence of previously unidentified pollutants' (p. 19)" … given that [sampling of individual] chemical[s] and biological sampling show no evidence of toxicity." EPA disagrees with both comments. In Response 10, EPA explains why the permit's WET requirements are correct under the applicable regulations and state and federal policy. Furthermore, in the Fact Sheet for the 2010 Draft Permit, pp. 18-19, EPA correctly explained the benefits of WET tests with regard to their ability to identify any toxic effects from either combinations of pollutants in the effluent or from any individual toxic pollutants not tested for because their presence in the effluent was not previously been identified. EPA further explained both the regulatory basis and the policy basis for including WET testing requirements and limits in the permit, noting that the persistent violations of the WET limits by the City's effluent established a reasonable potential for the City's discharges to violate the state's narrative water quality criterion for toxicity. *Id.*, p. 19. *See also* 2010 TD, pp. 14-16, 23;

and Response 10 n. 29, and Response 18, above. In addition, Responses 10, 16 and 17 explain that the biological monitoring data does, in fact, indicate toxic effects in the environment as a result of the WPCF's effluent discharges. All of this evidences that EPA has a rational basis for its view of the importance of the permit's WET requirements.

The above comment also includes an additional argument, which was not raised previously, and which EPA disagrees with. Specifically, the comment argues that EPA's Technical Support Document for Water Quality Based Toxics Control (EPA-505-2-90-001, March 1991), at 24-25, ("TSD") supports Gloucester's view that the City's WET test results are misleading and do not indicate that the WPCF's effluent will cause any toxic effects in the environment. The comment contends that Gloucester's persistent exceedances of the permit's WET limits are merely an artifact of ammonia in the effluent coupled with the temperature, pH, and salinity levels prescribed by EPA's WET test protocol, and that because these levels do not match those found in the environment at the location of the City's outfall, the WET test results do not indicate that the City's effluent will have toxic effects in the environment. The commenter made the same points about the test conditions in Comment 10, but without reference to the TSD, and EPA responded to those points in Response 10. Here the commenter has added the reference to the TSD and EPA responds to that specific argument here.

The City is correct that the EPA's TSD, p. 24, states that there may be "unusual situations where the pH, temperature, hardness, salinity, and solids requirements of the testing procedures differ greatly from the worst environmental conditions for these parameters" (i.e., the worst case conditions for these parameters in the ambient environment from the perspective of promoting toxicity). The TSD notes that, in such situations, WET tests may either overpredict or underpredict effluent toxicity in the receiving water. *Id*. Gloucester's comment urges that its WET test results are *over*predicting effluent toxicity. The comment states that while "[t]he laboratory toxicity tests are conducted at either 20 or 25 degrees Celsius, … the temperature at the outfall never approaches these temperatures …," and "[t]he diffuser releases the effluent at 30 meters depth in Massachusetts Bay where the maximum summer temperature is 10 - 11 degrees C … [and f]or most of the year the temperature is well below 10° C." The comment concludes that the higher water temperature used in the WET tests "essentially doubl[es] or tripl[es] the toxicity of the ammonia component" of the effluent, and that the pH and salinity used in the tests also increases toxicity. Gloucester suggests that EPA's TSD points to this very scenario as an example of when WET tests could overpredict toxicity, as the TSD notes that if the highest expected ambient water temperatures are only 20°C whereas the chronic toxicity test is conducted at 25°C, then toxicity could be overpredicted because "higher temperature causes more ammonia toxicity." *Id*. In such a case, the TSD explains, "the temperature requirements of the test may induce toxicity not found in the ambient water." *Id*. Again, the comment argues that the TSD "cautions against misinterpretation of test results" in such circumstances, and that this is what is occurring with Gloucester's WET tests.

EPA understands the comment's line of argument but disagrees with it. While EPA agrees that warmer water temperatures may promote ammonia toxicity, EPA does not agree that the WET test water temperatures are drastically different from the temperatures that occur in the waters impacted by the City's discharge. The Region's acute and chronic WET testing protocols require the tests to be conducted at a temperature range of 20-25°C. Contrary to the comment, water temperatures prevailing in the vicinity of the City's outfall reach these levels during the warmer months. While EPA agrees that water temperatures in Massachusetts Bay are unlikely to reach 20-25°C at a depth of 90 feet, *Gloucester's discharge plume does not stay 90 feet below the surface*. Instead, after discharge from the outfall, Gloucester's wastewater plume rises to the surface where water temperatures in the summer routinely reach 20-25°C. Data collected in Massachusetts Bay at NOAA's Buoy A-01, the closest buoy to Gloucester Harbor located 3.75 miles from the outfall, show ambient water column temperatures in early August that reach 22.2°C at a water depth of 50 meters (164 feet below the surface), 23.7°C at a water depth of 20 meters (65.6 feet), and 23.7°C at a depth of 10 meters (32.8 feet). Moreover, if ambient water temperatures reach 23.7°C at 10-20 meters below the surface, then ambient water column temperatures will likely exceed 23.7°C, and possibly reach or exceed 25°C, near the surface during August through September when critical conditions are most likely to occur. [112] Thus, water temperatures used in the WET tests are similar to those found in the vicinity of the discharge and the TSD's concern about the tests overpredicting toxicity does not apply here. [113]

Furthermore, even if this was a concern, the comment goes wrong when it demands that due to the issues raised about the effect of the test protocols on predicted effluent toxicity, "the toxicity test conditions [for the WPCF permit] should be modified to reflect conditions at the outfall, or the requirement should be eliminated altogether." Contrary to the action proposed by the comment, the TSD suggests that for this type of situation "the regulatory authority must look carefully at the test protocols and all the data collected to determine if the facility is actually contributing toxicity in the ambient water," and that "[a] toxicity identification evaluation may be necessary to make this determination." *Id*., pp. 24-25. In this case, both steps recommended by the TSD have been undertaken. First, all of the available data was reviewed and, as discussed above, EPA has determined that the water temperatures in the tests are not substantially different from the temperatures in the vicinity of the discharge and, therefore, are not likely to be overpredicting effluent toxicity. Second, a toxicity identification evaluation ("TIE") was conducted in response

[112] EPA Permit Writer's Manual, Chapter 6: Water Quality-Based Effluent Limitations, "For waterbodies other than free-flowing rivers and streams, there might be critical environmental conditions that apply rather than flow (e.g., tidal flux, temperature) [when setting permit limitations].", page 6-19, 2010.

[113] Application of the WET testing requirements and limits for Gloucester is also consistent with the TSD's recognition that water quality-based limits should be determined based on what is needed to satisfy state water quality standards under critical (i.e., conservative) conditions, including for water temperatures. *See* TSD, p. 95 ("For water quality-based requirements, the [permit] limits are based on maintaining the effluent quality at a level that will comply with water quality standards, even during critical conditions in the receiving water."), p. 56, 96.

to the persistent acute WET limit exceedances and the TIE study determined that ammonia was but one of several likely sources of the effluent's toxicity. *See* Response 10 (discussing the City's TIE study results). Thus, EPA does not agree with the commenter that the permit's WET limits should be modified or eliminated in conjunction with renewing the City's Section 301(h) modification.

Finally, EPA also disagrees with the comment's suggestion that the WET limit should be replaced by a Compliance Plan focused on developing an alternative EPA-approved test method in order "to avoid the continual reporting of meaningless false positive results …." Using the WET tests is consistent with EPA regulations, *see* 40 CFR § 122.44(d)(1)(v), and the current EPA-approved test methods have been proven to be effective and have been upheld in the courts. Moreover, the required testing frequency is in accordance with the state's Toxicity Policy. *See* Responses 10 and 76 (toxicity), and Response 19 (validity of WET toxicity testing). Finally, as discussed in more detail in Response 10, above, EPA notes that it has applied the WET limits in a manner consistent with MassDEP's Toxics Policy and its Mixing Zone Policy. EPA does not agree that the permit's WET test requirements have resulted in "continual reporting of meaningless false positive results …."

Comment 54.

D. Comments on Specific Provisions of the Draft Permit 1. PART I, A.l. Footnotes: The City requests that a clear statement be included in the permit concerning the applicability of the state and federal provisions for use of a "mixing zone" or "zone of initial dilution" in determining compliance with permit requirements and water quality standards.

Response 54

EPA disagrees with the comment that a statement should be added to the Final Permit concerning the applicability of a mixing zone or ZID, given that the Permittee's permit limits must be met at the end of pipe (while understanding that some limits, when appropriate, have been set factoring in the available dilution within the ZID, as explained in these Responses to Comments). That said, EPA finds that a clear statement should be added to the permit specifying the sampling location so that the Permittee has clear guidance on where compliance with permit limits will be determined. The Final Permit language under Part I.A.1., footnote 3., has been changed from "All required effluent samples shall be collected at a representative point." to "All required effluent samples shall be collected at a representative point prior to mixing with the receiving water." *See* Responses 8-10 (discussion of "zone of initial dilution" and the application of the Massachusetts Mixing Zone Policy).

Comment 55.

2. Part I, A.1.6. The number of samples needed to calculate the geometric mean should be specified, as should the time interval between the individual samples.

Response 55

The permit's water quality-based bacteria limits are set consistent with applicable requirements of the Massachusetts Water Quality Standards set forth in 314 CMR 4.05, (4)(a)4. (Bacteria Standards for Class SA Waters). The following language has been added to the Final Permit under Part I.A.1.h. in order to clarify the number of effluent samples needed to calculate the geometric mean and the time interval between the individual samples:

"When reporting effluent data as a geometric mean in NetDMR, the permittee will report the maximum value for the day and will use all values within the specified reporting period to calculate and report the geometric mean. An example is provided below. Values of zero cannot be used to calculate a geometric mean. If a bacteria sample result is below the detection limit, use the detection limit value for that sample to calculate the geometric mean. Use the following equation:

$$\text{Geometric Mean} = Xg = (X_1 \times X_2 \times X_3 \times \ldots \times X_n)^{1/n};$$

where: n = the number of values observed/analyzed; and X_1, X_2,...X_n = the sample results or values.

Sample Calculation:

Given the data collected within a 7 day period: 10, 100, 300, 15, 4
The calculated geometric mean for this data = $(10 \times 100 \times 300 \times 15 \times 4)^{1/5} = 28.25$
Therefore, the weekly average = **28.25** colonies/100 mL (a geometric mean)
To calculate the monthly geometric mean, use all data collected during the month.

In addition to the sample calculation above, the Permittee will report the bacteria data using the following guidelines:

Example Bacteria Data Set		
Result Type	Data Reported	Data for Calculation
No colony growth	< 4	4
# of colonies < 20	15 est.	15
Colonies between 20-60	40	40
Colonies > 60	150 est.	150
Colonies TNTC	> 6000	6000

TNTC = too numerous to count"

This Response to Comments document provides an additional method to calculate the geometric mean using a computer program. MS Excel, for example, can be used to automate the calculated geometric mean of a data set. The instructions for using MS Excel are, as follows: Using the command "geomean" which will automatically calculate

the geometric mean for a data set, first, input your data into an Excel spreadsheet. Second, type the command “geomean.” Third, select the cells with the numbers you want calculated in parentheses.

Please feel free to contact the EPA Permit Writer listed in this Response to Comments document if you have any questions or if you would like additional assistance.

Comment 56.

3. PART 1, A.1.1 I .d. As this pertains to a narrative criterion for which no approved, quantitative analytical methods apply, the City requests that the requirement be restated as, `'The effluent shall not contain visible oil, foam, or floating solids at any time."

Response 56

As discussed in Responses 11, 50, 60, EPA finds that the portion of the narrative effluent limit in Part I.A.1.d pertaining to oil is properly applied as a numeric effluent limit in Part I.A.1., Table 1 and, therefore, it is unnecessary to repeat that requirement in a narrative form in Part I.A.1.d.

In considering the commenter’s request to replace the “contain neither” narrative quantifier with “not contain visible” with regard to foam or floating solids, EPA returned to the state narrative solids criterion for class SA waters which says:

> These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

314 CMR 4.05(4)(a)(5). As the criteria for solids are clearly not as stringent as the “free from” criterion for oil and grease, EPA finds that a revision to Part 1.A.1.d is reasonable. However, using the commenter’s proposed “not contain visible” threshold would not properly protect the receiving water since floating, suspended and settleable solids, may cause impairment even when not visible. Therefore, Part 1.A.1.d has been revised to clarify that solids may not be present in the effluent in concentrations or combinations that would impair any use assigned to the receiving water, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom. This language is consistent with the state WQS.

Comment 57.

4. PART I, A.1.11.e. During wet months and seasons, the WPCF will likely be unable to meet the requirement for 85 percent removal of TSS and BOD based on monthly average values. Pursuant to 40 CFR 133, the City requests a waiver from the 85 percent removal requirement during wet months and seasons and requests that this waiver be formally established in the permit.

Response 57

EPA disagrees with this comment for reasons explained in Response 48.

Comment 58.

5. PART I, A.I.11.g. It is unclear how the requirement that "The permittee shall minimize the use of chlorine while maintaining adequate bacterial control." is to be interpreted in light of the proposed total residual chlorine limit. Is this "minimization" a separate requirement from the TRC? The City requests clarification of how TRC is to be measured and what limit will be used to determine compliance with permit conditions.

Response 58

In response to the Permittee's request for clarification, the total residual chlorine (TRC) limit and the chlorine minimization requirement are two separate permit requirements that apply independently. The WPCF must meet the TRC limits under Part I.A.1., Table 1, line 7, which effectively cap the amount of chlorine that the facility can discharge after disinfection, in order to meet state water quality standards. While meeting the TRC limits, the Permittee must also meet the terms of Part I.A.1.g., which requires that "[t]he permittee shall minimize the use of chlorine while maintaining adequate bacterial control." The TRC and bacteria limits are numeric conditions, while the requirement to minimize the use of chlorine while maintaining adequate bacterial control is a narrative condition of the Permit. In addition, Part I.A.1., footnote 7, of the 2010 Draft Permit and Final Permit also requires installation of a chlorine residual alarm system and that any interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine be reported on the Permittee's monthly discharge monitoring report. This requirement is intended to ensure that the WPCF disinfection system is properly operated to achieve compliance with the permit limitations for bacteria and TRC, while preventing the discharge of excessive levels of chlorine to the receiving water.

Comment 59.

6. PART I, A.3. It should be made clear that the terms "pass through" and "interference" have the meanings defined in 40 CFR § 403.3.

Response 59

The Final Permit has not been changed to include a reference to the pretreatment regulations because a list of definitions, which include both "pass through" and "interference" are included under Part II of the Final Permit, specifically, the NPDES Part II Standard Conditions (updated April 26, 2018). EPA has added a reference to these updated standard conditions and the phrase "(*See* NPDES Part II, E.1., General Definitions)" has been added under Part I.A.3. of the Final Permit.

Comment 60.

7. PART I, B.2. Given that even secondary treatment cannot meet the 0.0 mg/I requirement in the draft permit, the local limits for oil and grease required to meet that limit would be unattainable by local businesses. The City requests that the determination of the need for completion of a Maximum Allowable Headworks Loading Analysis for Oil and Grease be included in the technical evaluation to be done under PART I, B.1 and that PART I, B.2. be stricken.

Response 60

The City will need to report its Maximum Allowable Headworks Loading Analysis for oil and grease to EPA, and may submit this report along with its Local Limits Analysis results at the same time since both reports are due within 120 days of the effective date of the permit. Pretreatment local limits loading analyses are non-discretionary. Also, the City will need to meet the state's water quality standards regarding TPH, oil and grease. The Final Permit has not been changed with regard to the local limits comment.

EPA disagrees with the comment that Gloucester will be unable to meet its oil and grease (and TPH) limit even if the City upgrades its facility to secondary treatment. EPA suggests considering treatment options with high efficiency removal of oil and grease (and TPH) when the City designs its secondary treatment facilities.

See Responses 11 and 42 for a detailed discussion on the TPH, oil and grease permit limits.

Comment 61.

8. Attachment B. There are several references to the Northampton Wastewater Treatment Plant that appear to be unintended and should be removed from the proposed permit.

Response 61

The two references to the Northhampton Wastewater Treatment Plant were unintended and have been removed from the Final Permit, Attachment B.

E. City of Gloucester, Anderson & Kreiger, LLP, George Olsen (March 31, 2011)

Comment 62.

Enclosed please find supplemental comments of the City of Gloucester on the EPA's tentative 301(h) waiver denial and the draft NPDES permit for Gloucester's Water Pollution Control Facility, issued jointly by EPA and MassDEP on November 5, 2010. As you know, the City provided detailed comments on February 4, 2011 and March 22, 2011, which are hereby incorporated by reference. These supplemental comments address issues raised at the public hearing on March 24, 2011 (the "Public Hearing") and clarify the record regarding several other matters.

1. During the Public Hearing, an EPA representative stated that the 301(h) waiver was intended to only be a temporary exemption from the secondary treatment requirements of the Clean Water Act. The implication was that Gloucester has had the waiver far longer than was intended when Section 301 (h) was added by Congress and for that reason alone EPA was well within its regulatory rights when it decided to withdraw the waiver. This is simply incorrect. There is nothing in the Clean Water Act or EPA's implementing regulations to support the contention that the 301(h) waiver was intended to have a shelf life or otherwise not be reissued if the applicant met the statutory criteria. See H.R. Conf. Rep 95-830, at 22 (1977) ("waiver reviewed every five years to assure continued compliance with [statutory criteria]"). Like any other NPDES permittee, Gloucester is required to apply for a new NPDES permit every five years, see 42 U.S.C. §§ 1342(a)(3), 1342(b)(l)(B) (requiring that all NPDES permits, including those reflecting waiver from secondary treatment requirements, shall not be for term of more than five years). EPA cannot substitute its apparent policy judgment that 301(h) waivers should be temporary or phased out of existence for Congress' determination that secondary treatment is not required "where it can be shown that unacceptable adverse environmental effects will not result." See H.R. Rep. No. 97-270, at 17 (1981). If the City meets the Section 301(h) statutory criteria, it is entitled to a waiver from secondary treatment requirements, regardless of when the waiver was first granted or how long it has been in effect.

Response 62

Gloucester's comment states that at the public hearing for the Gloucester permit an EPA representative stated that "the 301(h) waiver was intended to only be a temporary exemption from the secondary treatment requirements of the Clean Water Act …[,]" which implied that the City "has had the waiver far longer than was intended when Section 301(h) was added by Congress and for that reason alone EPA was well within its regulatory rights when it decided to withdraw the waiver." While EPA does not necessarily agree that an EPA employee made such a statement – and the TD certainly did not rely on any such argument when it proposed not to renew Gloucester's Section 301(h) modification – EPA agrees with Gloucester that the CWA does not place a limit on how long a City might be able to qualify for a Section 301(h) modification. EPA also agrees with the City that, like other NPDES permittees, a discharger with a Section 301(h) modification must apply for permit renewal every five years (or possibly sooner based on the expiration date of its existing permit). Moreover, in order to obtain renewal of a Section 301(h) modification, a permittee's application would have to demonstrate that it again satisfies all criteria of Section 301(h) and the applicable regulations. *See, e.g.,* Response 21.

As is evident in this RTC document, and was evident in the TD, EPA has not denied Gloucester's request for renewal of the Section 301(h) modification because of any supposed time limit on such modifications. Instead, EPA has determined that Gloucester does not meet the applicable statutory and regulatory criteria and, therefore, renewal of the City's 301(h) waiver would not be justified. *See* Response 1 and Responses 9-19 for the legal and technical basis for EPA's denial of this 301(h) permit modification. All

documentation to support EPA's decision on this permit can be found in the Administrative Record for this permit.

Comment 63.

EPA also requested back-up information regarding the $60 million cost estimate for secondary treatment that Gloucester identified in its comments. As an initial matter, the exact cost of secondary treatment is not relevant. Whether it is $30 million or $100 million or some other amount, Gloucester's primary (although not only) point is that given the minimal environmental benefit that will be achieved, it makes no sense to require secondary treatment when the money could be put to other far more beneficial uses. In any case, we believe that the $60 million cost estimate is conservative, and a summary of the methodology and assumptions for the cost estimate is attached for the record.

Response 63

Section 301(h) of the Clean Water Act does not authorize consideration of the cost of secondary treatment as a factor in making decisions on applications for 301(h) waivers. As stated earlier in this Response to Comments document, however, EPA both acknowledges that the cost of designing and constructing a secondary treatment facility are significant and is committed to working with the City to develop an implementation schedule for secondary treatment that takes the City's financial challenges into account. *See* Responses 23, Response 1, footnote 2. It is not clear to EPA that it requested such backup information for the City's cost estimates at the public hearing – EPA *receives* public comments at public hearings and would not be expected to request information from a commenter – but if EPA did request such information, it would have been in the context of considering the cost estimate to help determine an appropriate compliance schedule rather than for determining whether the Section 301(h) criteria have been satisfied.

Comment 64.

Although not specifically identified in the City's February 4 and March 22, 2011 submissions, the City's comments were a collaborative effort among the City's staff and a multi-disciplinary team at CH2MHill (bios attached), Dr. Allan Michael (who spoke on behalf of the City at the public hearing) and Anderson & Kreiger LLP. Because a large portion of the City's comments are based on Dr. Michael's work, we are attaching a copy for the record of a letter report Dr. Michael prepared, which provides more detail regarding his analysis and opinions, along with his curriculum vitae. The record should reflect that the City has relied and will continue to rely on these experts in this proceeding.

Response 64

EPA acknowledges receipt of the Cover Letter prepared by CH2MHill and the "Letter Report" prepared by Dr. Michael and which are now included in the Administrative Record for this permit.

Comment 65.

The City is providing additional data to support its February 4 and March 22, 2011 comments (CD enclosed). In addition, the City incorporates by reference all of the data, reports and other submissions it has made to EPA in support of its prior NPDES permits, NPDES permit applications, 301 (h) monitoring and other materials related to the NPDES permit.

[The contents of the CD which were submitted to EPA on March 31, 2011 include:

- EPA, 2011 Policy and Guidance Reference Library Web Page.
- EPA, 2010. Permit Writers' Manual.
- EPA, 1994. Water Quality Standards Handbook, Second Edition. Front Matter and Chapter 5.
- EPA, 1991. Technical Support Document for Water Quality Based Toxics Control.
- EPA, 1989. Ambient Water Quality Criteria for Ammonia (Saltwater) – 1989.
- EPA, NPDES Permits and Fact Sheets:
    - Cohasset, 2007
    - Dartmouth, 2009
    - Rockport, 2009 Draft, 2011 Final
    - South Essex Sewerage District, 2001 Final, 2008 Draft
- Gloucester WPCF Toxicity Testing Reports (2003-2008)
- Michael, A.D. and M. Ferraro, 2003. Gloucester 301(h) monitoring, 2002 annual report.
- Michael, A.D. and M. Hall, 2009. Gloucester 301(h) monitoring, 2007 annual report.
- Michael, A.D. and M.Hall, 2009. Gloucester 301(h) monitoring, 2008 annual report.
- National Shellfish Sanitation Program, 2007. Guide for the Control of Molluscan Shellfish. Excerpts.]

Response 65

EPA acknowledges receipt of the data enclosed by Gloucester's representatives, as well as the City's proposed incorporation by reference of all the data, reports and other submissions the City has made to EPA in support of its prior NPDES permits, its prior NPDES permit applications, including the City's 2005 permit application,[114] and its 301(h) monitoring and other materials related to the NPDES permit. All of this information will remain a part of the Administrative Record for this permit.

[114] City of Gloucester's NPDES MA0100625 Permit Application, 2005.

F. Surfrider Foundation: Mary Tuck Welsh, Chair Massachusetts Chapter and Vice Chair Katrina Sukola (January 25, 2011)

Comment 66.

The Surfrider Foundation is a non-profit grassroots organization dedicated to the protection and enjoyment of our world's oceans, waves and beaches. Founded in 1984 by a handful of visionary surfers, the Surfrider Foundation now maintains over 50,000 members and 80 chapters worldwide. The Massachusetts Chapter was founded in 1996 and maintains approximately 500 members (surfers and non-surfers) living throughout the State, from the Cape Cod shore to the Berkshires. We are an all-volunteer chapter dedicated to the preservation of the New England coastal environment, elimination of pollution, and open access to our beaches. For more information on the Surfrider Foundation, go to www.surfrider.org.

The Surfrider Foundation supports the EPA's decision to deny the City of Gloucester's request to renew its NPDES permit, which is not in compliance with the federal Clean Water Act. Current primary treatment is not meeting all water quality standards. We support the EPA's recommendation for secondary treatment of effluent at the Gloucester WPCF.

We provide the following additional comments on the City of Gloucester's request to renew their National Pollutant Discharge Elimination System (NPDES) permit as they relate to our mission:.

Response 66

EPA acknowledges receipt of these comments which are now a part of the Administrative Record for this permit.

Comment 67.

Attainment of Water Quality Standards. Any NPDES permit modified pursuant to section 301(h) must comply with State and local laws, and with other Federal laws and Executive Orders. Gloucester's proposed discharge must comply with each of the nine statutory/regulatory criteria. However, the applicant demonstrated that it could meet some but not all of the criteria.

Review of data and Annual 301(h) Monitoring Reports submitted by Gloucester and all applicable water quality standards indicate that the Water Pollution Control Facility's (WPCF) discharges were potentially causing exceedances of water quality standards for toxicity, bacteria, and oil and grease. These exceedances include:

- The effluent exceeded the end-of-pipe whole effluent toxicity (WET) limit of 1 TU in 20 out of 23 tests for Inland Silverside, and 17 out of 23 tests for Mysid Shrimp.
- The WPCF violated the maximum daily fecal coliform limits 11 times or one third of the time (Massachusetts State Water Quality Standards, MSWQS, state that 10% of the samples shall not exceed 400 organisms per 100 ml).

- Exceeded the shellfishing-based water quality criteria for fecal coliform - 23 out of 192 samples (approximately 12%) taken at the edge of the zone of initial dilution (ZID), exceeded 28 organisms per 100 ml.

Although Gloucester has not submitted any data concerning enterococci levels in the WPCF's effluent, there is no evidence that the WPCF would be better able to meet the enterococci-based water quality requirements limits, and likely would fail to meet these limits more frequently than it has the fecal coliform-based limits.

The WPCF's discharge violated the 5 mg/l TPH limit nine times out of the last thirty-nine sampling events.

While Gloucester has not submitted any enterococcus data in support of their application, the WPCF is very likely currently causing violations of the new primary contact enterococci-based water quality criterion for Class SA waters under the MSWQS. The data they did submit shows violations for the old, fecal coliform based criterion, and the enterococcus standards are often even more difficult to meet than the fecal coliform standards. Since the enterococci-based standards most closely represent the level of pathogenic bacteria to which swimmers, surfers and divers are actually exposed to on a given day, failure to meet these standards indicate a real threat to the health of persons engaged in water-contact recreation in these waters. The Gloucester area is a popular surfing location. Water quality in Gloucester and the surrounding area is of considerable concern to our members who frequent these waters year round.

Response 67

EPA agrees with the comment that the Gloucester WPCF is violating its effluent limits for toxicity, bacteria, TPH, and oil and grease. *See* Responses 10, 11, 12, 13, 14, 19. EPA also agrees that Gloucester has never submitted any enterococcus discharge data, it has had violations of the fecal coliform-based criterion contained in its existing permit, and that it is unlikely that Gloucester can meet the existing primary contact enterococci-based water quality criterion for Class SA waters. *See* Response 13.

Comment 68.

Facility Improvements. The permit applicant has completed recent (2004-2006) improvements to the facility including replacement of the plant's two influent screw pumps, upgrade of chlorination facility and addition of dechlorination, construction of an odor control project and replacement of both primary clarifier mechanisms. Nevertheless, the applicant does not provide the analyses required for applications based on improved or altered discharges. In addition, despite the improvements to the facility noted, the WPCF has continued to violate its permit limits for fecal coliform.

Response 68

EPA agrees that the City has made numerous improvements to the WPCF over the years but continues intermittently to violate its permit limit for fecal coliform (*See* Responses 13, 14, and 19). EPA notes that Gloucester was not required to provide additional analyses for "improved or altered discharges" since it did not request renewal of its Section 301(h) modification based on an improved or altered discharge. *See* Response 5.

Comment 69.

As noted above, the WPCF's effluent has frequently exceeded the permit's state water quality standards and effluent limits set to prevent acutely toxic effects. Therefore, contrary to Gloucester's assertion, there do appear to be water quality problems related to toxic pollutants in the WPCF's discharge. In addition, past efforts to eliminate toxicity from the primary-treated effluent have not succeeded. To alleviate the toxicity of the discharge secondary treatment should be required.

Response 69

EPA agrees that the WPCF frequently violates water quality standards and whole effluent toxicity limits set forth in its permit and that secondary treatment is necessary to ensure the discharge will meet state water quality standards for toxicity. *See* Response 10.

Comment 70.

The outfall of the WPCF is located within the boundaries of the North Shore Ocean Sanctuary, as established by the Massachusetts Ocean Sanctuaries Act (MOSA). Under MOSA, any increase in the volume of a discharge from a wastewater treatment plant constitutes a "proposed discharge," and thus requires authorization by a variance from MassDEP. Among the prerequisites for such a variance is that: "the proposed discharge must be treated to a secondary level, and such other treatment to remove nutrients or other pollutants which is found to be necessary to avoid degradation of the ecology, appearance and marine resources of the designated sanctuary and to meet water quality standards." In its application, the WPCF has projected a gradual increase in its annual average flow over the next fifteen years. Thus the WPCF must install at least secondary treatment in order to obtain a variance that will allow it to increase its discharge.

In conclusion, The Surfrider Foundation supports the EPA's decision to deny the City of Gloucester's request to renew its NPDES permit which is not in compliance with the federal Clean Water Act. Current primary treatment is not meeting all water quality standards. We support the EPA's recommendation for secondary treatment of effluent at the Gloucester WPCF.

Response 70

EPA agrees that Gloucester must follow all requirements under the Federal Clean Water Act. *See* Response 1. As discussed above, EPA also agrees with the commenter that Gloucester's current primary treated discharge is not able to meet all applicable Massachusetts water quality standards and that the City's application for renewal of its Section 301(h) Modification does not satisfy the legal criteria.

That said, EPA does not agree with the comment's interpretation of how the MOSA, Ch 132A §§ 12A-18, applies to the WPCF. (EPA is not opining in these comments about the application of the MOSA to other wastewater treatment plants in the Commonwealth.) EPA explains its view in Response 20 above, which states as follow:

> … an effluent flow increase by the WPCF will not require a variance from the Massachusetts Ocean Sanctuaries Act, M.G.L. c. 132A §§ 12A-18 ("MOSA"), as long as any such flow increase does not exceed the parameters set forth in Gloucester's original application from 1981 which described a potential average monthly design flow of 7.24 MGD and a maximum design flow of 15 MGD. EPA, after consultation with MassDEP, agrees that Chapter 120 of the Acts of 1981 specifically stated that Gloucester could extend its outfall and discharge primary effluent if it did so within the parameters specified in its original application to EPA requesting a waiver of secondary treatment requirements. Thus, while Gloucester is not exempt from the MOSA, as long as it keeps its effluent flow within the bounds of the application made in 1981, it does not need a variance from MOSA.

The Final Permit reflects this understanding. See Final Permit, Part I.A.1., footnote 2.

G. Surfrider Foundation, Massachusetts Chapter, Mary Tuck Welsh, Chair and Katrina Sukolo, Vice Chair (March 30, 2011).

Comment 71.

The Surfrider Foundation is a non-profit organization dedicated to the protection and enjoyment of our world's oceans, waves and beaches. The Surfrider Foundation maintains over 50,000 members worldwide, while the Massachusetts Chapter alone maintains nearly 500 members, both surfers and non-surfers alike, living throughout the State. We are an all-volunteer chapter dedicated to the preservation of the New England coastal environment and elimination of pollution.

The Surfrider Foundation supports the EPA's decision to deny the City of Gloucester's request to renew its National Pollutant Discharge Elimination System (NPDES) permit, which does not comply with the federal Clean Water Act. The existing City Water Pollution Control Facility

(WPCF) only provides the most basic primary treatment, yet does not even meet the applicable water quality standards for that level of treatment. While we understand, the City's financial concerns associated with upgrading the WPCF, we cannot support the continued discharge of minimally treated wastewater into Commonwealth waters. For this reason, we support the EPA's recommendation for secondary treatment of effluent at the Gloucester WPCF.

Surfrider members represent recreational ocean users and beach-goers who are concerned about the overall health of the marine environment. Our members frequent the waters in the Gloucester area, and we have members who live in and around the area as well. We have a vested interest in the ocean water quality where the public recreates in marine waters year round.

We provide the following additional comments on the City of Gloucester's request to renew their National Pollutant Discharge Elimination System (NPDES) permit as they relate to our mission:

Response 71

EPA agrees that wastewater discharges from the Gloucester WPCF's primary treatment facility are exceeding water quality standards that apply under the Clean Water Act (s*ee* Response 1). EPA responds to the more specific issues raised by the Surfrider Foundation, below.

Comment 72.

The City of Gloucester should be commended for improvements completed and currently underway on the facility, as well as work done to replace combined sewer pipes with separate sewer and storm water pipes. However, the 301(h) Clean Water Act waivers that have been issued to the City of Gloucester were not intended by Congress to be permanent. The waiver provision was an amendment, allowing for exceptions to the rule where a discharger simply could not feasibly upgrade within the time constraints. A Publicly Owned Treatment Works applying for a 301(h) waiver must meet the criteria established in the Clean Water Act, including:

1) The existence of and compliance with water quality standards and,

2) The allowance of recreational activities.

Gloucester has had an exemption to meeting the secondary treatment requirements for over 25 years. EPA's decision to upgrade the facility is not a new rule being handed down capriciously. Nearly every other community in the country is meeting the Clean Water Act requirements, while 95% of other primary treatment facilities have better water quality treatment compliance.

Gloucester has had over two decades to plan for, fund and improve the City's treatment plant. It is Surfrider's overall impression that rather than presenting adequate water quality monitoring data to prove that a waiver extension would not harm local water quality or recreation, as

required by law, The City of Gloucester is instead trying to shift the burden of proof to the EPA and insisting that they prove that there is no harm being done. This however, is backwards and is insufficient when asking for a further exemption to meeting the requirements of a long-standing federal law designed to protect public health, inland and coastal resources and recreation such as the Clean Water Act.

To be considered for further exemptions, Gloucester must prove beyond a doubt there is no environmental harm or public health threat from extending the waiver. Review of data and Annual 301(h) Monitoring Reports, however, submitted by Gloucester indicate that the WPCF's discharges do not consistently meet water quality standards for toxicity, bacteria, and oil and grease.

Of particular concern to our members is the lack of relevant information on the health risk that bacteria may be posing near the boundaries of the Zone of Initial Dilution (ZID). This zone is situated in Class SA waters that should be meeting Enterococcus bacteria standards for primary recreational contact. Section 303 of the Clean Water Act required States to adopt enterococcus bacteria standards to protect public health in recreationally used marine waters by 2004. The transition away from the previously used fecal coliform standards was made to be more protective of public health. The Enterococcus indicators are more closely aligned with a measurable risk to human health from recreational exposure to polluted waters.

Massachusetts adopted the Enterococcus standards in 2006, however, the City of Gloucester, has not submitted any Enterococcus data in support of their application. The City does have some out-of-date fecal coliform data that shows a failure to meet permit requirements one third of the time. The Surfrider Foundation agrees with the EPA's assertion that Gloucester would be even more likely to exceed the Enterococcus criteria than it has the fecal coliform as this is the usual experience in other localities nearby and across the country.

To date, Gloucester has not provided sufficient proof that they would meet the bacterial water quality standards necessary to support recreational activities near their discharge and the ZID. Absent this documentation, Gloucester is not doing their best to protect public health. Any future permits for this facility should require monitoring for the current, legal, bacteria standard at the boundary of the ZID.

Response 72

EPA agrees with the commenter that the burden of making the necessary demonstrations to support an application for a modification under Section 301(h) of the CWA lies with the applicant. *See* 33 USC § 1311(h) (introductory paragraph); 40 CFR § 125.59(c)(4), (h) and (i)(1). EPA also agrees that by now, the vast majority of publicly owned treatment works provide secondary treatment, and some provide even more advanced treatment. In addition, EPA agrees that without secondary treatment, the WPCF will continue to be unable to consistently meet the water quality standards for bacteria that support and protect recreational activities in the vicinity of the discharge outfall or at or

beyond the Zone of Initial Dilution. Also, EPA agrees that Gloucester has not provided any information that it is meeting the bacteria standards (for enterococci) that went into effect in 2006, *see* Responses 13, 14, 19, and that Gloucester's discharge intermittently continues to exceed the fecal coliform limit. *See also*, Response 13 and Appendix A. EPA does not agree with the comment to the extent that it is suggesting that Congress created some sort of time limit on how long a community could qualify for a modification under Section 301(h) of the CWA. Neither the statute nor the applicable regulations create such a time limit. A community can qualify for a modification if it can meet the applicable legal criteria. EPA is denying Gloucester's request for renewal of its modification because it does not meet the criteria and not because of any cap on how long the City can have a 301(h) modification.

Gloucester's Final Permit will include effluent limits and monitoring requirements to enforce compliance with the applicable state water quality criteria for bacteria.

Comment 73.

Also of question to our members, is Gloucester's use of modeling to "show" that their wastewater plume would meet the toxicity standard at the edge of the ZID rather than providing water quality data to prove that the effluent meets all current standards. With discharge data available, models alone should not be sufficient as proof of permit compliance and should not be the exclusive basis to grant the 301(h) waiver. We understand that EPA has denied continued waivers to other cities based on more robust and convincing monitoring data than Gloucester has presented in its application. The Surfrider Foundation strongly supports the EPA's position that a waiver should not be granted unless Gloucester can conclusively demonstrate that they are meeting "water quality standards for toxicity; oil, grease, and petrochemicals; and bacteria as required." The Gloucester area is a popular recreational location and water quality in Gloucester and the surrounding area is of considerable concern to our members who frequent these waters year round.

Response 73

EPA agrees with the Surfrider Foundation that Gloucester must meet water quality standards for toxicity, oil and grease, total petroleum hydrocarbons and bacteria as discussed earlier in these responses. *See* Responses 1 (requirements of the CWA), 10 (WET), 11 (oil and grease), 12 (total petroleum hydrocarbons), and 13, 14, 15, and 19 (bacteria). With respect to the dilution modeling information provided by the City, which it suggests establishes that its effluent meets the whole effluent toxicity standard at the edge of the ZID, EPA agrees with the commenter that Gloucester's modeling information does not support a conclusion that the discharge meets the toxicity standard at the edge of the ZID based on its WET testing data. This conclusion is consistent with EPA's longstanding policy to apply these assessments independently.[115] In other words, where

[115] "Transmittal of Final Policy on Biological Assessments and Criteria," Tudor T. Davis, (EPA, June 19, 1991)(822/R-91-101).

different types of monitoring data, such as whole effluent toxicity, biological surveys and chemical analysis, are available for assessment of whether a water body is attaining aquatic life uses or for identifying the potential of pollution sources to cause or contribute to non-attainment of aquatic life uses, any one assessment is sufficient to identify an existing or potential impact/impairment, and no single assessment can be used to override a finding of existing or potential impairment based on another assessment. *See* Response 10.

Second, with respect to the dilution modeling provided by the City, EPA agrees that Gloucester's assertion regarding "the WPCF's discharge meets the narrative and numeric water quality standards for toxicity at and beyond the zone of initial dilution, as required by 301(h) regulations," is incorrect. Additionally, the dilution modeling provided by Gloucester is insufficient. *See* Response 10 for a full discussion of the zone of initial dilution and applicable state policies and Response 9 for a detailed discussion regarding dilution modeling.

Lastly, EPA Region 1 agrees with the comment's statement that the area in the vicinity of the outfall is used for recreational purposes and shares the commenter's concern about protecting people engaging in such recreational use of the water. *See* Response 19.

Comment 74.

Our primary concern is water quality. However, we acknowledge the financial burden that upgrading the WPCF will place on the city, as well as the concerns expressed at the recent public hearing. In light of this, we strongly suggest the following:

- If the City can scientifically demonstrate compliance with their NPDES permit, grant the City of Gloucester a final waiver for 5 years only on the condition that they implement ongoing testing for required effluent parameters at the edge of the ZID.

- Help the City achieve higher water quality standards by providing means and opportunities to work with EPA employees or consultants on the NPDES permit and all other pertinent water quality issues to ensure they are in compliance with environmental standards. These collaborations should lead to the development of a master comprehensive water infrastructure plan that will meet all long-term environmental goals and municipal needs. The City of Gloucester's Mayor Kirk indicated environmental goals and municipal needs necessary and desired by the city in her oral statement at the EPA public hearing.

The City must comply with the Clean Water Act. Unless the City can quantitatively demonstrate that the plant can meet water quality standards, the waivers and exemptions that have been granted to the City for the past quarter century must not continue. In closing, The Surfrider Foundation supports the EPA's decision to deny the City of Gloucester's request to renew its NPDES permit and support the EPA's recommendation for secondary treatment of effluent at the Gloucester WPCF as per our suggestions.

Response 74

While EPA understands what the commenter is proposing, such an approach is not authorized by the CWA. More specifically, EPA cannot grant "a final waiver" of the sort envisioned by this comment since the City does not satisfy the applicable criteria under Section 301(h) of the statute (*see* Response 1). EPA acknowledges the significant financial commitments the City will have to make in order to implement secondary treatment and has indicated its willingness to work with the City on an implementation schedule for secondary treatment that will take the City's financial challenges into account. (*See* Responses 1, foontnote 2, 23).

H. Surfrider Foundation, John Weber, Northeast Regional Manager, via email to EPA Permit Writer, Doug Corb (March 30, 2011).

Comment 75.

I have a quick questions about the 301 h waiver in Gloucester, MA. As you know, my organization, the Surfrider Foundation, was the only organization to speak out last week in support of EPA's waiver denial. Was the waiver granted initially because the City did not have the funds to upgrade? Or was the waiver granted initially because there was no evidence of harm to the environment? Or was it a combination of these two things?

Response 75

The basis for EPA's original decision to grant Gloucester a 301(h) modification in 1985 is contained in the Administrative Record and was based on a determination by EPA at that time that the WPCF could meet the effluent limits in its then existing permit. However, much has changed since then. In 1991, Gloucester extended its primary treated wastewater discharge outfall from Gloucester Harbor (Class SB Waters) into Massachusetts Bay (Class SA Waters). While this was done in order to reduce water quality problems in the harbor and to try to take advantage of greater dilution outside the harbor, the waters of Massachusetts Bay are also subject to more stringent water quality standard limits for TPH and oil and grease. In addition, WET limits were added to the 2001 permit based on the MassDEP's 1990 Toxics Policy and due to a reasonable potential to exceed the state's water quality standard for toxicity. *See* Response 10. Moreover, in 2006, MassDEP revised its bacteria criteria for inland and coastal and marine waters to change the criteria applicable to waters designated for primary contact recreation from a fecal coliform-based bacteria standard to an enterococci-based standard. Finally, as discussed in more detail elsewhere in these comments, Section 301(h) of the Clean Water Act does not include a provision to consider the cost of secondary treatment as a factor in making determinations on 301(h) waivers; so the costs of secondary treatment were not a factor in EPA's earlier decisions on Gloucester's 301(h) modification requests. However, moving forward, EPA acknowledges the significant financial costs associated with the design, construction and implementation of secondary treatment and has indicated its willingness to work with the City on an

implementation schedule that takes the City's financial challenges into account. (*See* Response 1, footnote 2, 23).

I. Who Decides, Rosalyn Frontiera, Chair (February 1, 2011)

Comment 76.

The citizen group "Who Decides" has reviewed the tentative decision to deny Gloucester a 301(h) permit and submits the following response.

Introductory Statement. We believe it is inappropriate that EPA has chosen to ignore 20 years of monitoring data which clearly shows that the effluent from the Gloucester treatment plant has had no effect on the receiving waters and instead has based the decision on isolated violations of standards during operations at the treatment plant and the results of a laboratory toxicity test that is very unreliable and irrelevant. Federal 301(h) regulations are clearly focused on the receiving waters and as long as these waters are in fact protected a permit should be awarded. When the permit was first issued in 1985, the city embarked on EPA-approved monitoring studies designed to identify any possible effects on marine environment. This program has cost the city more than $3 million. Issues with treatment plant operation are being addressed in the ongoing $20 million upgrades and the $60 million storm water work. With respect to the effluent toxicity tests, a toxicity evaluation study conducted by the city clearly identified ammonia as the major source of toxicity and secondary treatment does not remove ammonia. The city is working on ways to reduce toxicity by using pre-treatment in the outlying areas. The major benefit of secondary treatment is the removal of solids which might have contaminants. Gloucester is not a heavily industrialized city with very few priority pollutants found in the effluent and there has been no increase in these compounds (over background levels) in the sediments of the receiving waters after 20 years of discharge. In spite of occasional violations during plant operations, there is not a shred of evidence of any subsequent impact on the receiving waters. At minimum, EPA should allow time for completion of the upgrades and an evaluation of plant performance over a year or two before committing the city to a major expenditure which will have marginal, if any, benefit to the environment.

Gloucester residents are well aware that the city's proximity to the ocean has been the basis for its existence and former prosperity. Fishing and recreational activities remain the dominant factor in the economy. Citizens are amenable to expenses that sustain and protect marine resources. We have in the last few years committed $80 million to this end. An additional $54 million expense for a secondary treatment is something we simply cannot afford especially in light of the fact that the relative benefit, since there are no effects on the receiving waters with the current treatment plant, would not be measureable.

Response 76

The commenter raises several issues in this comment, some of which have been addressed earlier in this Response to Comments document. First, EPA acknowledges that

the costs of the design, construction and implementation of secondary treatment will be significant. As EPA has discussed with Gloucester many times, EPA will work with the City on an implementation schedule for secondary treatment that will take the City's competing financial commitments into account. (*See* Responses 1 and footnotes 2 and 23). However, EPA does not agree with the scientific and regulatory arguments made in the comment and responds to those below. EPA disagrees with the assertion that we have ignored data or that available data show that the effluent has had no effect on the receiving water. In fact, Gloucester WPCF's wastewater discharges have caused or contributed to exceedances of the MA WQS more frequently than isolated occurrences. *See* Responses 10 (WET), 11 (oil and grease), 12 (TPH), 13, 14, 19 (bacteria) and 16, 17 (discussion of a balanced indigenous population).

EPA disagrees with the commenter's assertion that the toxicity tests are unreliable. *See* Response 10.

EPA disagrees with the assertion that any issues associated with permit violations will be addressed through plant upgrades. *See* Response 3 (discussing how water quality exceedances have occurred even after plant upgrades).

EPA also disagrees that ammonia is the sole cause of toxicity and that ammonia cannot be treated through secondary treatment. *See* Response 10.

Contrary to the assertions made in the comment, EPA finds that there is sound evidence demonstrating that the discharge of effluent is causing or contributing to exceedances of water quality standards. (*See* Responses 1, 9-19).

The commenter requests a delay before making a permitting decision to allow for data collection following upgrades to the primary treatment facility. Since the comment was submitted in 2011, a lengthy delay has in fact occurred prior to the current decision on the Final Permit. During that time, Gloucester has, in fact, implemented the treatment plant upgrades and EPA has evaluated the data that has been collected since then. The data continue to show that the discharge causes or contributes to exceedances of water quality standards and degradation of the aquatic habitat in the receiving water. (*See* Responses 6, 10, 14, 16, and 17, discussing current data and ongoing exceedances).

Comment 77.

TPH (Total Petroleum Hydrocarbons) and Oil and Grease. The major source of TPH is runoff and treatment plants records show that the isolated violations were associated with major storms. The city has since invested $60 million to separate storm water runoff so the prime factor in these violations has been removed. The occasional violations were of no consequence to the receiving waters. Regular operations of the treatment showed no TPH in the receiving waters or in the sediments. In 1989 and 1990 the city was required to measure volatile and semi-volatile organics, the components of TPH, at numerous sites inside the harbor, when the discharge was still there, and outside the harbor at the new outfall site. GC/MS analyses at parts per billion failed to detect these compounds in the water. The standard TPH test has a detection limit of 5

parts per million. For that reason the city, with EPA's permission, was allowed to discontinue sampling for hydrocarbons in the marine waters. Further evidence of protection of the receiving waters is that continued analyses of the sediments in the area over 20 years has produced no evidence of an increase in these compounds above background levels.

The major source of these compounds in the ocean is atmospheric deposition, runoff and engine exhaust. These compounds are also subject to degradation by oxidation and photolysis.

Response 77

EPA acknowledges Gloucester's investment in separating storm water runoff and the benefits it provides by reducing both combined sewer overflow discharges *and* pollutant loadings to the WPCF. EPA notes that these improvements will not just benefit the City's current primary treatment plant but will also benefit the City's new secondary treatment plant. Preventing or reducing storm water from being delivered to the treatment plant should not only improve the plant's performance but it should minimize the necessary plant capacity and, as a result, reduce costs.

While EPA approved discontinuing TPH ambient water column sampling, the Agency continues to have environmental concerns about the City's TPH discharges based on Gloucester's monthly discharge monitoring data. (*See* Response 12). EPA disagrees with the comment that Gloucester's TPH water quality exceedances have occurred only occasionally and are harmless because background levels in Massachusetts Bay are already present from other sources. The TPH concentration exceedances that continue to be reported on the Permittee's monthly DMRs are more than occasional and show that the City is contributing levels of TPH in excess of the state's water quality criterion. The Final Permit is written to include limits needed to ensure that the discharge does not cause *or contribute* to an exceedance of water quality standards (i.e., to ensure that water quality standards are met). (*See* 33 USC § 1311(b)(1)(C); 40 CFR § 122.44(d)(1)(i).) The state water quality criterion requires that SA waters, such as those receiving the WPCF's discharge, be free from oil and grease and petrochemicals. 314 CMR 4.05(4)(a)(7). Based on this criterion, the Final Permit includes a non-detect limit for TPH. (*See* Appendix A and Response 12, discussing TPH impacts on the receiving water.)

Comment 78.

Fecal coliforms. Occasional violations of fecal coliform standards have been associated with malfunctions of the chlorination system at the treatment plant. The very rare beach closings have nothing to do with the treatment plant; they are the result of runoff after major storms. Repairs to the chlorination system and the storm water separation will reduce the possibility of any further violations – which could also occur if a secondary treatment plant failed. Fecal coliforms are only a temporary problem since they die within 24 – 48 hrs exposure to sea water. The supposition in the draft EPA decision that the discharge located at 90 ft depth, 1000 yards beyond the breakwater is a threat to recreational activity is simply not credible. Information in the monitoring reports provided to EPA over the years proves that.

Response 78

EPA disagrees with the arguments raised in this comment that there are justifiable reasons for the exceedances of the fecal coliform water quality standards and that they are only associated with chlorination system malfunctions, or that they are somehow a "temporary problem" which makes a 301(h) modification appropriate. The fact remains the City has been unable to maintain consistent compliance with the applicable fecal coliform limits in its 2001 Permit. (*See* Response 12 and Appendix A). EPA also rejects the argument that the location of the discharge poses no threat to recreation due to the discharge of the effluent 90 ft below the surface in marine water. While EPA agrees that beach closings are not associated with this ocean discharge, there are two popular diving spots within close proximity of the discharge. The issues raised in this comment have been raised in earlier comments and are discussed more fully in Responses 13 and 19 above.

Comment 79.

Biological Oxygen Demand (BOD). There were 3 violations of the monthly average limit for BOD in 2010. Problems with the increase in BOD associated with transit time from outlying areas to the treatment plant are being addressed by proposed pre-treatment in those areas and the current upgrades of the plant. The Gloucester outfall discharges effluent into an oxygen-producing environment. The photic zone in Massachusetts Bay is highly productive, part of the system that provides half of the oxygen on the planet. Water quality sampling near the diffuser over many years has never revealed any significant reductions in dissolved oxygen. BOD violations at the treatment plant that could theoretically have some impact in an area of restricted water flow have no impact on the receiving waters outside Gloucester harbor.

Response 79

State and federal regulations require conventional limitations on treated wastewater discharges, regardless of the water quality status or water flow of the receiving water. Relative to the City's discharge permit, the current effluent monitoring over the past five years has demonstrated compliance with biochemical oxygen demand (BOD) and total suspended solids (TSS) permit limitations. The decision to deny the Permittee's 301(h) modification is not based on current BOD/TSS discharge monitoring data. That said, an NPDES permit with effluent limits based on secondary treatment include BOD/TSS limits, as required by federal regulation.

POTWs are subject to the secondary treatment requirements set forth at 40 CFR § 133. *See* 33 USC § 1311(b)(1)(B). For both BOD_5 and TSS, secondary treated effluent must meet a minimum average monthly concentration of 30 mg/l, an average weekly concentration of 45 mg/l, and a 30-day average percent removal of not less than 85%. 40 CFR § 133.102. Like the Draft Permit, the Final Permit contains concentration limits consistent with these values.

In addition, and also consistent with the Draft Permit, the Final Permit also contains average monthly and average weekly BOD_5 and TSS mass limits (lbs per day), as required by CFR § 122.45(f). These mass limits were based on the 7.24 MGD design flow, and were calculated using the following equation:

L = C x PF x 8.34 where

L = Maximum allowable load in lbs/day

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

Reporting periods are average monthly and weekly and daily maximum

PF = Permitted flow of facility in MGD

8.34 = Converts concentration (mg/L) and design flow (MGD) to lbs/day

(Concentration limit) [45 x 8.34 (Constant) x 7.24 (Permitted flow)] = 2717 lbs/day
(Concentration limit) [30 x 8.34 (Constant) x 7.24 (Permitted flow)] = 1811 lbs/day

Although the Final Permit authorizes an increase in the discharge flow limit if Part I.A.1., footnote 2 conditions are met, the significant reduction in the concentration limits for BOD_5 and TSS will result in an overall reduction in the discharge of these pollutants. As shown in the table below, the authorized monthly average mass discharge of BOD_5 and TSS will be reduced by 83 percent and 70 percent, respectively.

Parameter	Primary Treatment at 5.15 MGD		Secondary Treatment at 7.24 MGD		Concentration Reduction	Mass Reduction
	Average Monthly (mg/l)	Average Monthly (lbs/day)	Average Monthly (mg/l)	Average Monthly (lbs/day)	(Percent)	(Percent)
BOD_5	245	10,520	30	1811	88	83
TSS	140	6,010	30	1811	79	70

Therefore, the limits for BOD and TSS in the Final Permit reflect secondary treatment and will satisfy the technology-based requirements set forth at 40 CFR § 133 at flows of either 5.15 MGD or 7.24 MGD, consistent with the requirements in the Final Permit. The Final Permit also has been clarified by including reporting for "BOD_5 Removal, ≥ 85 %, 1/month, Calculation," and for "TSS Removal, ≥ 85 %, 1/month, Calculation," under Part I.A.1., Table 1, rather than solely in a footnote under Part I.A.1.e.

Comment 80.

Effluent Toxicity Tests. Gloucester was not required to conduct effluent toxicity tests until 2002. This test was applied to secondary treatment plants as an effluent screen since monitoring in the environment was not required. We believe the test is seriously flawed and basically irrelevant

since it is not appropriate to replace carefully analyzed real world data with an artificial laboratory situation.

The first problem with the test is that the results are highly variable and therefore of questionable value. In the annual DMR QA tests where the same toxicant is tested at various laboratories, results between laboratories have varied by as much as a factor of 15. (DMR26, Fathead minnow, acute test; range 5.4 – 84.3%). In some cases the test results show a pass at one laboratory and a fail at another. In the Gloucester TIE study, test #2 results on the same effluent sample showed a fail at one laboratory and a pass at different laboratory.

Conditions required in the test are of no relevance to the real world situation. The Gloucester effluent is discharged at 90 ft depth where the maximum summer temperature is 10 – 11 degrees Celsius. The specified test temperature is 20 or 25o C. The Gloucester TIE study determined that unionized ammonia was very much the dominant factor in toxicity. Priority pollutant screens have ruled out other significant sources of toxicity. The ratio of ionized to unionized ammonia is highly dependent on temperature and pH. Conducting the test at 20 or 25o C doubles or triples the percentage of unionized ammonia, dramatically increasing toxicity.

The specifications for laboratory test conditions rule out oxygenation of the test chambers unless DO drops to 4 mg/l, and then oxygenation is only allowed at a rate of 100 bubbles/minute. This has often resulted in DO deprivation shock to the organisms and a low LC50 determination. These test conditions are completely opposite to conditions at the diffuser which is an oxygen rich environment. In addition, due to the instantaneous 59:1 dilution and rapid further dilution to 1000:1, no organism ever experiences anything remotely similar to the prescribed laboratory test conditions.

Effluent toxicity tests are misleading because, based on the results of tests on the Gloucester effluent since 2002, one might conjecture that the effluent has some deleterious effect on the environment when there is an abundance of real world evidence to the contrary. The effluent toxicity test has no valid place for consideration when more appropriate scientific information is available.

Response 80

EPA agrees that the City's 2001 Permit included an acute toxicity limit for the first time because WET testing was not typically incorporated into NPDES permits in 1985 when the City's previous permit was issued.[116] EPA disagrees with the other issues raised in this comment relative to: (1) WET testing is only a screening tool, (2) the WET test is seriously flawed and should not be used due to lab variability, (3) because the conditions of the test are not the same as the receiving water, the WET is invalid, (4) the actual conditions of in the receiving water would cause shock to the organisms and therefore the laboratory testing is invalid, (5) there is real world data that demonstrates the receiving

[116] City of Gloucester NPDES Permit's 2001 Fact Sheet, page 10.

water is healthy without any impacts from the discharge. All the issues raised in this comment were also raised in earlier comments, which EPA has responded to in Responses 6, 16, 17 (impacts to the receiving water), and 10 (WET discussion) above.

Comment 81.

The Assimilative Capacity of the Receiving Waters. There is no such thing as zero discharge of materials, whether the treatment plant is primary, advanced primary, secondary or tertiary treatment. Assuming the oil and grease permit level was zero, the current limits of the test are 5 mg/l and if there was in fact 3 mg/l in the discharge the test would read as "non-detect" or zero. That does not mean that there is no oil and grease getting into the environment. Even the most advanced treatment plant releases some materials into the receiving waters where the respective outfall is located. The critical aspect is the relative mass loading and the assimilative capacity of that particular body of water. The idea that going to secondary treatment guarantees protection of the environment is based on false premises. Other than the studies associated with the MWRA outfall, we are unaware than any field evaluation of impacts of secondary treatment discharges in Massachusetts Bay. We think that it highly likely that some of these secondary discharges do in fact have an imprint on the environment because they are not situated in an oceanic environment similar to the Gloucester outfall.

Response 81

EPA disagrees with the comment that the oil and grease permit limit should be based on the relative mass loading and the assimilative capacity of the receiving water. The oil and grease permit is based on the MA Water Quality Standard which requires that SA waters are free from oil and grease and petrochemicals and must be met regardless of an estimated or calculated loading level. *See* Response 11. EPA agrees with the comment regarding the limits of the test method and, accordingly, has replaced the Draft Permit's limit of 0.0 mg/L for oil and grease with a limit of non-detect, while indicating that the most sensitive approved test method must be used. *See id. See also* Final Permit, Part I.A.1.8.

In addition, EPA disagrees with the commenter that secondary treatment would not be beneficial for the receiving water. *See* Response 60 for a detailed discussion of oil and grease removal rates using primary versus secondary treatment. Furthermore, secondary treatment is a technology-based requirement of the Clean Water Act, 33 USC § 1311(b)(1)(B), and does not require justification by a site-specific, water quality-based assessment. While a POTW may in some cases be able to qualify for a modification of the generally applicable secondary treatment requirements under Section 301(h) of the statute, Gloucester has not qualified in this case as discussed in these Responses to Comments. Finally, EPA agrees that in some cases, even secondary treatment may not be sufficient to ensure that wastewater discharges satisfy water quality standards and in such cases, even tertiary treatment may be needed. This is not, however, a reason to approve Gloucester's request for a modification under Section 301(h).

Comment 82.

Equitable Application of the Law. We are concerned by the fact that, although the Gloucester outfall was situated in an area where environmental effects were far less likely (c.f. other permits recipient's localities), the monitoring program imposed was much more comprehensive and expensive than what other cities faced. The city funded and completed all required monitoring and then, to have this data set ignored in the permit renewal deliberation is disturbing. In addition, members of the public cannot understand why permit conditions vary from city to city. In the proposed permit for a secondary treatment plant for Gloucester, EPA states there shall be zero discharge of oil and grease. Cities adjacent to Gloucester such as Rockport and Salem (South Essex Sewage District) have no oil and grease limit in their current NPDES permits. Those cities have never monitored the receiving waters for possible problems whereas Gloucester has analyzed more than 3,000 samples over 14 years. The results of these analyses were that oil and grease determinations were dropped in 2002 (EPA approved) because it was clear there was no problem in the receiving waters. Since then, sediment analyses over the last 8 years have continued to show no evidence of these compounds and the storm water sewers have been installed which will prevent most of these materials ever reaching the treatment plant. What then is the (rational) basis for the decision of zero oil and grease discharge?

Response 82

Several issues are raised by this comment, many of which are addressed elsewhere in this document. While EPA agrees that Gloucester's monitoring program was comprehensive, the complexity of its monitoring program is directly related to the level of monitoring necessary to appropriately characterize the ambient water. EPA has reviewed the ambient reports thoroughly. (*See* Responses 6, 16 and Appendix A). Permit conditions are applied on a site-specific basis; therefore, each municipality may have different limits. *See* Response 11 for a detailed discussion of how EPA has permitted some MA facilities with respect to oil and grease. Gloucester has not been treated inequitably. Lastly, please see Responses 11 and 50 for a full discussion of the oil and grease limit that is included in Gloucester's Final Permit.

Comment 83.

Finally, these are difficult economic times when the city has had to lay off teachers, close fire stations and, last fall, impose a "boil water" order. There are many items on the "must do" list to protect the citizens and continue to provide basic services such as clean water. The city has committed itself to working through this list as evidenced by the current treatment plant upgrades and various water services projects. This project would rank on the very bottom of that list since the environmental consequences are, according to the substantial data base produced in the monitoring program, un-measurable. We hope EPA will take due consideration of our comments.

Response 83

EPA disagrees with the comment that environmental consequences are unmeasureable, according to the results of the Permittee's ambient monitoring program. (*See* Responses 1, 6 for examples of measurable environmental impacts reported through the ambient monitoring program.) EPA also notes that given the time that has passed since publication of the Draft Permit, Gloucester has already completed many of the projects mentioned in the comments.

EPA also notes that while Section 301(h) of the Clean Water Act does not include a provision to consider the cost of secondary treatment as a factor in making determinations on 301(h) waivers, EPA understands that the cost of secondary treatment will be significant for the City. As set forth in this document, and as EPA has discussed with Gloucester many times, EPA will, to the fullest extent possible, work with the City on a schedule for the design, construction and implementation of a secondary treatment facility that takes into account financial challenges facing the City. *See* Responses 1, footnote 2, and 23-25. *See also* Response 42 (discussing environmental consequences of WPCF effluent).

J. Who Decides, Rosalyn Frontiera, (March 31, 2011)

Comment 84.

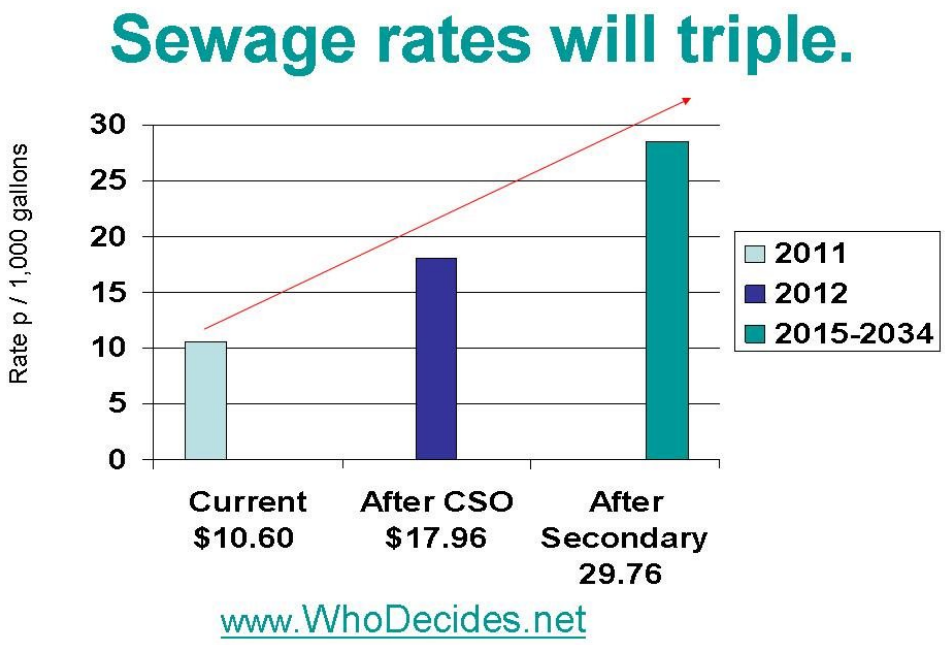
Attached is the graph you requested [see next comment], you will find a real hardship when you place the taxes and fees of the water works over this graph. This is a real hardship in exceeding 3x the current rates. As you and I discussed, unfortunately, the debt is not paid over a length of time, it just gets dumped on taxpayers immediately and compounds our issues. To borrow a term from President Obama, "it' makes no sense!" During the Obama Listening Sessions, please note that Lincoln's Engineer said they had spent $50 million on a secondary and they needed twenty more in order to complete it. They're technology may become obsolete well before debt is paid off. The way that we aim to solve our problems are not protecting the environment. I urge you to bare an open mind to creatively resolve this, in a way that works for Gloucester.

Response 84

EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester that could lead to an increase in user water rates, although in so stating, EPA is not taking any position on what the potential or actual impact to Gloucester's sewer rates will be. *See* Response 23 (discussing how cost and impact to rates are not a factor in making a decision on a 301(h) waiver and EPA's willingness to work with Gloucester to allow competing financial priorities to be considered in a compliance schedule). The fact remains that secondary treatment is the baseline technology-based treatment requirement specified by Congress in 1972 in the Clean Water Act, *see* 33 U.S.C. § 1311(b)(1)(B), for publicly owned sewage treatment plants, and the vast majority of such plants across the nation have long since installed and been operating secondary treatment. While Section 301(h) of the statute allows for a

modification of secondary treatment requirements under strictly limited circumstances, EPA has determined based on substantial effluent data that Gloucester does not satisfy the criteria for a Section 301(h) modification. As a result, EPA must include secondary treatment-based limits in the City's new Final NPDES Permit. At the same time, however, EPA stands ready to work with Gloucester to develop a compliance schedule that takes account of the City's financial circumstances. EPA also notes that given the passage of more than ten years since issuance of the 2010 TD and the Draft Permit, Gloucester has completed certain tasks it was addressing at the time the above comment was submitted and financial circumstances have undoubtedly evolved for a variety of reasons. When EPA works with the City on a compliance schedule, appropriate consideration can be given to contemporary circumstances.

Comment 85.



Response 85

EPA acknowledges receipt of this information which is included in the Administrative Record for this permit. For a fuller discussion of the costs of secondary treatment and the relationship of those costs to decisions regarding 301(h) modifications, *see* Response 23.

K. Who Decides, H. Bruce Maki (March 30, 2011).

Comment 86.

After reading the EPA's Tentative Denial of Gloucester's NPDES permit # MA0100625 and attending the public hearing on the 26th of March 2011 at Gloucester City Hall. I am requesting further information and clarification on the following points:

1. Although the EPA acknowledges that affordability is a factor, and recognizes the financial burden on Gloucester citizens will be approximately three times the EPA's affordability guideline. No explanation has been provided by the EPA as to how this burden will be borne and the resulting degradation to the community's infrastructures and its populace. The only suggestion the EPA presents is that residents will be forced to conserve water as a result of higher sewer rates. This is totally erroneous, as the cost of building and running the plant will not be diminished by reduced consumption because they are fixed costs. The result of reduced demand would be higher rates to offset a lack in revenue based on total volume. Net real savings to the citizen zero.

Response 86

EPA acknowledges the concerns raised by the commentor, including its concerns about sewer rates and other costs faced by the community. That said, EPA does not opine on the commenter's claim that the cost to Gloucester ratepayers will be "approximately three times the EPA's affordability guideline." The cost of secondary treatment, or its affordability for a particular community, is not a criterion for determining whether a public sewage treatment plant qualifies for a modification of secondary treatment requirements under Section 301(h) of the Clean Water Act. EPA has determined based on substantial effluent data that the WPCF does not qualify for renewal of its prior modification under Section 301(h) and, as a result, the new Final NPDES Permit must contain effluent limits based on secondary treatment, the same as the NPDES permits issued to the vast majority of other publicly owned treatment works in the United States. EPA is committed, however, to working with the City to develop a compliance schedule for implementing secondary treatment that takes Gloucester's financial challenges into appropriate account. *See* Response 23.

Comment 87.

2. Because the EPA's reliance on the WET test, as the primary reason for stating that Gloucester has failed toxicity of effluent, and the lack of supporting scientific data, I am requesting all scientific reports the EPA has used to establish that the WET test has a direct correlation to the actual waters located at the outfall.

2. (a) I am requesting all information used by the EPA to ignore its own criteria regarding toxicity test (WET) in which it clearly states in: Technical Support Document for Water Quality Based Toxics Control (EPA-505-2-90-001, March 1991) at 24-25: " There may be a few unusual

situations where the pH, temperature, hardness, salinity, and solids of the testing procedures differ greatly from the worst environmental conditions for these parameters. In these situations, the effluent toxicity test may either over or under predict the toxicity in the receiving water..... In such an instance, the authority must look carefully at the test protocols and all data collected to determine if the facility is actually contributing to toxicity in the receiving water...." What scientific test were done by the EPA to allow the EPA to invalidate twenty years of testing by the EPA, in which it has been documented that there has been no degradation to the marine environment at and surrounding the outfall?

Response 87

EPA disagrees with the comment that EPA invalidated twenty years of testing. EPA reviewed all available information to date, including all available ambient monitoring. The 2001 Permit included WET testing requirements and WET effluent limits consistent with 40 CFR § 122.44(d) and Section 301(b)(1)(C), as discussed in Response 10. Those limits were not challenged and have been enforceable requirements of the City's NPDES permit. The WET data collected in accordance with the permit has shown persistent exceedances of the WET limits, evidencing the toxicity of the City's wastewater. All documentation to support the decisions on this permit can be found in the Administrative Record and by contacting the permit writer whose contact information appears at the beginning of this document. *See also* Responses 6 and 16 (review of ambient monitoring data), and Response 10 (review of whole effluent toxicity data).

Comment 88.

3. It appears that in reference to the above that the EPA has made it's decision based on something other than good science and in violation of President Obama's Executive Order 13563 which states: "....consider how best to promote retrospective analysis of rules that may be outmoded, ineffective, insufficient, or excessively burdensome, and to modify, streamline, expand, or repeal them in accordance with what has been learned." How are the actions by the EPA not in violation of this Executive Order 13563?

4. It appears that EPA's actions are policy based with little regard to scientific evidence. Exactly who is responsible for the EPA's decision to deny Gloucester's request for renewal of NPDES? I am requesting the names of all persons and the names of all lobbyist, that have had any input, suggestions, or influence on the EPA's actions in regard to NPDES permit: MA0100625.

Response 88

EPA's actions in this matter are consistent with all applicable laws, regulations and guidance. *See* Responses 9-19 for the technical and legal basis for EPA's conclusions regarding this denial of the City's request for renewal of its previous Section 301(h) permit modification. All documentation to support EPA's decision on this permit can be found in the Administrative Record for this permit.

L. Clean Water Action, Paul Schwartz, National Policy Coordinator (April 1, 2011).

Comment 89.

Clean Water Action has a long history of supporting BAT when and where appropriate as a means toward cleaning up the waters of the US. We also are advocates of innovation and affordability. For over thirty years, we have supported both tight schedules for compliance while arguing for flexibility in approach; and increasingly we have come down in favor of using science based adaptive management approaches that allow for slippage in compliance timetables if good faith efforts are being made by a community to solve clean water problems in a more integrated and sophisticated manner that takes multiple problems into account. We think EPA ought to consider some outside-of-the-box thinking in regard to the Gloucester, MA secondary treatment upgrade. If Gloucester can achieve more clean water and other benefits for lower costs, Clean Water Action sees this as a win-win outcome.

Response 89

As discussed in previous comments within this RTC, EPA will work with the City on establishing a reasonable compliance schedule in order to meet the permit limits. At the same time, it bears stating that EPA is charged with applying the terms of the Clean Water Act as enacted by Congress, including Sections 301(b)(1)(B) and 301(h), and the Agency is not free in all cases to engage in case-by-case, "outside-of-the-box" decision making. That said, EPA acknowledges these comments and they are included here as part of the Permit Administrative Record.

Comment 90.

Clean Water Action's review of the situation in Gloucester suggests to us that that an expenditure of $60 million for upgrading the enhanced primary treatment plant to a secondary treatment plant will provide for minimal improvement in the water quality of Massachusetts Bay. We support consideration of recommendations for a more integrated and innovative infrastructure approach. We hope that EPA would partner with Gloucester to produce a consent decree that is more sustainable for the environment, public health and economic equity of the community.

Clean Water Action thanks you for considering a continued waiver of secondary treatment while facilitating concrete progress on alternative approaches to solving water issues in Gloucester that use 21st Century approaches instead of relying solely on linear and stovepiped, grey infrastructure solutions of the past generation.

Response 90

As discussed more fully in this response to comments (*see* Responses 10-19, in particular), the implementation of secondary treatment is necessary to meet applicable water quality standards to protect water quality in Massachusetts Bay. Secondary treatment, which is the baseline technology-based treatment requirement for POTWs, *see* 33 USC § 1311(b)(1)(B), is not merely a "linear and stovepiped, grey infrastructure

solution[ ] of the past generation"; it has been a highly successful and realistically affordable approach to managing sewage that has had beneficial water quality effects around the nation, such as in Boston Harbor. That said, EPA is committed to working with Gloucester on a schedule of compliance for the time frames and requirements associated with the implementation of secondary treatment that takes the City's financial challenges into appropriate account.

M. WATCH2O Ad-Hoc Committee City of Gloucester, Information Bulletin: EPA Requiring a Secondary Treatment Plant (sent by R Hobbs in email) (March 19, 2011)

Comment 91.

Watch20 Information Bulletin: Background. Gloucester is one of 16 Cities and Towns in New England with an EPA 301(h) secondary treatment waiver. Gloucester has been operating under this wavier since 1985. The EPA has recently tentatively denied Gloucester's renewal request of this wavier. This decision has major economic implications for the City.

AN EXPLANATION OF EACH POINT FOLLOWS:

• More than double our sewerage rate, heavily straining the budgets of our homeowners and businesses.

Estimates of the capital and operating expenses of a new secondary waste water treatment plant indicate that the facility will cost at least $60 million, not including land and other additional costs. Annual operations and maintenance will cost an additional $1 million per year. There are currently no federal grants available for secondary treatment plant construction (as there were for all of the secondary plants built between 1972 and 1990). The cost burden will, therefore, fall on Gloucester citizens and businesses.

This investment will more than double Gloucester's sewerage rate (see table). An increase of this magnitude will impact significantly citizens living on low or fixed incomes, especially those who are still paying betterment fees from previous sewer system upgrades. The average annualized rate will be about 5.4% of the Median Household Income in the City, almost three times the percentage that EPA itself considers a "very high" burden on residential customers in its guidance on affordability of sewer infrastructure improvements.

The current and projected sewerage rates and cost impact to the average homeowner, restaurant, and major water user are as follows:

	Current 2015-2032			2015-2032 Annual Av.
User	Sewerage Gallons/Year 1,000 Gallons	Sewerage/CSO Cost @ $13.90 per 1,000 Gallon	Av. Sewerage/CSO Cost @ $28.00	Sewerage/CSO Cost Increase
Resident	90,000	$1,251	$2,520	+ $1,269
Restaurant	320,000	$4,448	$8,960	+ $4,512
Major User	2,200,200	$30,583	$61,606	+ $31,023

Such increases could create a Domino effect by incentivizing large businesses (such as our hospital, nursing centers, and fish processors) to close or move away. This, in turn, could raise our unemployment rate and further increase homeowner rates if the city's operating and debt service burden is forced to shift from the current balance of commercial-industrial and residential taxpayers towards a higher percentage of the latter.

• Increase the financial impact of ongoing improvements of our water quality and treatment infrastructure.

The City of Gloucester has recently made several large investments to improve the City's water infrastructure. These include a total of $35 million on the combined sewerage overflow project (CSO) to separate storm water overflow from the sewer system, $15 million on our drinking water purification and distribution system, and $7 million on Phase I improvements to our waste water treatment plant. An additional $13 million is already committed for Phase II waste water treatment plant improvements, slated to begin this year. The city is in the process of developing an over-arching Water System Master Plan to prioritize ongoing and planned improvements.

Without ongoing maintenance and investment, our water purification and long-neglected distribution infrastructure will inevitably suffer from continued problems and failures. Urgently needed improvements include: water pipe, pump and valve replacements; critical repairs to the Plum Cove tower and the Lanesville/Annisquam water distribution systems; generator repairs and failsafe mechanisms; dam repairs; reservoir aeration to reduce chemical usage; water conservation by recycling at the purification plants, and green energy investments. These projects will improve the quality of our drinking water and the reliability of our distribution system, but they will also result in higher water rates for our citizens.

Combined water and sewer rates, therefore, will be significantly higher than the basic sewerage rates mentioned above. While some of these projects could be deferred, most will be unavoidable - and indeed, all are highly desirable. Additional investments may be necessary if the EPA increases the stringency of regulations on storm water runoff for Massachusetts communities, as currently predicted.

• Make no difference to the marine environment at the ocean outfall:

The City of Gloucester is committed to preserving and protecting the ocean resources that have played a major role in its history, and which are a vital part of Gloucester's identity. This can be achieved, however, without the installation of a new secondary sewerage treatment plant. The EPA's tentative decision to deny the city's 301(h) wavier is based on sporadic failure to meet permit limits in three areas: oil and grease, fecal coliform bacteria, and effluent toxicity. The facts are as follows:

For oil and grease, the few times when permit limits were exceeded were tightly correlated with street runoff during major storms. Since major CSO improvements were completed in 2009, approximately 90% of storm water overflow to the sewers has been eliminated and there have been no further violations in this area. The few isolated fecal coliform violations that occurred over the past two years were either due to equipment failure or operator errors at the treatment plant. However, the city has recently made dramatic improvements to operations at the plant (now under operation and management contract with Veolia Water). In any case, the daily maximum was only exceeded 6 times in the past 3 years and the monthly average limits were never exceeded. As the ongoing improvements to our waste water treatment system are brought online, the probability of future violations in this area will be reduced significantly.

Gloucester's primary treatment plant effluent sometimes fails a toxicity test in which juvenile fish and shrimp are exposed to treated water dilutions for a period of 48 hrs. This test has proven to be very unreliable and is considered by many scientists to be of little value since the test conditions bear no resemblance to conditions in the real world. Furthermore, the results are highly inconsistent between different testing laboratories. A systematic evaluation of the effluent has shown that ammonia is the primary cause of the toxicity, but secondary treatment does not remove ammonia. What then, is the purpose in building a $60 million secondary treatment plant?

The present ocean outfall for Gloucester's treated water is located in a high energy marine environment with significant mixing and oxygenation levels. The outfall is designed to provide instantaneous dilution and rapid diffusion of the treated water. An extensive 20 year monitoring program (as required by the EPA) has been conducted in the waters and sediments around the outfall, and paid for by Gloucester citizens at $3.5 million. This study showed no change in the natural marine community in terms of species diversity or of accumulations of organics or other pollutants in the sediments.

The EPA is implying the existence of damaging effects based on the results of an unreliable and artificial laboratory test. However, this conclusion ignores 20 years of scientific monitoring involving thousands of individual tests, which show no impact on the marine community around the outfall (see Figures 1-3 below). In fact, all federal and state water quality standards are met in the marine environment around the outfall.

The Water Advisory Team of Citizens; WATCH 20 is a committee of five Gloucester Citizen Volunteers appointed by Mayor Kirk, who meet regularly with the City of Gloucester's

Environmental Engineer/Manager of the Water Compliance Office. The committee became active in November 2010, and currently has Ad Hoc status.

The Mission of WATCH2O is to help manage, protect, improve and conserve the City of Gloucester's water, watersheds, storm water, and waste water infrastructure. WATCH2O works collaboratively with the city and Gloucester citizens to promote responsible stewardship of our water systems through communication, education, development and implementation of best management practices.

Disclaimer: The information presented here is derived from documents available on the city's web site or available elsewhere in the public record and do not represent the official position of the City of Gloucester.

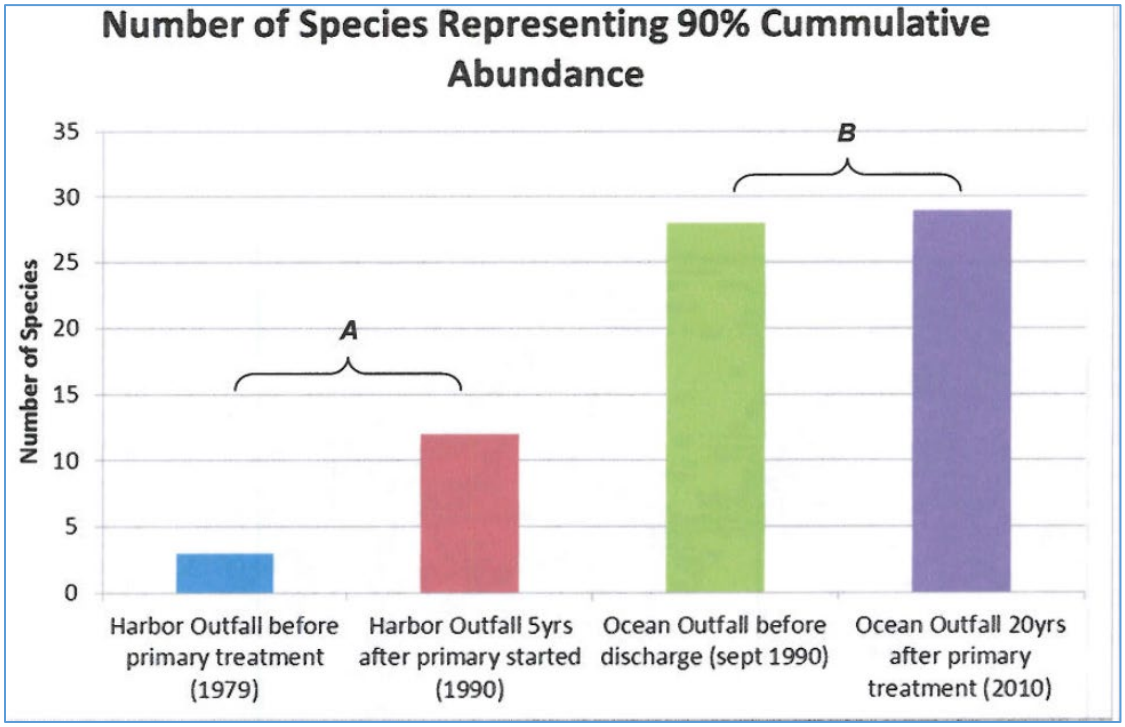
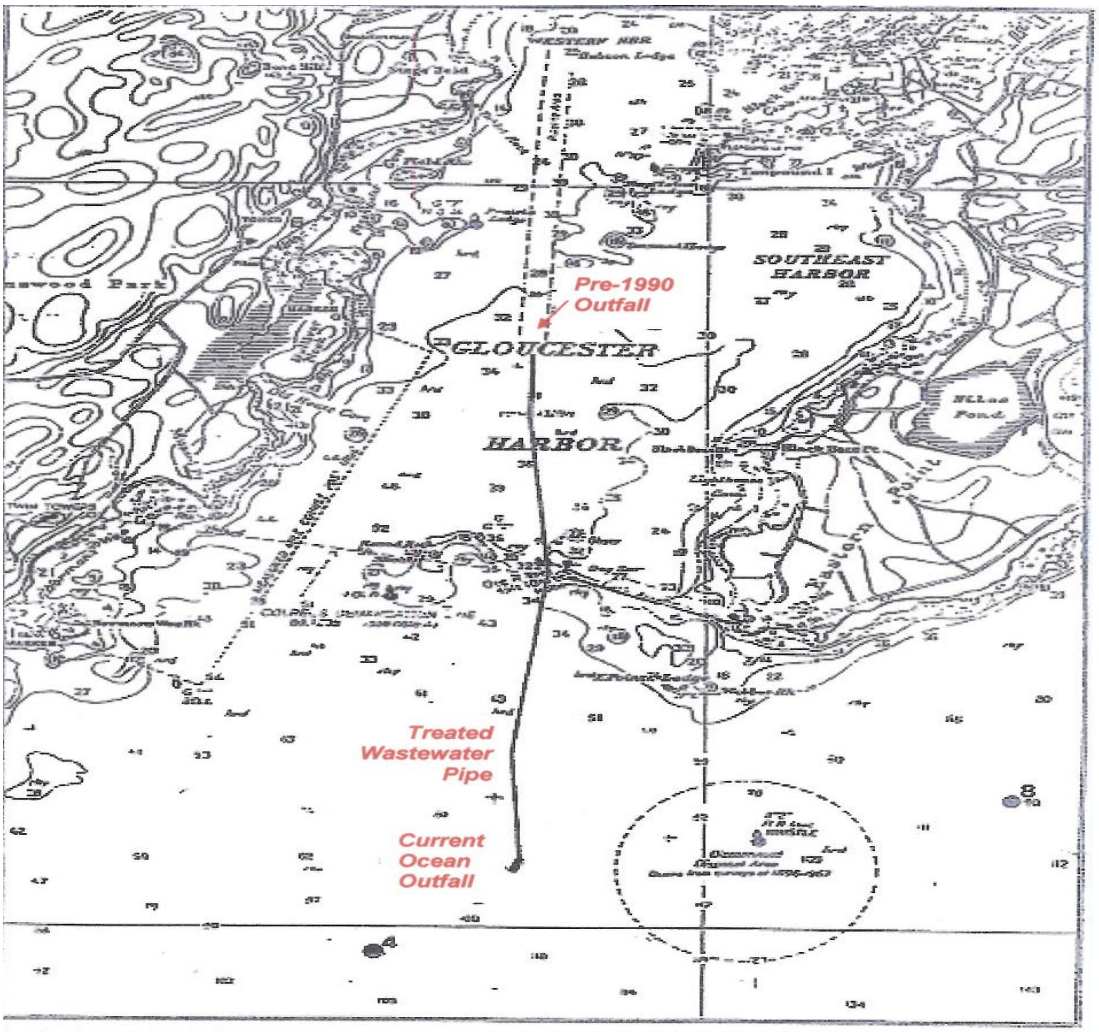


Fig 1. Effect of primary treatment on sensitive marine communities in terms of species abundance: A. Improvement at the original Harbor outfall 5 years after initiation of primary treatment in 1985; B. No change at the current Ocean outfall after 20 years of primary treatment discharge.

Fig 2. Outfall diffuser prior to installation.



ig 3. Location of ocean outfall (~1 mile beyond Dog Bar Breakwater).

Response 91

Many issues are raised in the comment most of which have been addressed by other responses in this document. EPA does not agree that there are 16 cities and towns in New England with POTW sewage treatment limits modified under Section 301(h) of the CWA. Secondary treatment is not an extraordinary approach to sewage treatment; it is the Clean Water Act's minimum baseline technology-based requirement for POTWs and has already been achieved by the vast majority of POTWs in the United States. To be sure, a limited exception to secondary treatment requirements is authorized under Section 301(h) of the statute, but EPA has determined that Gloucester does not meet the criteria for modified treatment limits under Section 301(h). Therefore, EPA must deny the request for the modification and set NPDES permit limits for the City based on secondary treatment. EPA disagrees that the impact to sewer rates are a basis for denying the 301(h)

modification request. *See* Response 23. EPA cannot base its decision on whether to approve a 301(h) modification request on the economic impact to businesses; it notes, however, that when secondary treatment is implemented, Gloucester, if all relevant permit conditions are met, will be eligible for a flow increase which could increase capacity at the WPCF and thus potentially accommodate additional wastewater flow from existing or new businesses. In addition, the City's sewer separation work should reduce the conveyance of stormwater to the treatment plant which should both improve treatment performance and reduce the capacity needed at the treatment plant. The ongoing permit violations and exceedances of water quality criteria that form the basis of EPA's denial of the City's request for renewal of its Section 301(h) modification are discussed in the following responses to comments: Response 11 (oil and grease); Response 12 (total petroleum hydrocarbons); Responses 13, 14, 19 (fecal coliform/bacteria); and Responses 10 and 76 (toxicity). *See also* Response 19 (validity of WET toxicity testing). EPA disagrees with the commenter's suggestion that the monitoring undertaken by Gloucester " showed no change in the natural marine community in terms of species diversity or of accumulations of organics or other pollutants in the sediments." *See* Responses 6 (sediment changes), 16 (species diversity changes), and 25 (discussion of water quality impacts reported in Gloucester's 2017, 2018, 2019, and 2020 Ambient Monitoring Reports).

N. WATCH2O Douglas R. Smith, PhD (in Biochemistry and Molecular Biology) (on behalf of WATCH2O- Water Advisory Team of Citizens, Gloucester)

Comment 92.

Whole Effluent Toxicity testing and why the test results are not valid. 1. The Whole Effluent Toxicity (WET) test is incredibly unreliable... for example, split samples from Gloucester were sent out in parallel to two different labs, and the results showed a fail at one lab and a pass at another. In addition, test results on the same toxicant sent to a variety of different labs around the country (in 2005) varied by a factor of 151. 2. The WET test conditions in the lab are both artificial and unrealistic. For example: Gloucester's test results over the years have shown a significant statistical correlation between oxygen levels and toxicity. However, during testing, oxygenation of the test chamber in not permitted unless the dissolved oxygen falls below 4 mg/L. By that point the animals have been severely shocked. The Gloucester effluent is discharged into an oxygen rich environment with levels of 8 - 11 mg/I, which is very close to 100% saturation. The test conditions at lower oxygen levels are, therefore, unrealistic and artificially increase the toxicity.

A toxicity evaluation study was performed on the effluent, which proved that ammonia was the primary cause of the toxicity. The maximum temperature in the summer at Gloucester's ocean outfall is 10 - 11 degrees C. The WET test is conducted at 20-25 degrees. Running the test at the higher temperature triples the toxicity of ammonia, so this aspect of the test is also unrealistic and artificially increases the toxicity.

An EPA guidance document on toxicity testing says that if the test conditions are unrealistic and artificially increase the toxicity, then the test is not valid. These guidelines are contradictory, however, since the prescribed methods create conditions which artificially increase the toxicity, relative to real world conditions at the outfall.

3. It is not truly correct to characterize ammonia as a pollutant in the open marine environment. Ammonia is rapidly converted to nitrate by a variety of nitrifying microorganisms, and the nitrate and ammonia are also taken up by phytoplankton. The productivity of the oceans is based, in large part, on nitrogen and phosphorus runoff from the continental land mass.

4. Secondary treatment will not make Gloucester immune to further violations. There are many examples of secondary treatment plants failures listed, for example on the EPA web site (http://cfpub.epa.gov/compliance/case/#57) Secondary treatment does not remove ammonia...so what's the point of adding secondary treatment. That is $60 that could be invested in far more beneficial projects for our city instead of wasting it on a secondary treatment plant with little or no benefit.

References: 1) Allan Michaels, Ph-D, personal communication. 2) Gruber, N. (2008) The marine nitrogen cycle: overview and challenges. In Nitrogen in the Marine Environment. Capone, D.G., Bronk, D.A., Mulholland, M.R., and Carpenter, E.J. (eds). Amsterdam, The Netherlands: Elsevier, pp. 1-50 http://www.soest.hawaii.edu/oceanography/courses/-OCN621/Spring2011/Gruber et al. 2008 N Book pdf

Response 92

EPA disagrees with the assertions provided by the commenter to the effect that EPA's WET test results are unreliable because split samples tested at different laboratories resulted in different results. Each WET test report is reviewed on its own merit. One laboratory, for example, may run additional dilution series that may be able to identify a toxicity issue more precisely than another lab, given a particular discharge.

As explained in the following paragraphs, EPA also disagrees with the commenter's assertions that the WET tests are flawed due to a variety of factors, including that dissolved oxygen (DO) levels used in the tests are too low and water temperatures used in the tests are too high for the test to be useful. Moreover, EPA does not agree with the comment's suggestions that ammonia should not be characterized as an oceanic pollutant, and that ammonia was found to be the only source of toxicity in Gloucester's effluent.

EPA disagrees with the comment that the test conditions at lower oxygen levels are artificially increasing the apparent toxicity of the City's wastewater. The commenter has not provided data to support the assertion that low dissolved oxygen in the test chambers is diminishing survival during WET testing.

EPA does not dispute that Gloucester's sewage discharge is well oxygenated after thoroughly mixing with the receiving water. However, this is not relevant as oxygen is

added during the WET test to support survival of the test organisms, rather than to directly mimic the conditions at the point of discharge. *See* Response 10, above.

EPA disagrees with the commenter's suggestion that the WET test ought to be conducted at the same temperature as the ambient receiving water. *See* Responses 10 and 53, above. It should also be noted, however, that as discussed in Response 53, water temperatures in the vicinity of Gloucester's discharge during warm weather months are not dissimilar to the water temperatures used in the WET tests. In addition, as stated in EPA's Technical Support Document for Water Quality-based Toxics Control, March 1991 (the "TSD"), p. 11, "the value of the toxicity test is its ability to assess the impact of discharged toxicants independent of effects from other factors." Thus, the WET test "allows regulatory authorities specifically to identify and control the portion of the impact caused by the discharge …," *id.*, while recognizing that "[b]iological, physical, and chemical factors of the … [aquatic ecosystem] can influence the actual effects that effluent toxicity may cause in the receiving water."

The results of Gloucester's effluent monitoring show that the discharge clearly does not meet the Massachusetts water quality criterion for toxicity because the effluent has not been meeting the permitted WET limits. As can be seen in Appendix A, recent acute WET tests taken from 2016 to 2021 for the Inland Silverside (*Menidia*) violated the LC50 permit limit 35 out of 39 samples (Silversides are more sensitive to ammonia than Mysid), and for the Mysid Shrimp (*Mysid bahia*) there were 17 violations out of 39 samples (Mysids are more sensitive to chlorine and chloramines than Silversides). Each of these WET limit violations represents an exceedance of the narrative water quality criterion prohibiting the discharge of pollutants in concentrations or combinations that are toxic to aquatic life [See 314 CMR 4.05(e)].

EPA also disagrees with the commenter's assertion that ammonia should not be characterized as a pollutant in the open marine environment. Ammonia can be toxic in the marine environment under certain conditions. *See* EPA's ambient water quality criteria for ammonia for marine waters.[117]

Lastly, EPA disagrees with the comment's suggestion that secondary treatment will have little or no benefit for the receiving water. EPA has discussed in these responses to comments the significant pollutant reductions that secondary treatment will provide, *see* Response 1 (Table 1), as well as the fact that ammonia is not the only source of toxicity in the City's wastewater. *See* Responses 10 and 53. The benefits of pollutant removals by secondary treatment should be substantial. In addition, in Gloucester's case, ambient data demonstrates that discharging the City's primary treated effluent through the diffuser at a depth of 90 feet does not prevent environmental harm because there is diminishing density and diversity of benthic organisms 30 meters away from the discharge at the edge

[117] EPA, Office of Water Regulations and Standards, Criteria and Standards Division, Washington, DC 20460, Ambient Water Quality Criteria for Ammonia (Saltwater), Document Number: EPA 440/5-88-004, April 1989.

of the ZID, as well as water quality exceedances for oil and grease, TPH, bacteria, and toxicity. *See* Responses 10 – 19.

O. Senator John Kerry

Comment 93.

This letter is in response to the tentative decision by the United States Environmental Protection Agency and Massachusetts Department of Environmental Protection to deny the Clean Water Act, Section 301(h) waiver for the Gloucester wastewater treatment plant. I urge EPA to consider the drastic fiscal impacts this decision will have on Gloucester residents and request EPA to maintain open lines of communication with the City throughout the review process. At this point, the denial strikes the wrong balance between environmental protection and fiscal reality in these difficult economic times.

Shortly after the Clean Water Act was enacted, Congress inserted Section 301(h) into the Clean Water Act to allow publicly owned treatment works with ocean discharges to receive a variance from the Act's secondary treatment requirements as long as statutory criteria are met.

Gloucester's outfall, which is located more than a mile offshore in the Atlantic Ocean at a depth of 90 feet, is the type of discharge covered by the secondary treatment waiver in Section 301(h). From what I understand, since EPA's last positive 301(h) waiver decision in 2001, the quality of Gloucester's discharge has improved. Perhaps even more importantly, 25 years of testing has shown that there have been no adverse impacts to the marine environment as a result of the discharge.

The upgrade of Gloucester's treatment plant would cost more than $60 million, and would increase the annual charges for the average Gloucester household from $1,251 per year to over $2,500; twice the annual cost of the next most expensive rates in Massachusetts. Likewise, the City's rates would be four times the average wastewater rate per household in the state.

Increasing the costs of wastewater services to this extent has the potential to devastate Gloucester's business and real estate sectors. As you well know, cities and towns are under enormous pressure to make ends meet in the face of unprecedented fiscal strain. In just the past two years, Gloucester has committed to spending more than $20 million to upgrade its treatment plant; the City is faced with substantial additional costs to upgrade and improve other wastewater systems nearer the beaches and shoreline, which will add significant, clear benefits to its citizens and businesses.

I am a strong supporter of EPA's mission of protection of public health and the environment. However, as important as that mission is, it is also important that EPA's decisions be reasonable. Placing unfair burdens on the regulated community - and, in this case, on the individuals and

businesses that must pay Gloucester's sewer rates - is not the right way to achieve environmental protection.

For almost four hundred years, Gloucester has had an essential connection with the Atlantic Ocean and the resources it provides. Preservation and protection of those resources are critical to Gloucester's continued vitality. However, EPA must balance all of the drinking water and wastewater management needs of the City against the expected environmental benefits of each. Therefore, I urge the EPA to take the lead in working hand-in-hand with the City to maximize the environmental returns from the considerable investment that Gloucester residents are making.

Response 93

EPA appreciates (then) Senator Kerry's strong support for EPA's mission to protect public health and the environment. EPA also acknowledges the Senator's concern about the cost of secondary treatment and the potential impacts to sewer rates. While EPA presently takes no position on what the costs of secondary treatment will be, or on what the likely impact will be to sewer rates, with respect to the latter issue, we reiterate that EPA has carefully considered and understands Gloucester's stated concerns about the economic ramifications of upgrading to secondary treatment on the community and its residents. As we have explained in prior responses, and as we have indicated to Gloucester many times, while increases to water rates cannot be factored into the analysis for whether the City qualifies for renewal of its prior Section 301(h) modification, the cost and affordability of attaining compliance can factor in to determining the schedules for future treatment plant upgrades. EPA is committed to working closely with Gloucester to ensure that compliance schedules are sustainable and within municipal financial capability. User rates are one important measure of affordability and EPA will work with Gloucester to develop a schedule that reflects affordable rates. *See* Response 23.

P. Senator Bruce E. Tarr, First Essex and Middlesex (March 24, 2011)

Comment 94.

We are writing to urge the United States Environmental Protection Agency to reconsider its recent preliminary decision not to renew the 301(h) Clean Water Act waiver for the municipal wastewater treatment plant in Gloucester.

In 1985, and again in 2001, the City of Gloucester was granted a waiver after demonstrating that it met certain statutory requirements related to the ocean discharges from its treatment plant. Since the last waiver was issued, the quality of the discharge released from the plant has improved dramatically. More importantly, there has been no evidence of any adverse impact on the local marine environment, due in part to the city's investment of $3 million to closely monitor conditions around the outfall pipe.

Two years ago, city officials commenced a #20 million upgrade of the treatment plant to ensure that it maintains high environmental standards. The city is essentially trying to condense 30 years' worth of upgrades into a 10-year time frame, and is counting on a renewal of the 301(h) waiver as it works to complete these necessary upgrades.

The average Gloucester household already pays significantly more for water and sewer service than the statewide average of $584 per year. Failure to renew the existing waiver would require the city to expend more than $60 million to convert the plant to a secondary treatment facility, and would essentially double the average water and sewer bill from $1,251 per year to approximately $2,570, or more than four times the statewide average. Even if we were not living in a time of economic uncertainty, a rate increase of this magnitude would be extremely difficult for most households to manage and would have a detrimental impact on the quality of life in Gloucester.

Given these concerns, we would again like to reiterate our strong support for the renewal of Gloucester's 301(h) waiver, and ask that you please contact our offices should you have any questions or concerns.

Response 94

EPA acknowledges the concerns raised by Senator Tarr about the financial impacts on Gloucester of the decision to require secondary treatment. EPA is committed to working with Gloucester on an implementation schedule for secondary treatment that takes the City's competing financial challenges into account. *See* Response 23.

Q. John F. Tierney , former U.S. Representative (March 24, 2011)

Comment 95.

As you may be aware, on February 4, 2011, the City of Gloucester submitted a detailed response to your tentative decision to deny the city's request for renewal of its application for modification of secondary treatment requirements under Section 301(h) of the Federal Clean Water Act, 33 U.S.C. § 1311(h).

I, too, received a copy of Gloucester's detailed response and, as a first step, directed my staff to speak with officials from the Environmental Protection Agency's (EPA's) Region 1 about the important matters raised therein. During those recent conversations, it was shared that the City of Gloucester would not receive a response from the EPA prior to the issuance of a final decision. While I appreciate that the regulatory process requires a written response to all public comments submitted to the docket at the time a final decision is ordered, it appears Gloucester makes a number of legal, financial, environmental and scientific-based rebuttals to your tentative decision which warrant detailed review before you render your final decision. Accordingly, I submit a copy of the aforementioned City of Gloucester's February 4, 2011 response to the tentative

decision herewith and respectfully request that it be considered with this letter as part of the official record.

As one who has been committed to helping Gloucester address its water infrastructure priorities, I appreciate your consideration of this matter and trust you will work to achieve a fair and reasonable outcome for the city's residents.

Response 95

EPA acknowledges receipt of these comments and they are included in this Response to Comments document as part of the Permit Administrative Record. EPA has responded to all of the comments raised by the City of Gloucester. *See* Responses 1 – 65.

R. United States Senator, Scott P. Brown

Comment 96.

I write to you today in response to the tentative decision by the United States Environmental Protection Agency and Massachusetts Department of Environmental Protection to deny the Clean Water Act, Section 301(h) waiver for the Gloucester wastewater treatment plant, and require that Gloucester spend more than $60 million to upgrade the plant to a secondary treatment facility.

In these times of shrinking municipal budgets and widespread economic strain, it is important for EPA to ensure that the regulatory burdens it imposes on cities and towns are guided by common sense and directed to requirements that will provide meaningful environmental results. In the past two years alone, Gloucester has committed to spending over $20 million to upgrade its treatment plant, and:. . there have been significant improvements in the quality of the discharge since the last 301(h) waiver was issued to Gloucester in 2001.

The cost of secondary treatment will increase the annual charges for the average Gloucester household from $1,251 per year to approximately $2,570 which is more than four times higher than the average rate per household in Massachusetts of $584 per year. In the current and probable future economic climate, the prospect of dramatically increased costs of water and wastewater services would have serious and immediate and long-term repercussions in the business and real estate sectors of the City.

The City is committed to preserving and protecting the ocean resources that have played a major role in its history and which are a vital part of Gloucester's identity. Therefore, I respectfully request that you reconsider your decision and renew the Section 301(h) waiver for the Gloucester treatment plant. I also implore EPA to continue working with the city to form fiscally responsible solutions to implement infrastructure improvements.

Response 96

EPA acknowledges the concerns about the financial impacts of the decision to require the implementation of secondary treatment raised by (then) Senator Brown and others. As discussed in other responses, EPA also acknowledges the improvements that Gloucester has already undertaken for its drinking water and wastewater systems. While EPA had determined that the applicable statutory and regulatory provisions preclude EPA from renewing the Section 301(h) modification for the City, the Agency is committed to working with Gloucester on an implementation schedule for secondary treatment that takes the City's competing financial challenges into account. *See* Response 23.

S. Essex Board of Selectmen, A. Raymond Randall, Jr. (March 23, 2011)

Comment 97.

I am writing you on behalf of the Town of Essex Board of Selectmen to oppose the EPA's recent decision to deny the City of Gloucester's 301(h) permit renewal, thereby ending the City's waiver for secondary wastewater treatment. The Town of Essex has an intermunicipal agreement with the City to convey all of the Town's sewage to the City's treatment plant and is therefore an interested party regarding this matter. An area of the Town of Rockport also contributes to the City's plant.

It is our understanding that water quality at the City's deep water ocean discharge point outside of Gloucester Harbor meets the statutory criteria for a variance from the Clean Water Act's secondary treatment requirements. In addition, we understand that the cost of upgrading the City's plant to secondary treatment standards will approach $60 million. Further, it appears that such an upgrade may not even achieve any substantive water quality, habitat, or biodiversity improvements.

Given the above factors and given that Essex residents and businesses will be required to contribute to the cost of the plant upgrade is some fashion, we urge the Agency to consider carefully the dubious cost-benefit of such an undertaking. In these exceedingly-difficult economic times, we must implore the Agency to reconsider requirements that will likely not result in appreciable environmental gain but which will certainly further harm the economic stability of our residents and businesses. Thank you for the opportunity to make comment [sic] on this critical matter that is facing Cape Ann.

Response 97

Several issues are raised by this comment that are addressed earlier in these Response to Comments. As stated in response to other comments, EPA understands the Town of Essex's interest in the Gloucester NPDES permit and the Agency carefully considered the economic concerns raised by the Town. At the same time, EPA disagrees that the City's ocean discharge meets the statutory criteria to justify a 301(h) modification; for responses regarding the failure of Gloucester to meet the statutory requirements to justify a 301(h)

modification and to meet the requirements of the Clean Water Act*, see* Responses 1, 10-19. Pollution parameters not satisfied by the City's primary treated discharge include those for whole effluent toxicity, bacteria, oil and grease, and total petroleum hydrocarbons. *Id*. For a fuller discussion of the costs of secondary treatment and the relationship of those costs to decisions regarding 301(h) modifications, *see* Response 23. EPA also disagrees with the comment's suggestion that an upgrade of the WPCF to secondary treatment will not have a positive substantive impact on water quality, habitat quality or biodiversity; for responses regarding the environmental benefits associated with meeting the effluent limits and other requirements set forth in this permit, *see* Responses 1, 42 and 6. In addition, in enacting Section 301(h) of the Clean Water Act, Congress did not authorize EPA to determine whether to modify the generally applicable secondary treatment requirements for a particular POTW based on some sort of cost-benefit analysis.

T. Cape Ann Chamber of Commerce, Bob Hastings, Executive Director (March 24, 2011)

Comment 98.

The Directors of the Cape Ann Chamber of Commerce (representing over 850 local Cape Ann businesses), unanimously request that the E.P.A. reverse the tentative decision under 40 C.F.R. Part 125, Subpart G. denying the City of Gloucester's request to renew permit limits under Section 301(h) of the Clean Water Act.

Denial of the waiver and the mandate of the construction of a $60 million secondary treatment system will create an undue hardship on area businesses and homeowners. Our sewerage rates (already twice the Massachusetts average household rate) will more than double again. The new rate will force Gloucester residents to pay over 5% of their gross income for sewer and water. This is untenable.

The higher rates will threaten the very existence of some of our major employers and thereby potentially cause the loss of jobs in the area. The excessive rate would certainly damage our economic development efforts, further threatening the region in recessionary times.

While we are very much concerned about the quality of our environment, specifically our water resources, the expenditures on infrastructure should reflect reasonable cost benefit ratio. The construction of a secondary treatment plant at this time threatens local families and damages the business economy in an already difficult time. Please reverse the denial decision and issue the waiver extension.

Response 98

EPA acknowledges the commenter's stated concerns about protecting water quality but also about the financial impacts of the decision to require the implementation of secondary treatment. EPA is committed to working with Gloucester on an

implementation schedule for secondary treatment that takes the City's competing financial challenges into account. *See* Response 23. EPA also notes that Congress did not authorize EPA under Section 301(h) of the Clean Water Act to modify the generally applicable secondary treatment requirements for a particular POTW based on some sort of cost-benefit analysis. Instead, the statute and implementing regulations identify a number of environmental criteria that are used to determine whether to approve a modification under Section 301(h). Finally, as noted earlier in this document, once Gloucester implements secondary treatment, it will provide better sewage treatment and may also be eligible for a flow increase, both of which could combine to allow more businesses to come into Gloucester or allow existing businesses to expand. *See* Response 23, footnote 83.

U. Cape Ann Marina, Tobin Domnick, Vice President/Owner (March 31, 2011)

Comment 99.

After listening closely at the Public Hearing in Gloucester's City Hall on March 24, 2011, I wanted to make sure these comments were submitted in writing.

My family built (1971) and operates Cape Ann Marina Corp. at 75 Essex Avenue, Gloucester, MA. This is a stone's throw to the primary treatment plant that became our neighbor in 1985. If you visit our facility you will see the cleanliness, and "green" practices that we have installed over the years. In fact, we were the first marina facility in MA to take advantage of a grant and install a pre-treatment pressure washing facility for our boat washing business. Also, onsite we operate a free pump-out service and vessel to assist in all of pump out needs for Gloucester. We believe in keeping our environment and boating environment to the utmost priority for our customers, our business and ourselves. If we weren't stewards to the environment – we would be out of business.

It truly does not make sense to increase the exposure of problems that would come from a secondary treatment center, when the primary is working, compliant and testing proves that. Granted Gloucester is different from other communities in many ways, but that is why we have been given the exception for as long as we have. The testing that was presented at the hearing was not apples to apples and therefore needs to be re-evaluated. This was made very clear and not fair in the denial of the permit.

Already Gloucester has invested millions (recently too) to our sewage/water and storm water systems. And the citizens are currently under enough stress with some of the highest, if not the highest rates in the Commonwealth and the country. What the EPA is proposing will result in DOUBLING the already existing rates. Guaranteeing that not only Gloucester residents will think about moving, however Gloucester businesses will be forced to close there [sic] doors. This is clearly sending the wrong message – and is outrageous that this is what this would have to come to if the secondary needed to be installed.

The physical and economic impact to our business would be indescribable. It would change Essex Avenue from an existing gateway and entrance to our city and historical maritime waterfront, to a closed gate. Gloucester and its citizens are already in economic distress – I recommend that together EPA, and other State authorities come together with a solution rather than a greater problem.

Response 99

EPA appreciates the commenter's commitment to running his family's business in an environmentally sound and publicly spirited manner. EPA also understands the economic concerns expressed in the comment. At the same time, this comment raises many issues that have been addressed earlier in this Response to Comments document. EPA disagrees that the current primary treatment plant effluent, even with the past upgrades, is consistently compliant with the effluent limits in the 2001 permit or with the criteria under Section 301(h) of the Clean Water Act that would justify continuing the waiver from secondary treatment; *see* Responses 1, 10-19, a conclusion that is supported by reports and effluent data submitted by Gloucester; *see* Response 6 and Appendix A. With respect to potential impacts on water rates, we reiterate our position set forth earlier in this document and, as we have indicated to Gloucester many times, while increases to water rates cannot be factored into our analysis for whether to continue a 301(h) modification, they do provide relevant information for determining the schedules for future treatment plant upgrades. EPA is committed to working closely with Gloucester to ensure that compliance schedules are sustainable and within municipal financial capability. User rates are a critical measure of affordability and EPA will work with Gloucester to develop a schedule that reflects affordable rates. For further discussion of the costs of secondary treatment and the relationship of those costs to decisions regarding 301(h) modifications, *see* Response 23. Finally, as noted earlier in this document, once Gloucester implements secondary treatment, it may be eligible for a flow increase that could allow more businesses to come into Gloucester. *See* Response 23, footnote 83.

V. Written Comments from Gloucester Residents

Comment 100.

Tom Balf (March 30, 2011):

I write to you as an environmental professional and as a resident of Gloucester, MA in support of Gloucester's Section 301(h) waiver request.

Before I articulate my comments, I would like to provide some background on my credentials. I am academically trained as a limnologist or freshwater biologist and am familiar with the NPDES permit program, and its standards for ensuring protection of human health and the environment. I am also intimately familiar with the environmental policy and regulatory development world. I was centrally involved in the EPA's Project XL regulatory reform program

in which the organization that I direct, the Campus Consortium for Environmental Excellence, or C2E2, piloted an alternative regulatory model for managing hazardous wastes in academic laboratories. To my knowledge, the New England Universities Academic Laboratories project is the only XL regulatory innovation project to ultimately lead to a finalized federal rulemaking - Subpart K of 40 CFR 262. I also routinely work with EPA – both Region 1 and Headquarters – on regulatory issues impacting colleges and universities and life science facilities. I most recently spoke at EPA's Public Hearing on March 21, 2011 in Boston on opportunities to improve the regulations from the perspective of higher education.

I will leave the critical scientific and legal arguments in this case to others who are more familiar with the specific details and the substance of the issues. Instead, I would like to offer the following observations and insights, based on my 25 years of experience in environmental policy and regulations. I would ask that you consider my comments within the context of your decision-making as it impacts the citizens of Gloucester struggling financially to meet the crushing demands of prescriptive and successive water, storm water and wastewater standards. My comments address the EPA's organizational presumptions, perceptions and motivations that may influence environmental regulatory decision-making in this case.

Observation #1: I believe that EPA is hesitant to approve this waiver because it flies in the face of the Agency's fundamental core value that dilution is not the solution to pollution. Despite this ingrained valued, this "precept" should not be an element of the mind-set of decision-makers if the waiver provision in the Clean Water Act allows for this approach to permitted wastewater discharge and Gloucester meets the criteria for the waiver. Additionally, failure to meet prescriptive lab testing methodologies (i.e., toxicity tests) which were designed for a treatment plant discharging to a nearby creek, river or harbor are not intuitively relevant when an allowable and permitted discharge is a mile off-shore, 90 feet deep, in oxygen rich waters, and the pollutant of concern is ammonia (based on testimony at the Public Hearing). I would feel differently if Gloucester were releasing excessive amounts of toxic metals or other toxins where bioaccumulation was of concern.

Observation #2. Approving this waiver challenges the Agency's organizational "Pareto's Law" also known as the 80-20 rule, which states that, for many events, roughly 80% of the effort goes to 20% of the problems. Similar to any regulatory organization, the Agency would prefer to force Gloucester into the 80% problem category (where 20% of the Agency's efforts are expended) rather than apply significant EPA resources to permit and manage an "exceptional" event (i.e., waiver). While this is an understandable organizational management strategy, it is unconscionable to do what is best for the organization when it comes with a $60 million price tag on a struggling community of 28,000 people with uncertain or even incrementally "immaterial" environmental benefits. To recap, the pareto principle should not be an element of the mind-set of EPA decision-makers in this case -- if the waiver provision in the Clean Water Act allows for this approach to permitted wastewater discharge and Gloucester meets the criteria for the waiver.

Observation #3. The Agency has a propensity for viewing a waiver request – any waiver -- as an indication of circumventing the rules. This belief is consistent throughout the Agency – and, in fact, contributes to the 80/20 rule above. It is particularly disconcerting, in my mind, that an Agency that fully supports the principle of biodiversity, and its extraordinary importance to ecological health, makes achieving a waiver – under any statute – extremely difficult and, instead, prefers and often demands prescriptive regulatory homogeneity across the spectrum of municipal and industrial "ecosystems."

Final Thoughts

Two additional compelling arguments were voiced at the public hearing in Gloucester. First, the sequential "pancaking" of environmental regulations which have been developed, implemented and enforced in isolation and contribute substantially to the financial crisis that faces Gloucester.

As a result of this pancaking of regulatory consent orders, we have insufficient time to assess the environmental benefits of upgrades prior to the next regulatory program deadline despite their causal connection. Second, the treatment disks on Gloucester beaches from a Secondary Treatment facility in New Hampshire should remind us not only that secondary treatment is imperfect, but that compliance with standardized laboratory tests are not necessarily a surrogate for real world marine health nor do they accurately forecast the potential risks of environmental degradation.

In closing, I would like to see EPA approve Gloucester's 301(h) Waiver, for now, and identify specific conditions, via a Memorandum of Understanding or equivalent document, that the Gloucester POTW should meet in the next five years to validate environmental improvements resulting from the more than $35 million expended in stormwater and plant infrastructure improvements designed to remedy past wastewater compliance deficiencies. If these system improvements fail to achieve the agreed upon environmental performance improvements, then we will pick up this discussion in five years.

Response 100

This comment raises several issues. EPA appreciates the thoughtful nature of the commenter's observations and understands the points the commenter raises. EPA can assure the commenter, however, that EPA is not denying the renewal of the Section 301(h) modification because the Agency maintains some sort of general opposition to the idea of dilution being taken into account when addressing all water pollution issues. EPA's decision is based on the terms of Section 301(h) of the CWA and the applicable regulations. Under Section 301(h), Congress allowed for a limited exception to secondary treatment requirements if the specified criteria are or will be satisfied. EPA has concluded that those criteria are not, however, being satisfied in this case. Further, contrary to the commenter's supposition, EPA does not regard qualifying for a Section 301(h) waiver as "circumventing" the rules. The Agency understands that Section 301(h) allows for the waiver when the specified criteria are met. The issue here is that those criteria are not

being met. Finally, EPA is not denying renewal of Gloucester's waiver under Section 301(h) because it would be less work under the "80/20 rule" hypothesized by the commenter. Rather, EPA is denying the requested renewal of the waiver because the applicable statutory and regulatory criteria are not being met.

EPA must deny Gloucester's request for a 301(h) modification because the City does not meet the statutory or regulatory criteria to qualify for a renewed 301(h) modification. *See* Responses 1, 10-19. Given the time that has passed since issuance of the 2010 TD and the Draft Permit, Gloucester has ended up with additional time to demonstrate that the environmental improvements resulting from the sewage system upgrades noted by the commenter have resulted in the City satisfying the applicable criteria under Section 301(h) of the statute and the relevant regulations. Yet, despite these improvements, *see* Responses 3 and 4, violations of the limits set forth in the City's permit continue and the criteria governing whether to renew the 301(h) waiver are not being met. (*See* Responses 10-19; Appendix A). EPA also does not see any inconsistency, as suggested by the comment, between recognizing the importance of biodiversity and Congress setting strong standards for controlling water pollution and setting a high bar for those seeking a waiver from those standards.

It should also be clear that requiring steps to reduce contamination of public waters from combined sewer overflows does not obviate the need to ensure that standards applicable to sewage treatment plant discharges are also being met. A municipal sewer system must meet both sets of requirements; it is not a matter of satisfying only one or the other. That said, EPA has explained repeatedly in these responses to comments that it is ready to work with Gloucester to develop a schedule for implementing secondary treatment that takes account of the City's financial challenges.

Second, EPA disagrees that WET testing is an inappropriate testing method to determine violations of the state's narrative toxicity criterion. *See* Responses 10, 18. Furthermore, EPA also does not agree that the record establishes that the toxicity of the City's discharge is solely the result of ammonia. The Phase I November 2006 TIE report[118] suggested there may be several potential toxicants present. In addition to ammonia, other possible sources of toxicity identified included chlorine and chlorination byproducts, heavy metals (notably copper), polymers and cleaning products (e.g., those containing quaternary ammonia). Furthermore, the Phase II TIE (April 2008) clearly identified toxic effects from a combination of factors, not just the presence of ammonia in the effluent. (*See* Responses 6, 10, 25 and Appendix A). EPA also disagrees that there are no environmental benefits associated with this permit (s*ee* Response 42).

Finally, the commenter is incorrect in suggesting that the only "pollutant of concern" is ammonia; rather, additional pollutants are also being discharged by the WPCF at concentrations that exceed water quality standards. S*ee* Responses 11 (oil and grease); 12 (TPH); bacteria (13, 14, 19). In addition, combinations of pollutants discharged at lower

[118] Phase I – TRE/TIE Prepared for City of Gloucester, MA, November 2006.

concentration or which are not specifically regulated under the Clean Water Act may also be contributing to the effluent's toxicity. Finally, the City's discharges have led to a failure to maintain a balanced, indigenous population as required by the 301(h) regulations (s*ee* Responses 15, 16, and 17).

Comment 101.

From Damon E. Cummings, (March 24, 2011). I want to preface my comments by making it clear that my doctorate is from the Department of Ocean Engineering at MIT and not in Civil Engineering. Therefore, I am speaking here not as an expert in waste water technology but as a citizen of the City of Gloucester. However, I do know a little about hydrodynamics and diffusion, currents and dissolved oxygen. I am flabbergasted by the initial decision made by the EPA to require a gigantic investment in secondary treatment here where years of monitoring at the outfall has shown no indication whatsoever of adverse effect on Massachusetts Bay. We have never had a beach closing or any other emergency due to effluent from our outfall outside the harbor. Monitoring does not even detect effects on flora and fauna at the outfall. In fact we have had no violations at the plant itself since 2009 and earlier violations related to water quality at the plant not at the outfall. Some of these were due to simple mismanagement of the plant and some were the result of combined sewer and road runoff coming to the plant. We also have a problem introducing the STEP system outflow from North Gloucester to the plant. Over the last several years we have not only updated the sewer plant itself at a cost of twenty million dollars but we have invested another thirty five million dollars in eliminating the connections between sewer lines and street runoff during the CSO project which is ongoing. In other words we have had no violations since we started upgrading our system and are presently making a major investment in establishing an excellent waste water system. We would like the opportunity to establish that we are not violating any standards before rebuilding the entire plant. We are well aware that even secondary plants have failures and make mistakes. Our DPW is presently cleaning up our beaches after the secondary treatment plant failure in Hooksett, NH. Meanwhile we have extreme real need for investment in the water supply side of the system. After a series of burst pipe emergencies and a protracted spell of boiling all our household water, we became aware that our antiquated dams, two water treatment plants, and water distribution system were in desperate need of attention. The treatment plants have been upgraded over the last two years, first the Little River Plant in West Gloucester and as of last summer the Babson Plant on this side of the river. However, those plants are connected by extremely old and fragile piping including a vital and ancient main that runs under the Annisquam River. These are the issues that we here see as highest priority. We need dams and pipes repaired and replaced. We do not think it makes sense to use the money that will be difficult enough to raise for those essential projects to satisfy demands for an unnecessary sewer plant that will not improve the quality of our discharge into Massachusetts Bay one bit. Please continue the waiver for primary waste water treatment so that we can fix our far higher priority water supply system.

Response 101

As EPA has explained in denials of other Section 301(h) modifications, neither the statute nor the regulations authorize EPA to base a decision on whether to issue or renew a 301(h) modification on cost considerations. *See* 33 USC § 1311(h); 40 CFR Part 125, Subpart G. *See also In re Guam Waterworks,* 15 EAD 437, 466 (EAB 2011); *Response to Comments on Tentative Decision to Deny the City and County of Honolulu's Request for a Variance at the Sand Island Wastewater Treatment Plant under Section 301(h) of the Clean Water Act*, page 66, U.S. EPA, Region 9 (January 5, 2009). That said, EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and is committed to working with the City on an implementation schedule for secondary treatment that will take the City's competing financial challenges into account. *See* Response 23. At the same time, EPA must deny Gloucester's request for renewal of its previous Section 301(h) modification, however, because the WPCF is not meeting the statutory and regulatory criteria to maintain a 301(h) modification (*see* Responses 9 – 19).

EPA also must disagree with the commenter's suggestion that the WPCF has been fully in compliance with its permit's effluent limits since 2009. The WPCF's discharges have intermittently, but persistently, violated a number of the permit's limits, and these discharges have failed to satisfy a number of applicable state water quality standards. Ultimately, the City has not been able to satisfy the statutory and regulatory criteria for maintaining a 301(h) modification. *See* Responses 9 – 19, above.

Comment 102.

From Edward Dahlmer, (no date) I was hoping to read this in person at the EPA hearing on Thursday, March 24. Unfortunately, due to a previous engagement, I cannot attend. I have lived in Gloucester all of my life and recently completed my MBA at Endicott College. I started my MBA in September 2008 the same month that representatives from Suez Environment approached Mayor Carolyn Kirk with an offer to purchase our water system. Fortunately for us Mayor Kirk rejected the offer. After reading the article from the Gloucester Daily Times I decided that the ownership of water would be [text incomplete].

While conducting research for my thesis I discovered that water companies typically target local governments facing budget short falls, failing water systems, and unfunded federal mandates. As the municipalities issues mount, the champion politician (usually affiliated with the private water company) announces that privatization of the water system is the solution to all of their problems. One has to wonder if these scenarios are behind the sudden change in attitude at the EPA in reference to the Secondary Water Treatment Waiver. A fascinating topic to research for my MBA Thesis. To date I have spent over 250 hours researching and writing my thesis. My bibliography lists over 80 books, articles, dissertations, reports, newspaper articles, etc. While conducting research for my thesis I discovered that the North American Water Council invests millions of dollars on Political Action Committees to "support candidates for public office who

understand and appreciate the goals and objectives of private water service providers."(NAWC PAC Mission Statement 2009). Are the citizens of Gloucester a victim of PAC money?

For what other reason would the EPA force an unfunded mandate on a city that is in compliance? The EPA 301(h) Secondary Treatment Waiver was given in 1985. Since 1985 the city of Gloucester has invested millions of dollars in its water and waste water infrastructure. The city of Gloucester has twenty years of data that shows that our harbor is clean, that a secondary water treatment plant is not necessary and that it may even be detrimental to the marine environment. Yes, our primary facility has malfunctioned in the past but didn't an advanced secondary treatment plant just malfunction in Hooksett NH sending millions of poisonous disks to our shores? The city of Gloucester needs to invest its money in replacing its antiquated water pipes, not building a secondary treatment plant that is not needed. Please base your decision on whether or not to continue the Secondary Treatment Waiver on proven scientific data not outdated laboratory tests. The people of Gloucester deserve a decision based on facts not an answer reserved for a small child... "because I said so".

Response 102

The factors guiding EPA's decision-making are grounded in its obligation to apply the legal requirements of the Clean Water Act and applicable regulations. Thus, EPA's decision here is based on the applicable laws, data and science. While EPA acknowledges the wide-ranging scope of this comment, the Agency can also plainly state that its decision has no relationship to any proposals that may or may not have been floated with regard to privatizing any component of Gloucester's WPCF. These issues have not in the past, and do not currently, bear on EPA's determination that the circumstances at Gloucester's WPCF no longer support a 301(h) modification. *See* Response 1 (legal framework) and Responses 10-19 (basis for ongoing effluent violations). EPA's decision have also not resulted from lobbying of any sort by any PAC groups, as the commenter suggests might have occurred.

EPA also disagrees with the commenter's suggestion that "twenty years of data …shows that our harbor is clean, that a secondary water treatment plant is not necessary and that it may even be detrimental to the marine environment." To the contrary, data submitted by Gloucester in its annual monitoring reports, shows ongoing exceedances of water quality standards for toxicity (*see* Response 10), oil and grease (*see* Response 11), TPH (*see* Response 12), and bacteria (*see* Responses 13, 14, 19), as well as the failure of its discharges to maintain water quality that assures the protection and propagration of a balanced, indigenous population of fish, shellfish and wildlife in and on the water body receiving the discharge (*see* Responses 15, 16). The implementation of secondary treatment will remove more pollutants and allow the City to come into compliance with these water quality standards which will lead to cleaner waters in Massachusetts Bay. *See* Appendix A for a summary of ongoing exceedances. *See also* Response 1 (Table 1, comparing pollutant removal by primary and secondary treatment plants). EPA also disagrees that the WET tests that are required are "outdated." *See* Responses 10, 18.

Comment 103.

From Constantine J. Maletskos (March 30, 2011). (I was told that the public would be allowed only five minutes which was incorrect. This letter is my presentation modified and increased only for clarity except for one paragraph that involves me, that I could not include due to lack of time.) In the field of ionizing radiation and radioactivity there are appropriate standards to use in order to protect the persons and environment that might be exposed. However, there is still one more rule that must be addressed. This rule is called "ALARA, As Low As Reasonably Achievable". Because at the time the early standards were chosen and because the use of these fields was growing rapidly, the scientific information to back up the standards was not sufficient. The aim was always to keep the standards low to minimize exposure. Thus the ALARA concept was developed and became mandatory. It is up to the person responsible for protection to find a way to decrease the exposures by what ever means possible. There are no rules to follow so that, for example, two different submittals, on the same project could have different degrees of exposure reduction as long as the reduction was "reasonably achievable" especially with cost.

In the usual practice, a program from an organization would be submitted for review by the regulator. In the present case, the City of Gloucester would be the submitter but the City has nothing to submit. Thus EPA has become the submitter and would have to regulate itself. This appears as an unusual situation, but can be workable.

I know that it can be done because I lived through such an episode many decades ago at the Mass. Institute of Technology (MIT). I was asked to do a major experiment where human beings were to be used the first time at MIT and were to be administered radium and thorium (short-lived versions) to study their metabolism. The existing standards were not sufficient for the needs of my experiment and thus I spent about a year's worth of time to develop the standards to be applied, had them reviewed by several knowledgeable persons and finally submitted to the president of MIT for final approval. Eventually, when the official standards were made available, it turned out that my standards were considerably lower than those applicable, to my experiment.

If the ALARA concept had been applied, EPA would have been in the position to write a letter on Nov. 2010 complimenting the City for operating the waste water treatment plant such that the monitoring data remained constant over many years and to indicate that it would wait to see what the monitoring results would be after completion of the updating of the treatment plant now in process.

Response 103

EPA acknowledges these comments and appreciates the experience of the commenter. Such experiences, including those relative to “as low as reasonably achievable,” however, do not bear upon the decision-making for this matter. For the legal framework and standards applicable to EPA’s decision-making, see Response 1. With regards to waiting to see the result of updating the treatment plant, that work has been completed and EPA

notes that monitoring results do not support the issuance of a 301(h) waiver from secondary treatment.

Comment 104.

Dr. Kevin Mulhern, via email to the Permit Writer (November 8, 2010): Thank you for your email and help in this problem. I shall try to look over the materials. "no discharge of oil and grease, and petroleum hydrocarbons". - As I understand it there are petroleum eating bacteria that will eliminate this problem.

Response 104

EPA acknowledges this comment and appreciates this suggestion. This suggestion will be included in the Administrative Record for the permit and will be available for anyone interested in pursuing this idea, including the Permittee. (*See also* Responses 11 and 12 regarding Oil and Grease and TPH, respectively).

Comment 105.

Elizabeth Murray (March 31, 2011). I am writing in support of the position of the City of Gloucester which is requesting a continued waiver from construction of primary treatment at it's WPCF. I adopt the city's comments, those of the organization Who Decides and add a few of my own as follows.

My husband and I are on the brink of retirement. We thought that paying down our mortgage would be our principal concern, but the prospect of escalating municipal charges, water being the central one, is our real concern. What will happen if we commit to living in this house and the cost of water continues to escalate unabated. Currently, we are up to over $500 per quarter for our sewer charges.

Who Decides has a chart that shows a doubling of sewer costs ($23 plus) even over CSO costs ($13) per thousand. It would not take a doubling to do us in after 30 years in this house/home. A local business owner speaking of current rates, said he competed with ice businesses whose water costs were ¼ of his. Resident and businesses alike here in Gloucester, we are near our tipping points.

Let me be blunt. What you don't want is a city, as a whole and as individuals, who have given up on staying here or cleaning up the waterways whether we stay or go. You're close. With the love of our homes and an endemic sense of patriotic duty to use a phrase, over the past thirty years, we here on the rock have nodded "yes" to many requests for upgrades to the waterways and other public resources. With a motivated populace, you can eventually make your goals, which are really all of our goals, make the waterways clean and open for use. Working together this community and your agency have come far. With a discouraged populace, I submit, the goals will not be met, even worse, with lack of care and stewardship they may slide backwards.

The open endedness, the unpredictability of this process even after much effort and expense by us and our community are factors which must be factored into the current decision. Reading the Draft waiver denial document, it appears that the bar was raised on some applicable standards by statutory changes in 2006. Yet by that time, Gloucester had accomplished many changes and c9mmitted to many more, now underway. The Tentative denial document states that Gloucester's performance does now or would have complied with prior standards.

At the point at which Gloucester undertook work and expense to reduce pollutants, a [sic – word missing] should have been negotiated which showed a pathway of effort and progress tailored to the circumstances of the community.

This is not a resistant community. It has done much and plans to do more. There should be a way of working this out.

The Tentative Denial document (TDD) is a lengthy document. The essences seems to be, however, that a waiver from secondary treatment requirements will be extended only if the applicant for the extension of the waiver can demonstrate that the water quality standards will be complied with, both Federal and State. TDD at p. 11. In the later part of the TDD, at p. 13 and following, it appears that the federal standards simply incorporate the state standards.

As I read through them, it's a long list and it seems to me that it would not be hard to find some putative excess which would be grounds for denial of an extension. One for instance is the exceedance for fecal coliform, obviously a pollutant of great concern. The TDD, at p. 19 cites a 399,900 per cent violation in October 2006. See chart at TDD, p. 19. The next exceedance in January 2007 is 38 percent. Exceedances are rare after 2006 and, but for an exceedance of 15150 percent in August 2007, they are far less than the figure above cited in the prose opinion. It occurs to me, however, that the greater exceedance is the one which will count against us. It looks powerful in the decision document. Looking at the dates of the recorded exceedances, I would question whether data ending in Dec. 2009 would be relevant at this time, given the CSO work, and other work planned since that date.

On reading the TDD, it seems that the simple occurrence of an exceedance would be enough to trigger a cause for denial. This is so unfair, so petty also out of step with the work which has been done between you and this community to date and which could go on if you so decided.

As an agency, do you want to achieve statistical success on paper, or be part of a solution of water quality issues in partnership with the people who live and work in the harbor? Given your past participation, you could take the better path which is the essence of solving a public problem and extend the waiver while the results of current work and planned work go forward.

Response 105

The commenter raises a number of important concerns, some related to the affordability of secondary treatment for the City and for individual residents, and some related to the

process for determining whether a municipal sewage system can qualify for a waiver from the baseline secondary treatment requirement that generally applies to all such systems. *See* 33 USC § 1311(b)(1)(B). EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and, as it has said many times, it is committed to working with the City on an implementation schedule for the design and construction of secondary treatment that takes the City's competing financial challenges into account. As part of that consideration, the effect on sewer rates of implementing secondary treatment can be considered. All of that being said, EPA is not authorized under Section 301(h) to authorize a modification of secondary treatment requirements based on the cost of providing secondary treatment. For a fuller discussion of the costs of secondary treatment and the relationship of those costs to decisions regarding 301(h) modifications, *see* Response 23. Furthermore, to be clear, and contrary to the commenter's suggestion, this is not a case in which a "simple occurrence of an exceedance would be [or has been] enough to trigger a cause for denial [of the modification request]." Gloucester's primary treated effluent has been causing persistent violations of multiple permit requirements and water quality standards, including narrative criteria for toxicity, and criteria for oil and grease, TPH and bacteria. As a result, the statutory criteria for maintaining a 301(h) modification are not being met and EPA must deny the City's request. (*See* Responses 1, 9 – 19).

Finally, EPA appreciates the commenter's and the community's support for protecting water quality, as noted by the commenter. EPA understands that the cost of secondary treatment is substantial and challenging for Gloucester, but the environmental benefits of improved sewage treatment will also be substantial given the far greater removal of pollutants by secondary treatment. This is very simply demonstrated in Table 1 in Response 1, above. EPA looks forward to working with the City to define a schedule for implementing secondary treatment that is workable for the community.

Comment 106.

Valerie Nelson (March 31, 2011): As you may recall, I spoke several times at EPA's Hearing on the tentative denial of a waiver for secondary treatment at Gloucester's wastewater treatment facility and I hope that the transcript reflects the themes and intent of my testimony. However, it may be appropriate for me, as well, to outline briefly in writing the major points from that testimony.

First, I introduced myself as a near-thirty year resident of Gloucester and a former City Councilor representing North Gloucester, at a time when EPA was negotiating with the City of Gloucester for the extension of sewer lines into Annisquam, Bay View, and Lanesville. I expressed appreciation for the long-term partnership between EPA, the Commonwealth of Massachusetts, and the City of Gloucester in developing an extended schedule of projects over several decades, that would achieve water quality improvements but also reflect the income and revenue constraints of the City.

I also stated that I am the Director of a national organization, the Water Alliance, which seeks to advance a sustainable water resource management paradigm that increases environmental, social, and economic benefits in communities. As such, I have participated in a number of EPA-sponsored workshops and conferences regarding the need to develop science-based adaptive management and sustainability principles as the guide for future infrastructure projects in the United States. These include the April, 2010 Coming Together for Clean Water summit, the December, 2010 National Academy of Sciences workshop on EPA's request for guidance on bringing sustainability principles into all aspects of EPA's work, the January, 2011 EPA-Office of Research and Development workshop on a new agenda for water research in the Agency, and the March, 2011 hearings on EPA regulatory reform issues and considerations in response to President Obama's request for regulatory review.

I have also participated in the Clean Water America Alliance's three National Dialogues. Other members of the Water Alliance have participated in the Aspen Institute study on sustainable water infrastructure and the Johnson Foundation Call for Action recommendations, all of which have provided the Alliance a comprehensive view of concerns and discussions about the need for a "next generation" approach in the water field.

From the testimony of others at the Hearing and from review of written materials, I have been led to believe that an expenditure of $60 million for an upgrade of the enhanced primary treatment plant to a secondary treatment plant will provide for minimal, at best, improvement in the water quality of Massachusetts Bay. I therefore suggested, consistent with the widespread EPA and other stakeholder discussions and recommendations for more integrated and innovative infrastructure to achieve sustainability goals, that EPA partner with the City of Gloucester in negotiating a long-term consent decree that would schedule projects with a significantly better set of environmental, social, and economic outcomes for the City and its water resources.

I mentioned several areas where investment would provide significant water quality benefits:

- protection of alewife brooks and marshes, which are important resources locally and for healthy fisheries and shellfish stocks, largely through measures to intercept and infiltrate stormwater runoff
- installation of cluster and onsite advanced wastewater treatment units in West Gloucester, which will improve water quality in Walker's Creek and Ipswich Bay and address sanitation concerns
- advanced treatment in Gloucester's harbor, which would facilitate economic revitalization of the seafood processing and other industries needing water and wastewater services
- pilot projects to recover energy and nutrient resources from wastewater, in conjunction with sewer heat mining, solid waste biogas recovery, and other approaches
- tree plantings and green infrastructure to reduce stormwater runoff, cool buildings, and provide recreational and aesthetic resources for the community

- consideration of targeted sewer pipe replacement vs. satellite treatment options in outlying neighborhoods
- pilot projects in wastewater reuse
- installation of innovative water and wastewater technologies in schools, the hospital, city buildings, and industry
- assessment of climate change-related threats, including coastal flooding and drought conditions, and methods to reduce vulnerability of the City's infrastructure
- improvements to the City's drinking water treatment plants and targeted investments in water line repair and replacement

All of these and other opportunities for infrastructure investment that provide a higher public health and water quality return than the secondary treatment proposal under discussion, should be developed in the context of a Master Plan. This strategic document would outline the totality of water resource issues in the City and the opportunities for sustainable and innovative designs. EPA's State Revolving Fund (SRF) program is encouraging the use of this fund to promote precisely such planning, pilot project, and integrated water resource management approaches, including through grants, as well as low-interest loans.

Gloucester, as Mayor Kirk and other public officials described, has shown its interest and willingness to commit available funds wisely in partnership with EPA, including recent investments in both the CSO project downtown and upgrades to the treatment plant. I believe that a similarly productive partnership between EPA, the DEP, and the City will emerge in future, if encouraged. Such an approach will also be a model for EPA's development of sustainable infrastructure solutions for the nation.

I cited the keynote address by Cas Holloway, Commissioner of the New York City Department of Environmental Protection, to the NACWA Money Matters summit on March 1st. I have been struck by the similarities between Commissioner Holloway's concerns and recommendations for New York City and the situation in Gloucester. Specifically, Holloway described the significant investments that the New York has been making in water and wastewater infrastructure, to a large extent in compliance with federal and state consent orders. He urged a new EPA enforcement approach that treats governments and utilities as partners, not adversaries. He also stated that: "Enforcement actions far too often target narrow non-compliance in one program area without solid scientific evidence of meaningful public health benefits, or any cost/benefit analysis, or at the expense of the systematic needs of the entire water and wastewater system." He urged, instead, providing municipalities with the flexibility to balance projects among clean water, safe drinking water, etc. and to achieve tangible public health and environmental improvements.

I therefore urge your support for a continued waiver of secondary treatment and consideration of an alternative approach to water quality improvements for Gloucester that builds on local needs and opportunities and that achieves significant water quality, economic, public health, and quality of life improvements.

Thank you for your attention to this testimony.

Response 106

EPA appreciates the thoughtful comments set forth above. EPA also acknowledges the commenter's suggestion that in lieu of secondary treatment, EPA should work with Gloucester to pursue an "alternative approach to water quality investments" that would explore "opportunities for infrastructure investment" in a broad array of alternative approaches to sewer system management and water quality protection, such as, according to the commenter, green infrastructure, satellite treatment, protection of alewife brooks, and many more. While EPA takes no position at this time on whether it would be worthwhile for Gloucester to pursue any or all of the many possible projects mentioned by the commenter, EPA notes that denial of Gloucester's 301(h) modification does not prevent Gloucester from pursuing any additional approaches that might optimize environmental and social outcomes for the City. As stated earlier in this Response to Comments, however, EPA cannot approve the City's 301(h) modification request because it does not meet the applicale criteria in the statute and regulations. *See* Response 1. EPA is charged with administering the requirements of the Clean Water Act as it has been enacted by Congress and cannot ignore the statute in favor of proposed alternative approaches. EPA also does not agree with any suggestion that secondary treatment will not provide important water quality benefits to the waters around Gloucester, as it has done for waters all around the nation. Secondary treatment is far more effective than primary treatment at removing a variety of pollutants, including toxics and pathogens, from municipal sewage. *See* Response 1 (Table 1). This is perhaps epitomized in the benefits to Boston Harbor and Massachusetts Bay that have accompanied upgrading Greater Boston's sewage treatment plant to secondary treatment. *See, e.g.*, https://www.mwra.com/01news/2008/bhpenvironentalsuccess/bhpenvsuccess.htm#:~:text=The%20%243.8%20billion%20invested%20in,the%20nation's%20greatest%20environmental%20achievements .

With respect to two additional comments raised by the commenter: EPA is committed to working with the City to develop a schedule for implementing secondary treatment that will allow Gloucester to manage its various funding priorities as it moves forward with the design and construction of secondary treatment. Finally, EPA is unclear what the commenter means when refering to a need for "advanced treatment in Gloucester's harbor which would facilitate economic revitalization of the seafood processing and other industries needing water and wastewater services," however, as we noted earlier, if a flow increase is approved after the implementation of secondary treatment, the facility may be able to accommodate increased influent from the expansion of existing businesses in, and the arrival of new businesses to, the community. *See* Response 23.

Comment 107.

From Bob Ryan (March 24, 2011). I am here tonight to ask you grant an extension on the waiver for secondary treatment for waste water here in Gloucester. I ask your consideration for several

reasons. First, Congress has determined and evidence shows of secondary treatment provides little environmental benefit for discharges into deep ocean waters. Gloucester is the oldest seaport in the country and it is unique, it's an island. The waste water is discharged to a one mile outflow and it is 90-feet deep. Most of Gloucester families have made their living off the ocean for the last 400 years. The cleanliness and sanctity of the ocean, needless to say, is as important to the residents of Gloucester as it is to the DEP and EPA. Furthermore, the section of the Clean Water Act allows public treatment plants, such as Gloucester, to receive a variance as long as the statutory criteria are met, and Gloucester has met it most recently in the criteria of 2001.

The second reason I am asking for an extension is that the construction of the second plant is cost prohibitive and would place a financial hardship on the taxpayers of Gloucester. It is estimated that the cost of the new plant is in the vicinity of $60 million. An extension would perhaps give the city time to seek relief from the federal government that has historically assisted over 300 Massachusetts cities and towns from 1978 to 1990. The average household in Gloucester is now paying, and this is a little redundant, $1,251 annually. If the city is forced to build a second plant the average household would have to pay $2,570. Gloucester residents are now paying $20 per 1,000 gallons of water and with a new plant that household will be paying 5.4-percent of the annual household income. And I now look into the request of the second treatment plant might be the elderly couple living in a three bedroom, two bathroom subdivision of homes, and a five bedrooms and three bathrooms and the couple was asked to conform. What benefit would it be for the couple that had two additional bedrooms and one bathroom? The additional expense for the couple, I think we all agree would not make any sense.

In closing, I ask that you keep in mind that the water covers 71-percent of the Earth's surface. What if anything is discharged into the Atlantic or the City of Gloucester has not and does not amount to a violation of the Clean Water Act. Not intending to inject any humor into my plea, I would like to say that the DEP and the EPA have bigger fish to fry, namely Bridge Petroleum and the Town of Hooksett, New Hampshire than the City of Gloucester. I request that you extend the waiver for this great and historic city. Thank you for being here tonight and listening.

Response 107

The commenter raises concerns that have been addressed earlier in this Responses to Comments document. First, for a discussion of the Congressional intent behind the Section 301(h) modification process, please see Response 25, above. Second, EPA disagrees that Gloucester is meeting the statutory or regulatory criteria to justify the continuation of the 301(h) modification. *See, e.g.,* Response 1. Third, EPA does not agree with the comment's suggestion that secondary treatment will provide little environmental benefit. *See, e.g*., Response 106. Finally, although the cost of secondary treatment is not a criterion for consideration in determining whether to approve a request for a Section 301(h) modification, EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and the Agency is committed to working with the City to develop an implementation schedule for the design and construction of secondary treatment that takes the City's financial

challenges into account. For a fuller discussion of the costs of secondary treatment and the relationship of those costs to decisions regarding 301(h) modifications, *see* Response 23.

Comment 108.

Jeffrey Stoneberg (March 21, 2011). My wife and I have resided in Gloucester for 30 years. We remember overflows, the closing of Good Harbor Beach near our home, and elected at the earliest opportunity to support and pay for the extension of the sanitary sewer system into our neighborhood.

There is no question that the water and sanitary sewerage situation has greatly improved since we first moved to Gloucester. We have, today, become aware of the possibility that the EPA may deny Gloucester a secondary water treatment waiver at this time and require the building of a very expensive secondary sewerage treatment plant that could, potentially, result in a substantial increase in our sewerage rates, further increase the financial impact of ongoing improvements to improve water quality.

We also understand that there will be a hearing at City Hall on Thursday evening, March 24th on the subject. Unfortunately, we are scheduled to be out of state on Thursday evening. That is why I am writing you today.

We all know that Gloucester has a proud history, but, being a fishing community and also 'end of the line' geographically, it has been, in particular, financially vulnerable to change. We need to look at financial impacts of any action that might be taken. For that reason, my wife Naomi and I urge you to carefully consider all alternatives and choose the path that will result in the greatest 'overall good' for the most sensible amount of capital investment and modification in operations. We count on you to partner with our local officials and community representatives, to be creative and to help our community.

Response 108

EPA acknowledges receipt of these comments, which are raising issues discussed earlier in this Response to Comments document. EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and is committed to working with the City on an implementation schedule for the design and construction of secondary treatment that takes the City's competing financial challenges into account. For a fuller discussion of the costs of secondary treatment and the relationship of those costs to decisions regarding 301(h) modifications, *see* Response 23.

W. Comments Presented at the Public Hearing (March 24, 2011)

After introductions by EPA (David Webster) and Mass DEP (Bryant Firmin), thirty individuals gave oral comments at the Public Hearing on March 24, 2011.

The index of speakers in the order in which they presented, and in which their comments are addressed in this document, include:

- Mayor Carolyn A. Kirk, City of Gloucester
- Dr. Allan Michael, City of Gloucester
- Jack Richard, on behalf of Senator Brown
- Amy Kerrigan, on behalf of Senator Kerry
- Representative Ann-Margaret Ferrante
- Senator Bruce E. Tarr
- Robert K. Whitmarsh, Jr., Downtown Development Commission
- Robert B. Ryan, Cape Ann Transportations
- Katrina Sukola, Surfrider Foundation
- Bob Hastings, Cape Ann Chamber of Commerce
- Susanne Aldensulger
- Rick Noonan, Gloucester resident
- Russell Hobbs, Gloucester resident, "Who Decides"
- Bruce Maki, Gloucester resident, "Who Decides"
- Tyler Gross, Home Style Laundry
- Roger Armstrong, State of the Art Gallery
- Rosalyn Frontiero, "Who Decides"
- John Dugger, Architect in Gloucester
- Ann W. Rhinelander, Gloucester resident
- Dr. C.J. Maletskos
- Barbara Soreng, on behalf of Edward Dalmer
- Doug Smith, Gloucester resident
- Dr. Damon E. Cummings, Gloucester resident
- Peter V. Asaro, Gloucester resident
- Robert Gillis, Gloucester resident
- Suzyn Ornstein, Gloucester resident
- Valerie Nelson, Gloucester resident
- Elizabeth Neumeier, Gloucester resident
- Greg Nowak, concerned citizen
- Betsy Works, Water Advisory Team

Comment 109.

Carolyn A. Kirk, Mayor of the City of Gloucester: Thank you very much. Good evening. Thank you all for being here. I am going to use all of our time, and I'm also going to call one other person forward as part of the City's presentation. I want to acknowledge Senator Tarr who is here, Representative Ferrante, we have representatives from U.S. Senator Scott Brown and John Kerry's office as well. In addition, we have members of our city council.

EPA guests, thank you for being here. Citizens, thank you. Welcome to the beautiful City of Gloucester. Right off the bat I want to address the issue of toxicity and effluent. The conclusions that have been drawn by EPA are based on jar tests, not from testing done at the outfall. So, I want to just make that clear. I thought while listening to the presentation it was a little bit misleading, and we will provide Dr. Allan Michael to explain why jar tests are not necessarily the most accurate indicator. This is one of the key disputes that we have with this denial of the waiver.

Just a little bit of background. Congress determined that discharges to deep ocean waters that provide little environmental damage from sewer treatment plants are qualified for a Section 301(h) waiver. The Clean Water Act specifically adopted this policy in order to allow communities, such as Gloucester, we discharge into deep ocean waters, the waiver option. So, we have been granted at least two waivers with EPA and MassDEP's support since the plant was built in 1985. Despite that, EPA this time around, has denied the city's waiver. So there are a couple things around this and I'll try to work through the remarks and also respond to some of the presentation, but the point was made that Gloucester is one of the last holdout cities without secondary treatment and there was only maybe sixteen out of the entire East Coast that were given waivers. So it's not like we're the last holdout of dozens and dozens and dozens of treatment plants that have been granted waivers that are now starting to need to be eliminated.

The other point I think that EPA makes is that EPA seems to think this is their policy decision to remove the waiver option. But it's not. It is part of the statute. It is a statutory exception in Section 301(h) of the Clean Water Act and as long you meet the nine criteria, much of our testimony that's been written and submitted proves that we have met the nine criteria. And so, to deny Gloucester at this time given that statutory exception which we have no evidence of that statutory exception is temporary. You mentioned earlier that it wasn't meant to be in place forever. Well, it's in the Clean Water Act itself.

So we have submitted detailed technical, legal, scientific and financial arguments to the EPA. I won't go into all the details. I'm going to remind Dr. Allan Michael to talk about the toxicity piece in a little bit more detail.

Regarding oil and grease: EPA has given a limit to Gloucester that they have not given to any other treatment plant under this provision. Most permits, if not all, have no oil and grease limit.

So another piece of our argument is we're being treated unfairly. Why are we being held to a different standard?

In terms of some of the other data that's been used, much of the data that EPA is relying on is old data. We have spent $35 million on EPA and its mandated CSO work, and we're not even done with that project. We have a $20 million rehabilitation going on at our sewer treatment plant. All of these investments that we're making are going to change the conclusions that EPA is coming to today. We have been doing extensive testing. I'll have Dr. Allan Michael review that, but basically we see no environmental problem and therefore no environmental benefit from the upgrade.

In the past two years we have made significant investments. I just mentioned some of those. Those projects, the permanent financing for those projects has just begun. The debt schedules for the sewer treatment plant and CSO is 20 years long. So to impose secondary treatment on the city, we're getting a pancake effect which is the stacking of all these projects, which is why those sewer rates are projected to double because of the cost of secondary treatment. We have so many other urgent infrastructure needs and the households of Gloucester, the citizens of Gloucester, the city of Gloucester; we are stressed to the limit. We cannot afford secondary treatment in this city.

There's another aspect of this that makes it painful. When the Clean Water Act was adopted the federal government provided 75-percent of funding for communities to build secondary treatment. It is a myth to say that the City of Gloucester turned our back on that funding. We did not. We got a waiver. And then we got another waiver. And now that federal funding is gone. It has disappeared. And we, the rate payers, will be burdened with the cost. The perspective I think that we're missing here and I want to convey to the EPA is we cannot as a city look at infrastructure issues in isolation. You have the luxury of just looking at secondary treatment. We have to look at CSO. We have to look at the sewer treatment plant. We have to look at storm water regulations. We need to look at drinking water. We need an overarching infrastructure master plan that we can bring to EPA and say, see this from the city's point of view and help us figure out what the priorities are.

I want to close by saying that all we're asking for is a reasonable balance. Again, we submitted the scientific, technical, legal, financial arguments, but we need a policy that is reasonable. We believe that any future investments that we can make are so much better spent on real projects that help with CSO, which helps our beaches, which helps our enjoyment of our coastal waters, and that outfall pipe that's more than a mile out, you know, you started to say the key is the dilution effect, the jar is not tide dilution and the Atlantic Ocean is very high dilution and that's why that waiver provision is in the Clean Water Act for exactly like a city such as Gloucester.

The last thing I want to close on, is the Hooksett, New Hampshire sewer treatment plant is a secondary treatment plant.

We have 62 miles of coastline, fragile marshlands that we are handpicking tens of thousands of disks off our beaches and our coastal waters. So, again, we need perspective. I want to thank you for the opportunity and the time that you've given me. I'd like to have Dr. Allan Michael just address some of the technical pieces on behalf of our city. Thank you.

Response 109

This comment by [former] Gloucester Mayor Caroline Kirk raise many issues, all of which are addressed earlier in this Response to Comments. *See* Responses 1-65 (providing detailed responses to Gloucester's written comments).

With respect to the specific issues raised in this comment:

- The commentor suggests that the conclusions with respect to toxicity that have been drawn by EPA "are based on jar tests, not from testing done at the outfall." *See* Responses 10 and 18 (for EPA's response on the application of WET tests).

- The commentor suggests that: "Congress determined that discharges to deep ocean waters that provide little environmental damage from sewer treatment plants are qualified for a Section 301(h) waiver." EPA would state it differently. Specifically, Congress decided that publicly owed treatment works could qualify for a Section 301(h) waiver if they satisfied the criteria spelled out in Section 301(h) of the statuate and in the relevant regulations. (Please note that EPA is using the word "modification" and "waiver" interchangeably in this document.) *See* Response 25. *See also* Response 1 (setting forth the statutory and regulatory framework for 301(h) modification decisions).

- EPA is not certain what point the commentor is making by raising the number of other entities that still have 301(h) waivers, but notes that only a few very small waste water treatment plants still have 301(h) waivers (most of which discharge under 1 MGD) in New England. *See* Response 1, footnote 3. Moreover, how many other communities may or may not have been granted waivers under Section 301(h) is not the issue. The issue is whether Gloucester satisfies the applicable statutory and regulatory criteria. *See* 33 U.S.C. § 1311(h); 40 CFR Part 125, Subpart G.

- EPA does not agree with the the commentor's suggestion that "EPA seems to think this is their policy decision to remove the waiver option. But it's not. It is part of the statute." Like the commenter, EPA does *not* regard its decision on the Section 301(h) waiver request to be a "policy decision." Instead, as the comment indicates, EPA's decision under Section 301(h) involves the application of legal requirements to the facts of the situation. In determining whether to issue a 301(h) waiver request, EPA must apply the statutory criteria for a 301(h) waiver as set forth in the Clean Water Act and the pertinent regulations. As stated in this Response to Comments document, and in the 2010 Tentative Denial, EPA has found that Gloucester does not meet the criteria for a renewed 301(h) waiver. *See*

Response 25 (legislative intent for CWA 301(h)); Response 7 (application of 301(h) criteria) and Response 1 (statutory basis for the denial of this 301(h) modification). EPA also agrees with the commenter that there is no particular time limit for how long a community may qualify for a Section 301(h) waiver. Thus, the issue is not how long Gloucester has had a waiver, but whether the City meets the Section 301(h) criteria. As EPA has explained, the Agency has determined that the City no longer satisfies those criteria.

- The commentor argues that Gloucester is being treated unfairly because other wastewater treatment plants do not have oil and grease limits. EPA disagrees. *See* Response 11 (discussing appropriateness of the oil and grease limit for the Gloucester permit as well as discussion of other WWTPs) and Response 50 (discussing appropriateness of oil and grease permit limit).

- The commentor suggests that EPA is using "old" data. EPA disagrees and is basing its determination on all relevant data and has determined that, based on that data, the Section 301(h) criteria are not being met. *See* Responses 10 (WET); 11 (oil and grease); 12 (total petroleum hydrocarbons); 13, 14, 19 (bacteria) and 16, 17 (protection of a balanced indigenous population of fish, shellfish and wildlife).

- The comment asserts that there is "no environmental problem," but EPA must disagree. *See generally,* Responses discussing violations of water quality standards 10 (WET); 11 (oil and grease); 12 (total petroleum hydrocarbons); 13, 14, 19 (bacteria) and 16, 17 (protection of a balanced indigenous population of fish, shellfish and wildlife). *See also* Responses 42, 27 (discussing environmental harm caused by water quality violations and Gloucester's lack of secondary treatment), and Response 1, Table 1 (illustrating improved pollutant removal by secondary treatment as compared to primary treatment).

- The commentor notes that the City has spent significant amounts of money on treatment plant upgrades and the ongoing CSO work. EPA agrees that Gloucester has had to spent significant resources to make necessary upgrades to its treatment plant and sewer system. This does not, however, obviate the need for the design, construction and implementation of secondary treatment. Furthermore, EPA notes that Gloucester has now successfully completed its CSO obligations, though EPA understands that the City is still paying the costs of the CSO work. *See* generally, Responses 3 and 4. As stated in many of EPA's responses to comments, the Agency recognizes the expenditures the City has had to make for improvements to its sewer system and treatment plant and EPA is ready to work with the City to develop a schedule for implementing secondary treatment that takes account of the City's financial circumstances.

- The commentor suggests that "[i]t is a myth to say that the City of Gloucester turned our back on [construction] funding [for secondary treatment]" and

suggests that because the City was granted two waivers in the past, it is now unfair to require the City to build a secondary treatment facility. EPA has not meant to suggest that the City shunned previously available federal funding and has only stated the fact that the City did not seek federal grants to support construction of secondary treatment facilities and instead sought a Section 301(h) waiver. EPA also understands that the City was previously granted a waiver under Section 301(h), but EPA does not agree that this fact makes it unfair for EPA to deny renewal of the waiver now. EPA must respond to Gloucester's request for renewal of the waiver based on whether the City satisfies the applicable statutory and regulatory criteria and, as explained in this Responses to Comments document and in the 2010 TD, the Agency has determined that Gloucester does not meet those criteria. *See* Response 26.

- The commentor suggests that the City has a host of competing priorities that require its attention and funding. EPA understands this reality of municipal budgets and will work with Gloucester on a schedule of compliance that reflects consideration of other municipal priorities in addition to secondary treatment. *See* Responses 1, 23 and 93.

- The commentor refers to an issue that occurred with the Hooksett, New Hampshire wastewater treatment plant. EPA notes that issues with another wastewater treatment plant are not relevant to its decision on whether to require Gloucester to implement secondary treatment. Furthermore, EPA does not agree that the identified issue supports any argument in this case that secondary treatment is not necessary to meet water quality criteria and improve environmental outcomes.

Comment 110.

My name is Allan Michael. I did my degree in Marine Biology, spent five years at Woods Hole, three years on the staff of Yale, and I moved up here to join the staff of the University of Massachusetts. I've done the monitoring for the city for the last 20 years. The way it was denied on four points: oil and grease, fecal coliform, biological oxygen demands and the effluent toxicity test.

Oil and grease: We've measured oil and grease, we've measured at the treatment plant, and also we've measured out in the ocean after it's been diluted at least 60 to 1 when it comes out the diffuser. There'll be no violations out there. We did 3,000 measurements over 14 years and EPA agreed to let us drop measuring oil and grease out by the outfall because we simply weren't finding any. There were isolated recently, there were violations at the treatment plant and this was due to runoff after major storms. We have just spent $35 million separating storm water from the sewer and there have been no violations since 2009. So, that's the oil and grease issue.

Fecal coliforms:: Do you know how many beach closings we've around here? Not many. The fecal coliforms, is much the same thing. There's never been a beach closing because of the

treatment plant. There have been beach closings because of runoff after major storms. There was a period when the plant was not functioning properly, the chlorination system wasn't working and we did actually have occasional violations out in the ocean there. Again, this has been fixed and in the last couple of years there haven't been any violations out at the outfall.

Biological oxygen demands: That's the demand of oxygen from the effluent itself. We discharge into a biological and rich area, in fact, the effluent is discharged into 90-feet in the photic zone which is actually an oxygen producing area. I don't know if you know that half of the oxygen on the planet is produced by phytoplankton. There has never, never been an issue of oxygen out at the outfall. I've been measuring oxygen out there from the surface to the bottom for 20 years. There has never been any significant depression of oxygen.

Finally, the effluent toxicity test. This is when you take a sample of the effluent and put it in little containers and see how many animals survive after 48 hours. There are several problems with this test. One of which you should not allow to oxygenate it, unless the oxygen gets down to 4 milligrams per liter. I ran a statistical test on all the tests that have been done over the years, 46 tests, because there is significant correlation between the levels of oxygen in a test chamber and mortality. Secondly, the test is extremely variable. Every year toxic is sent out to all the labs around the country that do this test and the results I have shown from 2005, the results vary by factor of 15. When we did our own toxicity evaluation of our effluent, we sent one test to one laboratory and another test to another laboratory. We passed at one and failed at another. The third problem with this test is that it's done at 20 to 25 degrees centigrade. Where we discharge, the temperature of the water never gets above 10 or 11 degrees and that's in August, it's in 90-feet of water, it never gets above 10 or 11 degrees. If you raise the temperature from 10 or 11 degrees to 20 or 25 degrees, you increase the toxicity of the ammonia by a factor of 3. So we have very, very serious reservations about this test; and secondly, I don't think it should replace 20 years of monitoring data of the ocean itself. When we got the waiver, a major program was designed in cooperation with the EPA. It cost us $500,000 a year in the early stages, and we measured everything: oxygen, total suspended solids, oil and grease, all the things in the water column. More importantly, we measured the contaminants in the sediments twice a year, and looked at the animals that lived in the sea floor. I take samples, eight inches a square, and eight inches a square I get 1,000 animals of 70 species. These animals don't move. They're very sensitive to the environment around them. There's been absolutely no change whatsoever at the outfall in 20 years.

Another final point is that going to secondary isn't necessarily a guarantee that everything is just fine. It's an issue of what. There's no such thing as no discharge whether you have secondary treatment, tertiary treatment or primary treatment, something is getting into the water. Now, I'm willing to bet that certain secondary treatment plants in this area discharging into different conditions are having some effect on the local environment. Salem, for example, is seven times the size of Gloucester, discharges into 30-feet of water in Salem Sound; although it's secondary treatment, I strongly suspect that if I went down there and did the same kind of monitoring, I'd find some effect. So that basically covers it.

Just for a final thought. There's nothing wrong with water quality around here. When we do the effluent toxicity test, I have to find clean ocean water for the control animals. I get the clean ocean water from the Cape Ann Marina in the Annisquam River and we've never had any problems in 46 tests in over 10 years.

Response 110

The commenter raises several issues.

The comment states that the 301(h) modification was denied in the 2010 Tentative Decision ("TD") document on four points: "biological oxygen demand," oil and grease, fecal coliform, and effluent toxicity tests. This is not quite correct, as the TD relied on the latter three parameters, but not on "biological oxygen demand" (or on levels of biochemical oxygen demand or dissolved oxygen). *See* TD, pp. 10-12. (When it says "biological oxygen demand," EPA believes the commenter is referring to "bio-chemical oxygen demand." *See id. See also,* 40 CFR §§ 133.101(d) and 133.102(a).) The discharge met the regulatory requirements for biochemical oxygen demand (and for dissolved oxygen) in 2010 and has continued to do so; however, as discussed more fully in this RTC and summarized here, the Gloucester WPCF's wastewater discharges continue not to satisfy water quality standards for: Whole Effluent Toxicity ("WET") (*see* Response 10), Total Petroleum Hydrocarbons ("TPH") (*see* Response 12), oil and grease ("O/G") *(see* Response 11), bacteria limits for shellfishing (*see* Response 14), and bacteria limits for primary contact recreation (*see* Responses 13 and 19). The City also fails to meet the requirement that the biological impact of the discharge must "allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish and wildlife… at and immediately beyond the zone of initial dilution of the applicant's modified discharge." 40 CFR § 125.62(c)(2)(i) (*see* Responses 16 and 17). *See also* Responses: 6, 9-15, and 25; TD, pp. 23-24 (finding that application for Section 301(h) waiver fails to demonstrate that water quality needed to assure protection and propagation of a balanced indigenous population of fish, shellfish and wildlife will be maintained). As a result, the permit for the WPCF does not qualify for a modification of secondary treatment-based effluent limits under CWA § 301(h).

Oil and Grease: The commenter asserts that there will be no oil and grease water quality exceedances in the receiving water, and the WPCF's discharge had only occasional exceedances which were limited to the plant's disinfection system not functioning properly. EPA has responded to these comments in Responses 11 and 12, above.

Fecal Coliform Bacteria: The commenter asserts that there will be no fecal coliform bacteria exceedances in the receiving water in the future, that the WPCF's discharge previously had only occasional exceedances limited to when the plant's disinfection system was malfunctioning, and that only when that happened were there bacteria

violations in the ocean. The commenter also asserts that this problem was corrected and there had been no exceedances at the outfall in the past few years (at the time of the comment in 2011). EPA disagrees. The City's 2001 NPDES permit included effluent limits based on a CWA § 301(h) modification. This permit also required development of a "Chlorination System Report" to explain to the permitting agencies how the disinfection system would be operated to bring the WPCF into compliance with total residual chlorine and bacteria limits. The 2001 modification was granted in anticipation that the WPCF's discharges, which received primary treatment, would achieve the permitted limits and satisfy water quality standards. This has not, however, turned out to be the case. With regard to fecal coliform bacteria, recent WPCF discharge monitoring data indicates ongoing permit exceedances.[119]

Biological Oxygen Demand (i.e., biochemical oxygen demand or "BOD"): EPA has already addressed this comment above.

Whole Effluent Toxicity: The commenter asserts that there are several problems with the WET test protocol. EPA disagrees with the commenter's assertion that the WET test is invalid. EPA has responded to the specific points raised in this comment in Responses 10, 18 and 53, above. *See also* Responses 16 and 17.

Comment 111.

Jack Richard, Constituent Services Counsel to United States Senator Scott Brown reading from letter written to Curt Spalding.

Additional comment by Mr. Richard: And if I might be permitted a personal observation for the record also. This is a very serious situation but you folks here in Gloucester have got the right people, very serious people on your side. Those that you have elected, and that includes Representative Ferrante, Senator Tarr, Mayor Kirk, they are all doing a very, very great job here for you. They are very well informed and they are working very hard to achieve the commonsense results that Senator Brown has asked for. So, for the record on behalf of Senator Brown, I want to thank those three electeds for the great work they're doing. Thank you very much.

Response 111

EPA acknowledges this comment and it is included in the Administrative Record. *See also* Response 96, responding to the written comments from [then] Senator Brown.

Comment 112.

Amy Kerrigan, Representative for Senator John Kerry, reading a letter to Curt Spalding.

[119] *See* Appendix A showing current exceedances for fecal bacteria (as well as oil and grease, TPH, and WET through July 2021).

Response 112

EPA acknowledges this comment and it is included in the Administrative Record. *See* Response 93 responding to the written comments from [then] Senator Kerry.

Comment 113.

Representative Ann-Margaret Ferrante: Thank you, and thank you for coming to Gloucester to hear us tonight. I'm getting confused as I'm sitting in the back and I'm trying to follow the presentation tonight and trying to follow what's happening with the denial of the 301(h) permit. And the reason I'm confused is because if I understand correctly, in 1985 and in 2001 waivers were granted. And waivers aren't something that's granted just because somebody decides, well, we want to be nice to Gloucester this week. Waivers are granted because there's a criteria in the law that says if you meet this criteria, then you are entitled to a waiver.

So let's go back to 1985. In 1985, we did not take a pipe a mile out and drop it into 90-feet of water, which is part of the criteria that warrants a waiver. And in 2001, if I remember correctly, we didn't begin to separate the sewer and the outfall. We didn't commit to nor perform $55 million worth of waivers, but we were granted the waivers nonetheless. So now, I'm trying to follow the logic of having performed $55 million worth of work, improving our water quality, and being told that after all of that expense and all of that improvement, somehow we're failing worse now than we were then. I mean help me if anybody understands it better than I do?

So that's my first question. And my second question is it seems that if I abandon that logic for a minute, what I'm hearing is we granted you two waivers, City of Gloucester. We did you some sort of favor, which I don't see because it seems as though it's something that's spelled out in the law, and we just don't feel like doing it again. You know why? Because 99-percent of the communities don't fall into that waiver and you need to be like everybody else. Well, guess what? For $60 million I'm not hearing from my community that they want to pay that price to be like everybody else.

And maybe, maybe if the question was reversed, maybe Salem that has secondary treatment who only falls in 30-feet of water, would want to be like us? I mean, that's what I would think if I were to ask the question to Salem. So, I don't want to be penalized as a community because my community is truly unique. If Salem, a city only twenty minutes away, also on the coast, doesn't fall or fit the same criteria that Gloucester fits, then why should we have to fit into Salem or any other community's mold? Why aren't we allowed to fall within the criteria of the exemption and to be granted that exemption as we were in the prior years when we weren't, quote/unquote, as clean as we are now?

The second point that I want to make is I heard Dr. Michael give testimony, and he appears to be credible, and there seems to be a dispute. I hear the Mayor give her testimony and there appears to be a scientific dispute. So I'm not sure that we can say with certainty that we can substantially improve water quality, habitat or biodiversity by plummeting $60 million more dollars into

secondary treatment. But here's what I do know. I talked to a lot of my constituents. I talked to my mother who is here tonight. She's in her 60s. She's blind. She's disabled. She lives in her home. And I hear them say, can we really afford to do this and is it absolutely necessary? Because if we do this, we don't know that we will be able, when on a fixed senior's income, without the opportunity to earn any more dollars pay for the water bill. And I want to stress that and I want to put a face on that because when I hear, again, the Mayor and Dr. Michael speak, the collection that I have is, can I look into that senior's face, whoever it may be, and say, well, there's kind of certainty that we need to do this and that kind of certainty I am going to tell you that you need to move from your home and move someplace else that's more affordable because you can no longer stay in your home. I am not prepared to do that as an elected official when I do not hear the argument of certainty.

In the comments that were given tonight, I heard the quotes when asked, if plants with secondary treatment consistently pass the tests, and I thought the phrase that was given in response was very clever. Well, there's less failure. So I guess if it's less failure, then there is still failure.

And again, is that a high enough standard to tell somebody you're going to pay the highest rates of anybody. You're already paying that, but now we're going to double that without certainty.

I also heard that the permit needs to be in compliance. Well, again, going back to the 301(h) waiver, it appears that we meet that criteria because there's a history of having met that criteria in less cleaner times. But there's also a criteria -- I'm the State Representative from this area. I'm also the Vice Chair of the Environment Natural Resources in Agriculture Committee. I'd like to think that with that title there's some sort of acknowledgement of understanding environmental need. Okay? But there also has to be somebody who legislates environmental laws. I understand this well. There also has to be a criteria of what is reasonable? What is feasible? And what is justifiable? And a lot of times I'm learning in government, there are agencies who seem to think that there's this ideal, this Cadillac version of everything a community should have. Why, because that's the ideal. In a perfect society, under a perfect vision, that's everything we would want to have. Well, there's a difference between with what we would want to have and a difference between what is necessary and what is affordable, and I'm not seeing that balance in this particular discussion.

Finally, one thing that I was glad to hear tonight is that the EPA and the DEP want to work with the City of Gloucester. But I would like to see more of that work with. Right now it seems that there's these disagreements that are going back and forth between the city and the EPA and the DEP and there needs to be more of a dialogue. Instead of talking about realistic time lines and ideals and how things at some point in time may be affordable, instead what we're seeing, or how it appears to me is this pancaking of you have to do this, you have to do this, you have to do this, you have to do this, you have to do this, there's still uncertainty, but you have to do this, you have to do this, you have to do this, and unfortunately, your community has to be bankrupted, people have to be displaced from their homes because you have to do this, you have to do this, you have to do this. And to me when you hear that you have to, you have to, you have to, you

have to, you have to so many times, I'm not hearing any dialogue that's being taken in from the other side digested and appreciated.

In conclusion, I'd like to say this. Again, there's the exemption. Let's look at the criteria. Let's focus on the criteria. Let's see just how unique, and I think we're going to find that Gloucester is pretty unique to already have been given two of these waivers leading back to 1985 and 2001. Let's look at the legal justification of that exemption and how we fit into it and let's grant the waiver. Thank you.

Response 113

EPA appreciates and has carefully considered the above comments from State Rep. Ferrante. These comments raise several issues.

- EPA agrees with the commenter that the focus ultimately must be on the criteria that apply under Section 301(h) of the Clean Water Act ("CWA") for determining whether a sewage treatment plan can qualify for a waiver from the generally applicable secondary treatment requirements of the statute. EPA also agrees with the commenter that EPA previously found Gloucester to have met the criteria and (twice) granted the City a waiver. EPA does not agree with the commenter, however, that this somehow indicates that the City still meets the criteria. To the contrary, EPA has explained in prior Responses, *see, e.g.,* Responses 10 – 17, why it has determined that the City no longer satisfies the Section 301(h) criteria.

  The comment urges that the Gloucester's modification renewal request should be granted because its prior requests were granted *and* the City has taken steps to improve its sewer system in the meantime. Yet, this does not follow. Although Gloucester has made upgrades to its primary treatment plant over the years, and has also made necessary improvements to its sewer system to abate untreated combined sewer overflow discharges, these positive steps do not eliminate or replace the requirement that if the City is to avoid the CWA's generally applicable requirement that publicly owned treatment works ("POTWs") provide secondary treatment, s*ee* 33 U.S.C. § 1311(b)(1)(B), then it must apply for and obtain approval for a Section 301(h) modification with every 5-year permit renewal. Although EPA approved two prior modification requests by Gloucester and the City subsequently made certain improvements to its primary treatment plant and completed sewer separation work to reduce or eliminate untreated combined sewer overflow discharges to Gloucester Harbor, the City's primary treated wastewater discharges still have to satisfy the criteria of Section 301(h) if Gloucester is to qualify for a waiver. Having reviewed the City's most recent application for renewal of its Section 301(h) modification, EPA determined that Gloucester no longer meets the criteria for a Section 301(h) modification for the reasons set forth in this Responses to Comments document and the 2010 Tentative Decision,. *See, e.g.,* Responses 1 (setting forth the statutory and regulatory requirements that apply to 301(h) modification requests); 10 (WET), 11 (oil and grease); 12 (TPH); 13, 14, 19 (bacteria); 15-17 (balanced indigenous

population). As a result, EPA has denied the City's request for renewal of its Section 301(h) modification.

- EPA is not entirely sure that it understands the intent of the comment with regard to Salem, MA, but the commenter seems to suggest that EPA might have decided to deny Gloucester's modification request in order to push the City into a grouping with other municipalities, such as Salem, that already provide secondary treatment. The commenter then suggests that Gloucester's circumstances are "truly unique" and it should not be lumped together with Salem. EPA did not, however, deny Gloucester's Section 301(h) modification renewal request in an effort to shoehorn Gloucester into the same group as other nearby municipalities that provide secondary treatment. Rather, EPA based its decision on the City's modification renewal request solely on the applicable facts and legal requirements that pertain specifically to Gloucester. In other words, EPA's decision was based on a case-specific analysis based on Gloucester's application, as is evidenced in EPA's responses to comments.

- The commenter also raises issues concerning the high cost of secondary treatment, as well as other sewer system improvements, and whether these combined costs may be unaffordable for the community or some individual ratepayers. In this vein, the commenter expresses concern that some ratepayers, including some senior citizens, may be forced out of their homes by sewer rate increases associated with secondary treatment. EPA takes these concerns very seriously and provides this two-part response. First, the cost and affordability of secondary treatment are not among the criteria that Congress specified are to be considered in determining whether to grant a Section 301(h) modification request. *See* Response 23 (cost of secondary treatment and increases to rates are not factors EPA may consider when making decisions on 301(h) modification requests.) Second, EPA can, however, take affordability into account in developing a workable compliance schedule by which Gloucester will implement secondary treatment. EPA is committed to working with the City to develop such a compliance schedule.

- The commenter questions whether secondary treatment is "absolutely necessary" For all of the reasons set forth in the Response to Comments document and the Tentative Decision, the answer is yes. See also, Responses 42, 27 (discussing the environmental impact of the WPCF.)

- The commenter also raises the concern that even if secondary treatment is provided, there will not be absolute certainty that all effluent tests will be met and that, as a result, paying for secondary treatment may not make sense. EPA does not agree with this comment. If the criteria under Section 301(h) are not satisfied, then secondary treatment is required. Furthermore, more stringent limits are applied to secondary treatment than to primary treatment and the former removes far more pollutants from POTW effluent than does the latter. *See, e.g.,* Response 1 (Table 1). A secondary treatment plant, like any type of treatment plant, must be properly operated and maintained to ensure that it meets its permit limits. If it is, then the treatment plant

should both meet its permit limits and discharge much lower levels of pollutants into the water.

- The commenter questions whether the need for "permit compliance" is being appropriately applied to this matter, and expresses concern that requiring secondary treatment is calling for a "Cadillac" response to water pollution control. Under the Clean Water Act, Gloucester, like all municipalities with wastewater treatment plants, has a responsibility to comply with the provisions of its NPDES permit and the provisions of applicable laws and regulations. *See* Response 1 and the Tentative Decision. EPA is not asking for any level of compliance beyond what applies to all municipal dischargers. Moreover, secondary treatment is not a "Cadillac" response to water pollution control; it is the baseline level of treatment required for POTWs around the nation under Section 301(b)(1)(B) of the statute.
- EPA agrees with the commenter that dialogue between the City, state and EPA is important. Since the public hearing, EPA and the MassDEP have met with the City on many occasions and EPA again emphasizes its willingness to work with Gloucester on a reasonable schedule of compliance.

Comment 114.

Thank you very much and good evening. I am State Senator Bruce Tarr. I am the minority leader of the Massachusetts State Senate. I am incredibly proud to represent the most important fishing port in the Commonwealth of Massachusetts and in the United States of America. And I say that to you tonight to point to the fact that this is a community full of people who understand the critical importance of protecting the natural environment and who would do nothing to betray that and who come to you tonight with that good faith of environmental stewardship to ask you to speak to us in a conversation about practicality and commonsense. And I suggest to you that the fact that you are here, deserves our thanks. Because were you not here would indicate that you did not care about the impacts of your decisions and the ramifications of the denial of a 301(h) waiver. So I appreciate that fact and I know that all of us in this room here tonight do.

So what many of us want to talk to you about here tonight is the issue of practicality and the issue of commonsense. And so we begin with a proposition that the 301(h) waiver exists for a reason. If every community were able to meet the articulated standards of regulation and statute, we would not need a waiver process to begin with. So following from that premise, the waiver must have an application and must have a necessity. And given the circumstances, we would ask you to look at the totality of the circumstances involved in this situation to make your determination and one which we think the evidence points to being clearly the granting of the 301(h) waiver.

What do I mean by that? We've heard scientific evidence tonight that would indicate that when you look at the totality of the circumstances that there is no environmental damage being done by the effluent being discharged by the City of Gloucester. Now, is that to suggest that in a scientific abstract there is not a concern about the concentrated effluent that might be found in a

jar full of material intercepted from the pipe before it's discharged into the marine environment? Well perhaps there is and perhaps we need to speak to that, but in the totality of the circumstances we ought to speak to the fact that Gloucester is working very hard to meet its responsibility to be a good environmental steward. And let's think about the fact that this is a community that invested $35 million dollars to separate its combined storm water overflows so that we could be good environmental stewards and ensure the appropriate treatment of the water that leaves the plant, which by the way happens to be located next to my home.

In addition to that, this is a community that is in the process of investing an additional $20 million to evolve the plant to a state-of-the-art position that by the way responds to the technology available at the time and a technology that is likely to change considerably over the duration of the next waiver once we've been successful in convincing you to grant it.

Now, in addition to that, this is a community that did not say merely trust the assertions that we have made. This is a community that invested $3 million to prove that the improvements that it's making are worthy of your approval and the environmental stewardship that each and every one of us feels toward the marine environment. And so in that totality of circumstances, when we look at this waiver in context, I think it is fair to say that the denial of the waiver will stop cold in its tracks the evolution of this community's septic treatment system and prevent it from being an innovator, prevent it from being able to move forward and rather than that, will mire us in potential litigation in years of dispute and render us at the verge of economic distress.

Now, coming back to what I said originally. If it's true that Congress intended the waiver to be able to address these kinds of problems, then it must also be true that Congress intended the waiver to be used to avoid the adverse circumstances that I've explained and to produce the beneficial circumstances that the granting of a waiver would result in. And by that I mean we always have to ask ourselves serious questions and at least one that I want to talk to you about tonight with regard to these kinds of waivers. And that is, is the regulatory process intended to be one which is punitive in nature or one which is intended to engender and foster compliance and environmental protection.

There is one answer to that question in this case. And that is if we all believe, and I will recognize the tremendous work that Senator Brown and Senator Kerry have done to help us with this discussion, they believe, we believe and we hope that you believe if the purpose is to create environmental compliance to advance the state-of-the-art, to give environmental protection the kind of good standing in the minds of the population that it deserves, then the conclusion is that the waiver should be granted to allow us to continue to work on the evolutionary path that this community has been about since the original waiver was granted in 1985.

Now when you look at that think about what $60 million dedicated to a project that will have at best, marginal environmentally sensitive or beneficial incremental benefits would do compared to the city's desire to continue to improve its drinking water treatment, and this is a community that is no stranger with those difficulties and those threats to public health, think about what it

would do to distract the community from a number of environmental improvements that need to be made even around our protection of our fresh water drinking sources which are critical in environmental concern because they address one of the most basic needs of human life the need to have safe and clean drinking water. And we need to look no further than going home to our televisions tonight and seeing what's occurring in Japan when drinking water is threatened to understand how critically important it is that we be allowed to continue to protect ours.

And so when you look at those totality of circumstances and understand that $60 million would be distracted or diverted from protecting our drinking water doing other necessary environmental improvements and, and would double the rates in this community which are already substantially higher than the $580-plus dollars that Jack made reference to earlier tonight which are the statewide average and, and impose a $1 million additional operating cost on a municipal budget that can ill afford to sustain it particularly when this community is working very hard to put its financial house in order not for today but for the future as well, as it says above this stage.

I think the totality of the circumstances dictates that the waiver be granted, that the community be given the opportunity not by threat of punishment, but by the encouragement of collaboration to move forward and improve treatment as it has been since the waiver was granted, to look towards future opportunities to do it right and to do it better and to move forward, and to engage in one of the things that we do best in this city and that is be unique and be innovative and work with all of you, not only to settle for the statuesque because that's not why we seek this waiver. But to reach for something better perhaps than any of us can even envision at this moment in time. That's what Gloucester is about. That's what I hope the environmental regulatory process will prove itself to be about as we move forward. And that's why I'm here tonight to ask for your approval of the wavier.

Now, before I sit down, which many here will tell you is very hard for me to do, -- I want to recognize our city council members who are here tonight as well. Council Vice President Sefatia Romeo Theken, City Councilor Joe Ciolino, City Councilor Curcuru, they are here tonight because they care as well and are joining with our great elected officials, like Senator Brown and Senator Kerry and Representative Ferrante and Mayor Kirk, I do have a letter to be able to present to you from the legislative delegation, and rather than read it as wonderful I think our pro's is, I've spared you that, and would suggest to you that there is fallibility and there is not certainty and I offer you as evidence of that that I have spend a good part of the last two weeks trying to figure out how to remove eight million pieces of secondary treatment from the beaches of New England.

And that only testifies to the fact that there is no perfect solution. But what there is, is a community that believes in its ability to proffer these challenges, a community that has put its money where its mouth is finding $35 million for CSO's, $20 million for plan improvements, $3 million for monitoring in budgets that are incredibly difficult not because it wants to walk away, but because it wants to do the right thing, and for us to do that we need you to do the right thing. I appreciate you being here tonight and listening to us. I pledge my efforts to work with you and

everyone in this room to find that right solution, not just the solution that comes by default. Our environment's too important to default. The integrity of our laws is too important to default. We don't want to do that. And we don't want you to either. We want to be partners and we need you to act accordingly. Thank you very much.

Response 114

EPA has carefully considered State Senator Tarr's thoughtful comments. EPA also appreciates the spirit in which these comments are presented and both the Senator's and the City of Gloucester's recognition of the importance of water quality protection and their support for efforts in that direction. At the same time, EPA recognizes that Senator Tarr expresses a number of concerns about whether Gloucester should be required to move to secondary treatment and EPA responds to those issues below.

- First, the commenter suggests that it is, or may, not be practical for Gloucester to provide secondary treatment and that the waiver process under Section 301(h) of the Clean Water Act recognizes the issue of "practicality" because "[i]f every community were able to meet the articulated standards of regulation and statute, we would not need a waiver process to begin with." This comment, however, misunderstands the purpose of the Section 301(h) modification provision of the statute. The waiver process was not created to allow POTWs that argue they are *unable* to meet secondary treatment requirements to avoid having to do so. Rather, Congress enacted Section 301(h) of the statute to allow for a modification of the generally applicable secondary treatment requirements only for POTWs who demonstrated that they could meet all the applicable criteria under Section 301(h) and, therefore, would adequately protect water quality without secondary treatment. For two permit cycles, Gloucester was able to make such a demonstration, but with its last permit application, it was not. *See* Response 1.

- Second, the comment suggests that discharge of the City's primary treated effluent causes no environmental damage. EPA cannot agree that this is the case, as is discussed in a number of the Responses to Comments already presented in this document. *See, e.g.,* Responses 10 – 17, 42 and 27.

- Third, the commenter urges EPA to consider its position in the context of "the totality of the circumstances," including the cost and affordability of secondary treatment for ratepayers, as well as the money already spent by the community on upgrades to its sewage treatment plant and its sewer system (to improve the quality if the WPCF's primary treated effluent and reduce combined sewer overflow discharges ("CSOs")). In a similar vein, the commenter suggests the installation of secondary treatment will divert funds away from needed improvements to the City's drinking water system and will raise already high sewer rates to even higher levels in a City strugging with budgetary issues. EPA takes these comments very seriously but cannot agree they provide a basis for approving the City's waiver renewal request. While recognizing and

acknowledging the City's investments in sewer system and treatment plant improvements, EPA cannot decide about whether Gloucester satisfies the Section 301(h) criteria based on the amount of expenditures previously undertaken by the City to meet other sewer system needs, the cost of providing secondary treatment, the effect expenditures for secondary treatment would have on future sewer rates, or whether such expenditures would divert funds away from improvements to the drinking water system. Such considerations are plainly not among the criteria spelled out for EPA consideration under Section 301(h) of the statute. *See also* Response 23 (EPA does not factor sewage treatment plant costs into decision-making on 301(h) modification requests). That said, EPA has also repeatedly stated that it will work with Gloucester to establish a schedule of compliance for implementing secondary treatment that takes appropriate account of the cost of secondary treatment, competing municipal infrastructure priorities and ratepayer effects.

- Fourth, the commenter suggests that the City would "evolve the plant to a state-of-the-art position" if the Section 301(h) modification is renewed, but the primary treatment plant is simply not a state of the art sewage treatment plant. This is not to say that the City is not doing the best it can with the less advanced technology that it has in place, but it is not state of the art. The commenter further states that "the denial of the waiver will stop cold in its tracks the evolution of this community's septic treatment system and prevent it from being an innovator …." EPA is not sure what this comment is referring to because providing secondary treatment would be an advancement over the current primary treatment plant.

- Fifth, the commenter also seems to question the utility of WET tests and the WET testing protocols. EPA has responded to such comments in prior responses. *See, e.g.,* Responses 10 and 18 , 53 (WET testing and WET testing protocols).

- Finally, the commenter expresses concern that the regulatory process not be carried out in a "punitive" manner and that it should instead foster environmental protection and compliance. EPA can assure the commenter that there is nothing punitive about EPA's decision on the City's request for renewal of the Section 301(h) modification. The decision is simply based on a site-specific assessment of the data under the criteria specified in Section 301(h) and the relevant regulations. Moreover, implementation of secondary treatment will lead to improved environmental protection and permit compliance.

Comment 115.

Robert Whitmarsh, Downtown Development Commission: My name is Bob Whitmarsh, 2 Blueberry Lane, Gloucester. I am a member of the Downtown Development Commission. This is something I am addressing to the United States Environmental Protection Agency. The secondary sewer treatment which is before the City of Gloucester will put pressure on the residents who are already struggling with the depressed economy. Some residents have been out

of work for at least some period of time which has put them behind in mortgage and real estate and tax payments. These citizens are good people who have fallen on hard times. The City of Gloucester has courageously faced and responded to other important environmental and infrastructure problems. The sewer and water pipes in most of the city streets have been replaced while separating the runoff water from the sewer system. This $60 million project with other major costs in rebuilding the water supply treatment plants has put the city in a financial crunch that has already taken important funding from other needs such as schools and public safety.

The current sewer treatment plant which has been improved with an expenditure of $20 million does an excellent job of primary treatment that is piped far out to sea where it has a chance dissipate at safe levels. If there could be an argument to require secondary treatment, now is definitely not the time to do it. The current sewer and water rates are a burden that many residents have been having trouble affording in this difficult period with less income, along with higher prices which is having an effect on the lives and families in the City of Gloucester. Because of this, I am requesting the EPA to hold off on requiring the City of Gloucester to run into this financially devastating project. Thank you.

Response 115

The commenter raises two key issues:

- First, the commenter expresses that the cost of secondary treatment will push sewer rates to higher levels that many in the community will struggle to afford and that this will have a negative impact on the community. Moreover, the commenter notes that the City's previously required expenditures on sewer system improvements to abate combined sewer overflows has already put a financial strain on the community and diverted funds from other important needs such as the schools and public safety. EPA takes these comments very seriously and understands that the design, construction and implementation of secondary treatment will be expensive for the City of Gloucester. Section 301(h) of the Clean Water Act does not, however, authorize EPA to consider the cost of secondary treatment or the sewer rate effects of providing secondary treatment when determining whether a 301(h) modification should be renewed. Section 301(h) modification decisions must be based on the criteria specified in the statute and regulations, which are geared solely to technical and environmental considerations. *See* Response 23. The law requires all municipal sewage treatment plants to provide at least secondary treatment unless those technical/environmental criteria are met. *See* 33 U.S.C. §§ 1311(b)(1)(B), 1311(h).

  All of that being said, EPA can take cost, affordability, rate effects and competing public infrastructure priorities into account in determining an appropriate schedule for implementing secondary treatment. In multiple responses, EPA has

indicated its willingness to work with the City to develop a workable implementation schedule for secondary treatment.

- Second, EPA acknowledges Gloucester's efforts to address water quality concerns by moving the discharge outfall and investing in upgrades to the primary treatment plant over the last 20-30 years, but despite these steps, EPA cannot agree with the commenter that the primary treatment plant "does an excellent job of primary treatment" given that the City's discharge has frequently failed to meet water quality-based limits for WET (Response 10), oil and grease (Response 11), TPH (Response 12), and bacteria (Responses 13, 14, 19), and also has failed to maintain water quality that assured the protection and propagation of a balanced, indigenous population of aquatic organisms in the receiving water (Responses 15, 16, 17). *See also* Responses 42, 27 (environmental impact of WPCF effluent).

Comment 116.

Robert Ryan, Cape Ann Transportation: I am here tonight to ask you grant an extension on the waiver for secondary treatment for waste water here in Gloucester. I ask your consideration for several reasons. First, Congress has determined and evidence shows of secondary treatment provides little environmental benefit for discharges into deep ocean waters. Gloucester is the oldest seaport in the country and it is unique, it's an island. The waste water is discharged to a one mile outflow and it is 90-feet deep. Most of Gloucester families have made their living off the ocean for the last 400 years. The cleanliness and sanctity of the ocean, needless to say, is as important to the residents of Gloucester as it is to the DEP and EPA. Furthermore, the section of the Clean Water Act allows public treatment plants, such as Gloucester, to receive a variance as long as the statutory criteria are met, and Gloucester has met it most recently in the criteria of 2001.

The second reason I am asking for an extension is that the construction of the second plant is cost prohibitive and would place a financial hardship on the taxpayers of Gloucester. It is estimated that the cost of the new plant is in the vicinity of $60 million. An extension would perhaps give the city time to seek relief from the federal government that has historically assisted over 300 Massachusetts cities and towns from 1978 to 1990. The average household in Gloucester is now paying, and this is a little redundant, $1,251 annually. If the city is forced to build a second plant the average household would have to pay $2,570. Gloucester residents are now paying $20 per 1,000 gallons of water and with a new plant that household will be paying 5.4-percent of the annual household income. And I now look into the request of the second treatment plant might be the elderly couple living in a three bedroom, two bathroom subdivision of homes, and a five bedrooms and three bathrooms and the couple was asked to conform. What benefit would it be for the couple that had two additional bedrooms and one bathroom? The additional expense for the couple, I think we all agree would not make any sense.

In closing, I ask that you keep in mind that the water covers 71-percent of the Earth's surface. What if anything is discharged into the Atlantic or the City of Gloucester has not and does not

amount to a violation of the Clean Water Act. Not intending to inject any humor into my plea, I would like to say that the DEP and the EPA have bigger fish to fry, namely Bridge Petroleum and the Town of Hooksett, New Hampshire than the City of Gloucester. I request that you extend the waiver for this great and historic city. Thank you for being here tonight and listening.

Response 116

Once again, EPA appreciates, and has carefully considered, the comments submitted by the commenter. These comments raises three primary issues:

- First, the commenter asserts that "Congress has determined and evidence shows … [that] secondary treatment provides little environmental benefit for discharges into deep ocean waters." This statement is overbroad, however, as Congress did not exempt all POTWs discharging to ocean waters of a certain depth from the generally applicable secondary treatment requirements. See 33 U.S.C. § 1311(b)((1)(B). Instead, Congress applied secondary treatment requirements to all municipal dischargers but provided for a possible modification of those requirements only for POTWs discharging to marine waters who can satisfy the detailed set of environmental criteria specified in Section 301(h) of the statute. *See* Responses 1 and 25 (discussing congressional intent underlying Section 301(h)). Furthermore, secondary treatment removes substantially more pollutants from municipal wastewater than primary treatment is able to do, including toxic pollutants and pathogenic bacteria. *See* Response 1 (Table 1). Therefore, secondary treatment will provide substantial environmental benefit to the waters receiving the WPCF's discharge.

- Second, the commenter argues that EPA should grant an "extension" because the cost of secondary treatment will be a financial burden to the city and its ratepayers. Under Section 301(h), however, EPA cannot renew a modification of the secondary treatment limits unless the City's application demonstrates that it is meeting the criteria specified in the statute and the applicable regulations. *See* Response 1. Furthermore, these criteria do not include the type of financial considerations alluded to by the commenter. As a result, EPA is not authorized to take the cost of secondary treatment or its impact to ratepayers into account when making 301(h) decisions. *See* Response 23.

- Third, EPA must also disagree with the comment that Gloucester discharges do not violate the Clean Water Act. The City's discharges in violation of its NPDES permit limits are violations of the statute. *See* Response 1 and the 2010 Tentative Decision.

Comment 117.

Katrina Sukola, Surfrider Foundation: Thank you for the opportunity to share comments regarding the EPA's decision to deny the City of Gloucester's request to render their NPDES waiver from meeting the requirements of the Clean Water Act. My name is Katrina Sukola, and

I'm here on behalf of the Surfrider Foundation. We are a non-profit organization and we are dedicated to the protection and enjoyment of the World's oceans, waves and beaches. The Surfrider Foundation maintains over 50,000 members worldwide, while Massachusetts Chapter 11 maintains approximately 500 members, old surfers and non-surfers a like living from the state. We are an all volunteer chapter dedicated to the preservation of the New England Coastal environment and of the nation of pollution. We represent recreational ocean users and beach-goers who are concerned about the overall health of the marine environment. Our members frequent the waters in the Gloucester area and we have members who live in and around the area as well. We've invested interest in the ocean water quality where the public recreates and New England waters surround. We provide the following comments on the City of Gloucester's request to renew their NPDES permit as it relates to our mission.

The City of Gloucester should be commended on its improvements currently and that have already been completed on the facility as well as work that's being done to replace the CSO's, the combined sewer pipes with separate sewer and storm water pipes. However, 301(h) waivers were not intended by Congress to be permanent. The provision was an amendment allowing for exceptions to the rule where a discharge simply couldn't feasibly upgrade with time constraints.

Gloucester should be able to prove beyond a doubt there is no environmental harm or public health threat found to extend the waiver. Review of data and annual 301(h) monitoring reports however submitted by Gloucester indicate that the water pollution control facilities dischargers have not always been meeting water quality standards for toxicity, bacteria, oil and grease. This is an area the city is currently working to improve and we do acknowledge that.

A particular concern to our members is the lack or the conflicting information on the health risk and bacteria which may be posing which is near the boundaries of the zone of initial violation, or the ZIV. This zone is situated in Class SA waters that should be meeting enterococcus bacteria standards for primary recreational contact. Section 303 of the Clean Water Act requires states to adopt the enterococcus bacteria standards to protect public health in recreational used on rain waters of the year 2004. The transition away from the previously used fecal coliform standards is made to be more protective for public health. The enterococcus indicators are more closely aligned with the measurable risk to human health and recreational exposure to polluted waters. Massachusetts adopted the enterococcus standards in 2006. However, the City of Gloucester has not seen any enterococcus data in support of their application. They do have some out-of-date fecal coliform data that still shows a failure to meet permit requirements required at the time. The Surfrider Foundation agrees with the EPA's assertion that Gloucester would be even more likely to exceed the enterococcus criteria than it has been for fecal coliform as this is the usual experience in other localities nearby and across the country as well. Gloucester has not provided sufficient proof that they would be able to meet the bacteria water quality standards necessary to support recreational activities near this discharge of the ZIV. Any future permits for this facility should require monitoring for current legal bacteria standards at the boundary of the ZIV. And we are very concerned that the water quality in the area, we are grateful to be involved in this discussion and to be involved in this community. Also, the Surfrider Foundation supports the

EPA's position that a waiver should not be granted unless Gloucester can demonstrate that they are meeting water quality standards for toxicity, oil and grease, and chemicals, and bacteria as well. The Gloucester area is a popular surfer location. Water quality in Gloucester and surrounding area is a considerable concern to our members who frequent these waters year round.

The Surfrider Foundation has been involved both in the past and currently in clean-ups in the area and we are actively involved in the clean-up following the disk release in the New Hampshire sewage plant. Thank you very much for the opportunity to comment on this issue and your kind consideration of these comments.

Response 117

EPA appreciates the commenter's input and her organization's efforts to promote the protection of water quality. The comment raises the following issues:

- First, the commenter suggests the Congress did not intend Section 301(h) modifications to be "permanent" and that the provision was intended to allow for exceptions to the rule of secondary treatment when a POTW couldn't feasibly upgrade to secondary treatment within the existing time constraints. EPA largely disagrees with this comment. Section 301(h) modifications were not intended to be permanent, and are not treated as permanent, in the sense that every five years the permittee must seek renewal of its modified permit limits with each permit reissuance. That said, there is nothing in the law or regulations indicating that a discharge necessarily could not qualify for multiple renewals of the Section 301(h) modifications. No time limit or end date is specified after which a modification could not be granted. Moreover, Section 301(h) modifications are not granted on the basis of it being difficult to install secondary treatment within certain time constraints, they are granted only if the criteria specified in the statute and regulations are satisfied, and none of these deal with the issue of time constraints. If the discharger is unable to meet these criteria, however, then the modification should not be renewed.

- Second, contrary to the comment, Section 301(h) does not provide for a modification of secondary treatment limits only if a discharger proves "beyond a reasonable doubt," which is a familiar evidentiary standard from criminal law, that there would be no public health threat or environmental harm without secondary treatment. At the same time, EPA agrees with the comment's overall suggestion that Congress specified a stringent set of environmental criteria in Section 301(h) which must be satisfied to qualify for a Section 301(h) modification. EPA also agrees that review of data and annual 301(h) ambient monitoring reports submitted by Gloucester indicate that the WPCF's discharge has not always met water quality-based effluent limits for toxicity, bacteria, oil and grease, and TPH.

- Third, EPA notes the Surfrider Foundation's agreement with EPA's judgment expressed in the 2010 TD that Gloucester would be even more likely to exceed effluent limits based on the state's enterococcus criteria than it has been for effluent limits based on the older fecal coliform criteria. EPA also notes that the commenter states that this "is the usual experience in other localities nearby and across the country as well." Consistent with the comment, the Final Permit imposes limits that require compliance with the enterococcus bacteria criteria at the end of pipe. *See* Response 14 (discussing bacteria limits for shellfishing); Responses 13 and 19 (discussing bacteria limits for primary contact recreation).
- Fourth, EPA acknowledges the comment that the Gloucester area is a popular surfer location and that water quality around Gloucester and the surrounding area is of considerable concern to the Surfrider Foundation's members who frequent these waters year-round.

Comment 118.

Bob Hastings, Executive Director, Cape Ann Chamber of Commerce: I am Bob Hastings. I am proud to represent Gloucester as the Executive Director of the Cape Ann Chamber of Commerce. We represent 850 businesses in the area. I'd like to read from a letter that I'd like to have made part of the record.

The Directors of the Cape Ann Chamber of Commerce unanimously request that the EPA reverse the tentative decision denying the City of Gloucester's request to renew permit limits under Section 301(h) of the Clean Water Act. The water quality at the city's deep water ocean discharge point outside of the harbor meets the statutory criteria for a variance from EPA's Clean Water Act secondary treatment requirements. Denial of the waiver and a mandate of the construction of a $60 million secondary treatment system will create an undue hardship on every business and homeowner. Our sewage rates already twice the Massachusetts average household rate, will more than double again. The new rate will force Gloucester residents to pay over 5-percent of their gross average income for sewer and water. This is untenable. The higher rates will threaten the very existence of some of our importers, in particular those that are using water as a major part of their production, and will thereby potentially cause the loss of jobs in the area. The excessive rate will certainly damage our economic development efforts, further threatening the region in recessionary times making it nearly impossible to create jobs for the area. While we very much are concerned about the quality of our environment and particularly our water resources, the expenditures on infrastructure should reflect a reasonable cost-benefit ratio. The cost of construction of a secondary treatment plant at this time threatens local families and damages the business economy in an already difficult time. Please reverse the denial decision and issue the waiver extension."

And just a personal note, I'd like to say that I've been in this town for two years. It's a wonderful city. We've been under attack by our own federal government with NOAA by going after our fishing industries. Now, we have this unfunded mandate coming through the EPA and now

we're looking around wondering whether we're not going to be attacked by an army of IRS agents. Thank you.

Response 118

EPA acknowledges receipt of these comments for the Administraive Record. *See also* Response 98 for a response to this commenter's identical written comments.

Comment 119.

Susanne Aldensulger: Three items. It really seems to be a matter of balance of temperament on how to play these rules as was just mentioned about Mr. Hastings, Gloucester's had an army brush with certain over zealously enforced regulatory assumptions by NOAA in terms of fishing industry, and this seems to be another one, and without getting deep into complex sea -- it is a challenge to understand why some of these things are being pushed as far as that. I was invited to speak at a NOAA conference as a contributor on lean, green. fishing machines because we design those, and we all agreed at that conference at first at the initial conference eighteen nations were represented, that indeed regulation has produced a, in this case, important for Gloucester, a fishing fleet that is simply high carbon and is not prepared for the expense economically in terms of fuel costs. So this one foul agency, NOAA, that has kept this industry from evolving naturally to be least carbon, to be ecologically sensitive. The industry certainly has learned how to be ecologically sensitive in terms of the resource that it's going after. But the business model is not allowed to grow into the regional fishing industry has been kept by federal standards from evolving towards ecological standards of low carbon operations, advance fishing vessels. So Gloucester is experiencing not only a fleet that is based on $1.00 a gallon, kept there by federal dictate, I kid you not, it's really that bad. On the other hand -- so, it costs us, industry is unprepared and it doesn't get to fish in order to make up the difference, and then you good folks are telling us what's wrong with the water, and I understand that, which brings me to item 2.

Gloucester is known for exporting seafood. In fact, many Gloucester places we have just been federally licensed to export fresh live and processed seafood around the world as fast as possible. Which means that Gloucester's obviously not the Typhoid Mary of the international seafood trade where our fish dies near the outfall tide and we have big fish blooms and then fish kills. Gloucester is known for fresh and safe and sound seafood. So we do not exactly show a national track record or international reputation of Gloucester polluting its own base for economic existence in terms of the seafood industry.

Final point, item 3. As I mentioned a moment ago, I was invited to speak at this conference sponsored by Ms. Jane Lubchenco, NOAA administrator. She came with highest ecological credentials before she was appointed by the White House to that position, and she is one of the rare specimens, so-to-speak, of folks that has apparently zero interest in low carbon anything because in two years now that she's been residing in that position, she has had no interest in any R&D even, to see, do we do a low carbon fishing fleet, which collides head on with the claims that we should do very well in Gloucester if we just get the secondary treatment for $60 million,

which would buy us a hell of a lot of clean fishing boats. At the same time a federal agency that does not allow the fleet to evolve naturally towards low carbon principle, has no resonance with the subject matter whatsoever, as I said in my final slide at a presentation before eighteen different nations representing the best thinking, everybody from Southeast Asia all the way back to the United States. It is an absurdity of on this conference of a high carbon fishing fleet because of federal regulation and nobody's helping out to get off that crazy big oil old needle in the arm, nor does EPA. In fact, I suggest to you that probably the approach you're taking, to go out and take those water samples, is probably one of the offending type as well. I suspect the boat that you take to take those water samples may be something that doesn't necessarily pass the highest muster of sustainability standards, so I would propose to consider the balance of things. Gloucester's been damaged as proven by the Inspector General's reports with hyper-regulations, zealous enforcements of certain fishery related issues, without the federal government allowing the fleet to respond ecologically correctly and therefore economically viably to support the city's budget, to support the City's economics, to support the community's spirit of can do and want to do the right thing, and at the same time, we are facing these massive expenditures down the pike. So it's a matter of balance and maybe a matter of when and how rather than now. Thank you for your patience.

Response 119

The commenter raises several issues and these comments are now a part of the Administrative Record. The scope of these comments, which focus on sustainable fishing boats and fishing regulations, are outside of EPA's jurisdiction. With regard to the environmental impact of the WPCF's discharges, *see* Responses 42 and 27. EPA has also addressed in numerous responses to comments the issue of the cost of secondary treatment and EPA's willingness to work out an appropriate implementation schedule that takes affordability into account. Finally, when the commenter says that it "may be a matter of when and how rather than now," EPA notes that the comment was submitted in 2011 and now, 10 years later, there may, perhaps, be changed circumstances that will support Gloucester's efforts to assist with expenditures necessary to fund secondary treatment.

Comment 120.

Rick Noonan, resident: I'm a resident of Gloucester. I am a business owner in Gloucester. And I also am a Chair of the Planning Board here in town. My concern is that we make huge efforts as a community to attract businesses. I'm also a Chamberman, Mr. Hastings has spoken my words as well, but I'm the guy that hires these people's kids, I make payments in payroll taxes, I pay for water and sewer at home, I pay for water and sewer at my business, and these dollars that we're talking about expending are burdensome. And so I'm the employer here. These kids pay fees to use sports, all those types of things, not that I'm the solution but the point is, is that small business makes up a big part of this nation's economy and I just want to put a face on that. Thank you.

Response 120

EPA acknowledges receipt of these comments which are now part of the record. Congress specified a series of environmental, water quality criteria to apply when making decisions on 301(h) waiver applications and cost and rate considerations are not part of those criteria. As a result, and as EPA has explained in numerous responses to comments, it cannot base its Section 301(h) modification decision on such cost and rate considerations. *See,* e.g., Response 24. Nevertheless, as EPA has also explained, the Agency is committed to working with the City on an appropriate schedule of compliance that will allow Gloucester to prioritize its municipal expenditures.

Comment 121.

Russell Hobbs, resident, Who Decides: I've been appointed by the Mayor as a member of an Ad Hoc Water Committee to develop a water committee in the City of Gloucester. I am against what you're trying to do to us. We have so many problems with water infrastructure in the city and the money that needs to go to that water infrastructure far outweighs what you are trying to do to us for this secondary treatment plant. Water is life. Without clean, affordable, fresh water, we cannot live. This community cannot live. We cannot attract business without the water infrastructure upgrades. We have dam problems. All of our dams in our reservoirs have problems and need upgrading. We have 100 miles of water pipes in our ground; most of them need to be replaced. We have valve problems. We have water storage tank problems. Millions upon millions of dollars needed to fix those problems. Those should come first, not this.

We have two twenty inch water mains that run down the boulevard that go underneath the canal, also the main gas line goes underneath that canal. Those water mains are ancient. If they break, we are in trouble. That canal will collapse. We will have to run a surface pipe over the road and shut down the "Cut Bridge," that's what will happen. If you force us to spend $60 million on a sewage treatment plant, a secondary sewage treatment plant that's not going to be a total improvement and we have to defer all the other water related issues, I'm not going to be happy. I'm going to be very mad. We cannot afford what you're trying to do to us. If you want to do this to us, I will write a letter to Senator Brown and Kerry and ask that the EPA, their payroll be cut by $60 million and that money be transferred to Gloucester to pay for it.

This is outrageous. Is the EPA ignoring 20 years of data from the EPA mandated monitoring testing program that Dr. Allan Michael has been producing for 20 years; if so, why?

Does the laboratory effluent toxicity test mimic what actually happens in the high energy marine environment one mile off the Gloucester breakwater in 90-feet of water at the outfall pipe? Does that test mimic what goes on out there? I can answer that: It does not.

In the last 20 years, how many secondary waste water treatment plants in the U.S. and its territories failed in the same three areas of what? And what are the names and locations of these

plants? The same failure of the oil and grease, the fecal coliform and effluent toxicity test; how many in 20 years of those secondary treatment plants failed those tests?

Please, you have to understand the big picture in the City of Gloucester. I appreciate what the EPA does, believe me. I appreciate the environmental concerns, but we have major water issues here. We went through a 28 day boil-water order. We had a multi-national corporation Suez, who is sitting off our coast, send their people into the Mayor's office to ask to sell our water and water reservoirs to them. They wanted to purchase our water and watershed. I was part of a group called "Who Decides," got together, we looked at our code of ordinances and we drafted an ordinance to protect our water infrastructure. We asked that this ordinance demand that the City Council and the Mayor not have the authority to sell off our water infrastructure. We got that ordinance approved by the City Council, we made our vote, and now, we are in the process of the Home-Rule Charter to change our charter, city charter, so that no mayor or city council can have the authority to sell off our water and water infrastructure without the approval of the people. It is us who suffer. And it's the corporations in this country that win. We can't allow this to happen. I am against what you are trying to do to us. You need to look at the whole picture. You can't have tunnel vision. Thank you.

Response 121

EPA appreciates these comments and has carefully considered them. The commenter raises a number of concerns in expressing his opposition to a requirement for secondary treatment for Gloucester. The commenter's primary points are that the City needs to address expensive improvements to its municipal water system and that, as a result, it can ill afford to spend the money that would be required for secondary treatment. EPA responds to these comments as follows:

- First, EPA acknowledges the comment that cost is a significant issue and that the City has other important infrastructure needs, primarily related to drinking water. EPA also acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester; however, financial considerations are not included in the statutory criteria or regulations that govern decisions on applications for Section 301(h) waivers. 33 U.S.C. § 1311(h); 40 CFR § 125.56 *et seq*. (Subpart G). *See* Response 23 (discussing cost concerns). EPA has also explained in numerous responses that it is committed to working with Gloucester to develop an implementation schedule for secondary treatment that takes affordability and competing infrastructure needs into account.

- Second, the commenter asserts that the Water Pollution Control Facility (WPCF) may have exceeded its permit limits, but there are no ambient monitoring data that show an impact to the receiving water. This is incorrect. Gloucester's ambient monitoring reports show impacts to the receiving water, *see, e.g.*, Response 16, the WPCF's effluent discharge is not meeting water quality standards, and the statutory criteria to maintain a 301(h) modification are not being met. (*See* Responses 6, 9 - 19).

Comment 122.

Bruce Maki, Who Decides: I am a member of "Who Decides." I'd like begin by reading President Obama's Executive Order 13563. "To facilitate a periodic review of existing significant regulations the EPA will consider how best to promote retrospective analysis of rules that may be out promoted, ineffective, insufficient or excessively burdensome, and to modify, streamline, expand or repeal them in accordance with what has been learned."

Now, I'm hoping that tonight you may have learned something, although I have my doubts because what I've seen from the science presented so far, it's a little bit on the misleading side, it's certainly not thorough. I asked about how do you differentiate the oil about discharging and the oil coming out of the outfall pipe, and this is what we measured it down deep in the ocean, but interestingly enough, there's no oil in the sediment down there. So that, kind of, really undercuts your science a little bit. And then when we get into the wet test, you're hanging your hat on a laboratory test that totally goes against what's found out in the environment today. Show me scientifically any degradation to the actual environment out there. You're not going to be able to do it. Laboratory testing not necessarily correlates to what is in the existing environment. And to slather Gloucester with a $60 million expense based on a laboratory test that has not been shown to be scientifically correct is ridiculous.

We've spent millions of dollars testing the marine life out there according to EPA's standards and they test the bottom because that's where the most sensitive creatures exist. Well, so totally ignore those tests now of 20 years and all that money; we want our money back from the EPA. That's ridiculous.

Using that science to spend $60 million for a secondary treatment plant that cannot fix what clearly is not broken does not go to the intent of President Obama's directive. If the EPA had its way that notorious Alaskan bridge to nowhere would have a new destination and that would be Gloucester, Massachusetts. Thank you.

Response 122

EPA appreciates the comments provided by the above commenter, which raise a number of different issues.

- The commenter cites to Executive Order 13563 ("Improving Regulation and Regulatory Review"), implicitly suggesting that the regulations requiring secondary treatment for Gloucester should be reviewed and repealed as "outmoded, ineffective, insufficient or excessively burdensome," and that, as a result, Gloucester should not be required to provide secondary treatment. EPA cannot agree with this comment. In the Clean Water Act, Congress made secondary treatment the *baseline* level of treatment required for POTWs around the nation. 33 U.S.C. § 1311(b)(1)(B). The vast majority of POTWs now provide secondary treatment and this has undoubtedly been a major advancement for water quality protection around the country. *See*

https://www.epa.gov/sites/default/files/2015-09/documents/primer.pdf ; https://www.mwra.com/03sewer/html/sewditp.htm. Under certain circumstances, some POTWs have been required to provide even more advanced treatment (i.e., "tertiary treatment") to protect water quality. *See id*., 33 U.S.C. § 1311(b)(1)(C). That said, Congress also specified in Section 301(h) of the statute a limited set of circumstances under which a POTW discharging to marine waters could get modified treatment limits that did not require secondary treatment. To obtain such a modification, the criteria specified in Section 301(h) must be met. Otherwise, secondary treatment is required. This is not a matter of outmoded regulations that should be repealed; it is a matter of core requirements of the Clean Water Act. EPA's regulations at 40 CFR Part 125, Subpart G, merely implement Section 301(h) and are neither outmoded, ineffective, insufficient nor excessively burdensome. In any event, the relevant statutory and regulatory provisions are still in place and must be met. Therefore, the question before EPA is whether Gloucester's application for renewal of the Section 301(h) modified effluent limits satisfies the applicable criteria and EPA has concluded that it does not.

- The comment also suggests that if oil discharges from the outfall were problematic, then oil would be found in sediment at the discharge site but it has not been. First, EPA notes that the City's discharges of measurable quantities of oil, grease and TPHs do not meet the state's water quality criterion for SA waters, which requires that they are "free from" oil and grease and petrochemicals. *See* Response 11, above. To the extent that the commenter is suggesting that no limit is needed for oil and grease and TPHs because these pollutants have not been found in sediments, EPA does not agree. Water quality-based NPDES permit limits are set when there is a reasonable potential to cause or contribute to a exceedance of water quality standards, whether or not the receiving water is impaired for that pollutant. In addition, EPA also notes that commenter's argument is incorrect because despite Gloucester's discharges in excess of the permit's water quality-based effluent limits, EPA would not necessarily expect to find oil in the sediments near the area of the discharge because research has shown that oil spilled into the marine environment often remains in the water column or at the surface rather than sinking and adhering to sediments.[120] Moreover, even if oil and grease and TPHs are not found in sediment near the outfall, it does not mean that Gloucester's discharges in excess of the permit's water quality-based effluent limits are not harming water quality. *See* Responses 11 and 12.

- The commenter also questions EPA's reliance on the WET tests of the City's effluent, suggesting that reliance on laboratory tests does not make sense because

[120] Oil In The Sea III; Inputs, Fates, and Effects by National Research Council, 2003. See Section: Sinking and Sedimentation, Figure 4-5, factors determining whether spilled oil will float or sink, oil spills into Mississippi River (Weems, et., al., 1997) and Puget Sound (Yaroch and Reiter, 1989). (www.ncbi.nlm.nih.gov).

the results in the laboratory that show effluent toxicity do not necessarily correlate with what is actually happening in the environment at the discharge site. EPA disagrees. WET tests play an important role in assessing effluent toxicity. Their use is required by applicable regulations governing the implementation of narrative water quality criteria for toxicity, *see* 40 CFR § 122.44(d), they have have been upheld in federal court. *See* Responses 10 and 53. In addition to the WET data showing the toxicity of Gloucester's effluent, *id.*, other data indicates adverse environmental effects in the marine environment from the City's discharges of primary treated effluent. *See* Responses 16, 17, 27 and 42.

- Finally, EPA acknowledges the commenter's concerns about Gloucester's ability to afford the cost of secondary treatment. Cost and affordability are not, however, factors that Section 301(h) of the statute authorizes EPA to consider when determining whether a POTW qualifies for a modification of the otherwise applicable secondary treatment requirements. *See* Response 23. EPA can, however, take cost and affordability into account in working with the City to develop an appropriate schedule for implementing secondary treatment.

Comment 123.

Tyler Gross, Owner, Home Style Laundry: We've been in business for 30 years, a little over 30 years serving the Gloucester community with a laundry facility. We are a heavy water and sewer user. But we are also really, really conscious of our impact and we use only front-load washers that are really, really, water and sewer energy efficient. Our clientele are really at the margins financially. Many without cars that have to get taxi rides down to us, they cannot afford a water and sewer rate that's double what we are currently paying. We're right around 40,000 a year, doubling that would just be really, really difficult for us. When we started out, utilities were 15- to 17-percent of our gross income. Now, they're around 35-percent. Our similar store in Beverly, Mass., is about half the water and sewer that we are currently here. So this would really, really hurt us and make it very difficult to do business in Gloucester. Thank you.

Response 123

EPA acknowledges these comments and they are included in the record for the permit. EPA also acknowledges and appreciates the commenter's efforts to make its business water and energy efficient. Beyond that, EPA is sensitive to the many challenges faced by small business owners and understands that the commenter indicates that higher sewer rates associated with providing secondary treatment would be difficult for the commenter's business to handle. While the Clean Water Act does not authorize EPA to factor the effect on sewer rates of adding secondary treatment into its decision about whether a POTW qualifies under Section 301(h) for a modification of the secondary treatment requirements that generally apply under the statute, 33 U.S.C. § 1311(b)(1)(B), EPA can take cost, affordability and the City's competing financial priorities into account when working with Gloucester to determine a schedule for implementing secondary treatment. *See* Response 23.

Comment 124.

Roger Armstrong, Owner, State of the Art Gallery: I own a business downtown, State of the Art Gallery. It doesn't use much water. There's just the two of us at home and we don't use a great deal of water in our particular isolated situation. I'm not the normal participant you might say in this debate and I doubt if I can more eloquently list and talk about the issues better than it has been done already, I can simply say that I am grateful for the support of our elected officials around the state and here in town. I certainly appreciate and support the message that they are giving you people. I think that it is evident by any measure that doing this very heavy front-loaded financial program would have, at best, limited improvement over what we are currently doing. I believe what I read in the paper, 20 years worth of tests by our people. Our program, to me seems to be okay and to be meeting the standard of the law better than most, and not that we couldn't be better, anybody could be better, but I don't see the value in the $60 million. I certainly would be against it. I would appreciate your agreeing to that. Thank you for the time.

Response 124

EPA acknowledges receipt of the comments and they are included in the record for this sponse to Comments. The WPCF is not meeting the necessary legal requirements to justify another Section 301(h) permit modification. *See* Response 1. Testing of Gloucester's primary treated effluent has shown consistent violations of applicable standards. *See* Responses 10 (WET) and 6, 14, and 17 (ambient testing).

Comment 125.

Rosalyn Frontiero, Who Decides: Thank you for being here tonight. Respectively, the EPA is vital, and you are all, Mr. Corb and Mr. Webster and Mr. DEP, far more knowledgeable than I about the environment, but what I do know is about the real impact and implications of your permitting process. My name is Rosalyn Frontiera, Chair of "Who Decides," a Cape Ann citizens organization seeking to keep water, sewer and storm water management under local control and affordable. On the face of it your mandate makes sense to some people. It appears reasonable, but that is until the empirical evidence brought forth by Dr. Allan Michael. A $60 million secondary sewage treatment plant seems now unnecessary and to borrow return from President Obama, it doesn't make any sense. For this reason, on February 1st, I hand-delivered a letter from "Who Decides" to Mr. Doug Corb of the EPA Regional Office, and I have to say Mr. Corb, I appreciated our time and getting to know one another, but tonight has a different feeling. The Obama listening sessions that were provided to our citizens, "Who Decides" were probably the only one in the whole room. This is a disgrace.

In brief, we believe at "Who Decides" and a majority of the folks in this community that this is not a mandate to deny a 301(h) waiver. This is a death sentence for Gloucester. EPA will be accountable for creating unnecessary mounting debt for future generations, inferior solutions that will never meet our needs and technologies that will become obsolete sooner than the debt is ever paid off.

I am providing here a very simple graph to help everybody understand the basic premise that our sewage rates will actually triple. Currently, we're paying about $10.60 at a rate about 1,000 gallons. After the CSO project is completed, we'll be paying about $17.96. After your secondary treatment plant if it was ever to be built, we would be paying on the average of around $29.76 within a very short period of time. This would be on top of the $43.00 annual fee per household, per business, and on top of betterment charges and the water infrastructures that we have. So we can take an additional graph around our water infrastructure and place it on top of this, where are we going? This is unprecedented territory and I wish that we would regulate the corporations as much as we do the communities.

This mandate will compound our debt; significantly impact those on fixed incomes. Mr. Corb, we have an elderly woman here that came to you before this meeting started and she mentioned that she was twelve weeks short of her eighty years in Gloucester. She has never felt more separated, more disconnected from autonomy than now, and it has nothing to do with age. It has a lot to do with permanent.

First, we must finish the water storage tank mixing controls. This is the stuff that really needs to be taken care of in Gloucester. The quality of conservation of Gloucester's water is dependent upon greatly improving water quality on Cape Ann.

Secondly, there's Western Avenue. Finally, we bit the bullet and replaced the twenty inch mains under Western Avenue chronic water main breaks along the stretch have a system-wide impact. In the fall of 2010, Gloucester Public Works under the emergency declaration, replaced 1200 feet of twenty inch main. This project will explore an additional river crossing and make recommendations about the Spooner Tunnel. Significant, significant.

Third, Commonwealth Avenue neighborhood. This neighborhood has some of the oldest water main in the city, unlined cast iron water mains result in poor water quality and frequent water rates. I saw what the main looked like in front of my home. It was temporarily patched and completely impacted the line to the house. It looked as ulcerated and sclerosed as the GI scan of the lining of my mother's stomach, who also lived in the house in this neighborhood. Disruption in this neighborhood has caused system-wide impacts. So you can understand our priorities. If that wasn't enough, last but not least on our priority list is the Babson Reservoir Dam, the Department of Dam Safety has issued -- we appreciate you writing this down, sir -- has issued numerous reports hi-lighting the need to making repairs to this dam classified as high hazard. The total for this water infrastructure work exceeds 12 million, and the total that Gloucester citizens must pay could be as high as 18 million with a new river crossing leaving those work projects I just listed amounting to major neglect if we can't get to them because we have to put in a secondary sewage treatment plant that we do not need. The 301(h) waiver denial is not just an unnecessary mandate. This puts the EPA in a position of potentially creating a manmade water disaster with dire consequences in terms of water quality and water costs. Is that what you want your decision to do, Mr. Corb?

This is what a decision of denial will do. Surely, EPA is here to protect both the citizens and the environment. Work with us to solve our own problems. We have never have a more hard working team in Gloucester, just creating filling holes, taking care of the needs of this community day in and day out, especially around the water infrastructure with very limited resources. And I applaud the administration and the DPW for upgrades that were done in record time. No company could ever do what Gloucester has done, and I urge you to learn more about that because President Obama and the EPA could learn from Gloucester.

Many of my fellow citizens are beginning to wonder that there is something fundamentally wrong with America. We would think that you would want to know that this EPA decision for an unnecessary $60 million sewage expenditure will risk opening the door for Gloucester to be forced to sell its water to a multi-national corporation. To Director Spalding, we ask that you work us. Time is of the core forcing our city to spend even more money that should be used for protecting the environment boils down to neglect. Neglect on the part of the EPA. We will always work with the EPA, but Gloucester citizens are paying the bill, sir. It's our money. It's our water. It's our future. And it's our decision. So, we say no way to the EPA. Thank you.

Response 125

This comment raises a number of issues related to the high cost of providing secondary treatment, the difficulty of managing that cost for the community, and the problem of needing to spend significant sums of money on other infrastructure needs, primarily those related to the City's drinking water system. EPA has carefully considered these comments and notes that these same issues are also raised by other comments that EPA has responded to in other Responses included in these responses to comments. *See* Responses 4 and 23. EPA also notes here that although the Clean Water Act does not authorize EPA to factor the effect on sewer rates of providing secondary treatment, or the cost of competing infrastructure needs, into a decision about whether a POTW qualifies under Section 301(h) for a modification of the statute's generally applicable secondary treatment requirements, 33 U.S.C. § 1311(b)(1)(B), EPA can take cost, affordability and the City's competing financial priorities into account when working with Gloucester to determine a schedule for implementing secondary treatment. *See* Response 23. Therefore, EPA looks forward to working with the City to develop an appropriate schedule that takes those issues into account.

Comment 126.

John Dugger, Architect: My name is John Dugger. I'm an architect practicing here in Gloucester and a member of the American Institute of Architects. I've spent the last 40 years of my life dealing with codes and regulations on a daily basis and the amount of planning that we do statewide and the number of boards I've sat on in municipalities throughout the state, I'm getting a little bit discouraged. We have worked very hard to develop good rules and regulations to follow and attempted to make sustainable regulation, but in every forum I go into lately it's not

a question of which way you're going to follow the codes to make things happen. It's a question of you have to follow them all. And my question to you people as bureaucrats, do you ever talk to each other? Do you ever think about the fact that every layer of bureaucracy falls down on top of simply buying a tool or putting up a tool shed is making it impossible to do it in the American economic system?

It's probably not fallen on deaf ears with you that our great grandchildren can't afford the debts we've run up. It's probably not been missed by you that by misqueing in our international affairs, we've bankrupted ourselves by not assiduously or even consciously enforcing regulations on large corporations, we've given away the farm in trying to bail ourselves out. The bucket is empty.

To force this kind of thing that is only marginally useful on a small municipality like this is putting this great city of ours that's been around 400 years, in the same situation that 60-percent of the population, 60-percent of the businesses, those small businesses that are going to be crushed under this stuff is going to put yourselves on the same basis. Now, somewhere along the line we've got to get some commonsense. And if we can't do it with our current set of politicians and bureaucrats, and I want to comment with the politicians on how well they've seen the light on this issue, we'll have to do it like our ancestors did and find another way to run this place.

I don't think you can sit in Washington and hide from the issues. Every day at every level every executive makes a decision that makes or breaks this company, this country, and in your case, it is your country that is your company. You've got to see the light. Please, reconsider this. I'm especially compelled by the comments that were made earlier by the four or five legislators that we had here about the difference between exemption and a requirement. And if you deal with the cases I deal with on a regular basis where there's exemption here, exemption here, you can't have this exemption, you can't have that exemption, you wind up trying to build a hospital when all that's required is a house, and it's that bad. I just wish you would really re-think these regulations and try working on something that's sustainable because we are currently not in a sustainable situation. Thank you.

Response 126

EPA acknowledges receipt of these comments and they are entered into the Administrative Record as part of this Response to Comments. *See* Response 1. EPA also points out that secondary treatment is the baseline requirement for POTWs around the nation that Congress adopted in the Clean Water Act. *See* 33 U.S.C. § 1311(b)(1)(B). Congress also provided for modification of these generally applicable secondary treatment requirements only for POTWs discharging to marine waters that demonstrated they were able to meet all of the criteria specified in Section 301(h) of the statute and the applicable regulations. Congress did not include the cost of secondary treatment, or the cost of competing municipal funding priorities, a consideration that EPA was authorized to consider in making a decision on a request for a Section 301(h) modification. *See* 33 USC § 1311(h); 40 CFR Part 125, Subpart G. EPA can, however, take cost, affordability

and the City's competing financial priorities into account when working with Gloucester to determine a schedule for implementing secondary treatment. *See* Response 23.

Comment 127.

Ann Rhinelander, resident: I am a member of "Who Decides" with some extended privileges along that line. The three things I'd like to address are governments, testing, and secondary treatment.

Mr. Webster, I had hoped that you might be H. Curtis Spalding; I wanted to meet him in person. And as a member of "Who Decides," I've had the privilege of attending water infrastructure finance commission meetings at the Statehouse and getting a sense of what this experience is statewide, and I've stumbled across the cold comfort that Gloucester is not alone in being besieged. We have managed not to have secondary treatment system longer than almost any major municipality in the state, but people who are early compliers, are now faced with bankrupting costs of replacing secondary treatment centers, and then Hooksett is a state-of-the-art expanding and polluting much of the region with refuse headed towards Great Britain. So, not everything recommended and mandated or desired is useful.

The other reason I wanted to meet Mr. Spalding is that if there were a price for intransigence against moderation, he might want it. But intransigence is not good government. Consideration and practicability along with rigidity is needed. We would love it if back whoever of in position of power were against something we were really dangerous to us. But these are manufactured harms and dangers that are testing in particular, when it's done in site 2, which is at the location of the organisms being tested for, there are no harms. When it's tested in a test tube with the contents of that kit, it constitutes an anoxic event which murders the organisms in the test tube. So, even so, if you counted the organisms in the test tube that were dead and still see how much alive is in the bottom of the ocean; so think, don't just impose.

And third thing is secondary treatment in general. Secondary treatment as I understand it, requires a volume of water, a movement of contents for oxygenation, and one other thing I can't quite bring to mind -- turbidity, of the materials in that so that they're marginalized to some extent. I think that I might settle for renewal of the waiver at least, but at best I would like us to be certified as in compliance with the grace of our God given virtue, you can't beat it for dilution, turbidity and effectiveness. So, we're way behind because we've never had a secondary treatment center and way ahead because we do not need it. Thank you.

Response 127

EPA disagrees with the comment that this facility does not need secondary treatment. Please *see* Responses 1 (statutory and regulatory basis for the denial of Gloucester's 301(h) modification), 10 (WET), 11 (O/G), 12 (TPH), 13, 14, 19 (Bacteria) for discussions of specific water quality exceedances; and Responses 16, 17 (impacts to balanced indigenous populations), 42 and 27 (environmental impacts). EPA also does not

agree with the comment's apparent implication that communities that earlier complied with the Clean Water Act's secondary treatment requirement, which was enacted in 1972, are now widely being required to replace secondary treatment with different technology. While some communities may have installed tertiary treatment to address location-specific water quality problems, this is far less common than communities that provide secondary treatment. If the commenter is instead referring to the fact that secondary treatment facilities, like other types of facilities (including primary treatment facilities), will over time require that equipment be maintained and eventually replaced so that the facility can keep running properly, EPA does not regard that to be a reason not to provide the necessary sewage treatment facilities.

Comment 128.

Dr. C.J. Maletskos: This is going to be a very scientific approach to a very simple -- you'll be able to understand every word I use and see what happens. And because I've got so old, I don't trust myself to talk without any notes and I have to read this.

In the field of ionizing radiation and radioactivity there are standards to meet with the addition of one more rule. In other words, we have over standards and we have one more rule. And the rule is called ALARA, and it stands for as low as reasonably achievable. That came out in various means. ALARA provides a low exposure than from the standards of additional safety. So what you've got is people wanted to be able to say that they're going to take care of the safety of the people as best we can and we've got some standards, but then we want on top of that to have you try to find a way to get the standard that you would want to use to be much lower.

You have to do this if it is achievable, that is where the ALARA comes in. If the ALARA concept had been applied, the EPA would have written a letter on November 2010 complimenting the city of maintaining and monitoring data constant over the years, and today EPA would wait to see what the results of the updating of the waste water treatment plant would produce in the outfall. It's that easy.

Response 128

EPA disagrees that the City's 301(h) modification should be reissued or allow further time for the City to complete its planned upgrades because the discharge will not show impacts after all of the primary treatment upgrades are complete. EPA appreciates the concept of ALARA, and this principle is applied to technology-based effluent limits, including the BOD and TSS secondary standards for publicly owned treatment works, such as Gloucester *See* 40 CFR Part 133. However, the Clean Water Act also requires compliance with "water quality-based effluent limits" which are derived from the state's water quality standards. After both limitations are calculated, the more stringent limit is applied. In this case, the water quality-based limits are more stringent.

Second, the commenter asserts that EPA should delay reissuing the Final Permit until the City has had time to further upgrade its primary treatment plant. This comment was

submitted in 2011 and delays in the permitting process have ultimately provided Gloucester with roughly ten years of additional time to validate environmental improvements from the existing improvements that the City has made to its WPCF plant infrastructure (s*ee* Response 3), as well as from the City completing its obligations under its Consent Decree (s*ee* Response 4). Despite these improvements, however, violations of the limits in the City's existing (2001) permit have continued and the criteria to justify continuing the 301(h) waiver have not been met. (*See* Responses 10-19; Appendix A).

Comment 129.

Barbara Soreng (reading a letter for Mr. Edward Dalmer): I'm reading Mr. Edward Dalmer's letter to you all.

"I was hoping to read this in person at the EPA hearing on Thursday, March 24. Unfortunately, due to a previous engagement I cannot attend. I have lived in Gloucester all of my life and have recently completed my MBA at Endicott College. I started my MBA in September 2008, the same month that representatives from the Suez environment approached Mayor Carolyn Kirk with an offer to purchase our water system. Fortunately for us, Mayor Kirk rejected the offer. After reading the article from the Gloucester Daily Times, I decided that the ownership of water would be a fascinating time to research for my MBA thesis. To date, I have spent over 250 hours researching and writing my thesis. My bibliography lists over 80 books, articles, dissertations, reports, newspaper articles, etcetera. While conducting research for my thesis, I discovered that the North American Water Council invests millions of dollars on political action committees to support candidates for political office who understand and appreciate the goals and objectives of private water service providers. That's NAW SEA-PAC mission statement of 2009. While conducting research for my thesis I discovered the water companies typically target local governments facing budget shortfalls, failing water systems and unfunded formal mandates. As the municipalities' issues mount, the champion politician, usually affiliated with the private water company, announces that privatization of the water system is the solution to all of their problems. One has to wonder if these scenarios are behind the sudden change in attitude of the EPA in reference to the secondary water treatment waiver. Are the citizens of Gloucester a victim of pack money? For what other reason would the EPA force an unfunded mandate on a city that is in compliance."

"The EPA 301(h) secondary treatment waiver was given in 1985. Since 1985, the City of Gloucester has invested millions of dollars in its water and waste water infrastructure. The City of Gloucester has 20 years of data that shows that our harbor is clean. That a secondary water treatment plant is not necessary and that it may even be detrimental to the marine environment. Yes, our primary facility has malfunctioned in the past, but didn't an advanced secondary treatment just malfunction in Hooksett, New Hampshire, sending millions of poisonous disks to our shores. The City of Gloucester needs to invest its money in replacing its antiquated water pipes not holding a secondary treatment plant that is not needed. Please base your decision on whether or not to continue this secondary treatment waste waiver on proven scientific data not

outdated laboratory tests. The people of Gloucester deserve a decision based on facts not an answer reserved for a small child, because I said so." Thank you.

Response 129

EPA acknowledges receipt of these comments and they are entered again into the Administrative Record for this Response to Comments. *See* Response 102 where EPA responds to the written comments, which are identical, to the comments read into the record.

Comment 130.

Doug Smith, resident: I am a member of the Water Advisory Team of citizens of which Russell Hobbs is also a member and I certainly echo his comments. So, I have some written documents that I'll give to you and I will summarize a lot of issues, most of which have been said, but there are a few things that I wanted to reiterate. So, clearly, we need to focus on the issues around the violations that have been cited. I have read the EPA documents that were provided to us by the city; I've read the documents that the city has drafted in response; I've read the details of those violations and know exactly when they occurred and what they were; and so, all that taken together it still stands that for the oil and grease violations, the few times that limits were exceeded, and I'm talking more on the recent side, these occurred through the street runoff of major storms and since the major part of the CSO improvements were completed in 2009, about 90-percent of the storm water overflow has been eliminated and there have been no further violations in that area since the end of 2009.

The few isolated fecal coliform violations that occurred over the past two years were either due to equipment failure or operator error at the treatment plant; however, the city has made dramatic improvements to the treatment plant. I don't know if you've seen the improvements, but it is quite significant. There is a highly efficient centrifuges now in place of the old belt-based system to remove solids. The treatment plant's now operated by Veolia Water, and in any case, even looking back at violations that did occur in the past, the maximum it exceeded only six times in the past three years, and the monthly average limits were never exceeded. And of course the probability of future violations is significantly reduced with the advent of the improvements at the plant and that's ongoing, the Phase 2 will just begin this year and that will also make some significant improvements.

And so, you got an area that did block my light and I've done a fair amount of reading on the whole effluent toxicity testing. I'm certainly not an expert in the area, but I am a scientist. I have a Ph.D. in biochemistry and molecular biology. I know how to read scientific documents. So, the EPA guidance, Allan Michael has already made a couple very important points about the oxygen levels and the temperature at which the test is carried out, both of these things have an impact when you add those things together. The impact is synergistic, so it's even worse. In the EPA guidance document on toxicity testing says that if the test conditions are unrealistic and artificially increase the toxicity, then the test is not valid. So, these guidelines are of course

contradictory, since if you follow the prescribed methods you are creating an artificial situation which increases the toxicity relative to the real world situation and conditions at the outfall.

Also, it's not really correct to characterize ammonia as a pollutant. Ammonia is the primary cause of the toxicity as Allan stated. That it has been proven by scientific testing, the EPA is aware of that I'm sure. Ammonia is rapidly converted to nitrate by a variety of nitrifying microorganisms, and the nitrate and ammonia are also taken up by phytoplankton in the environment. The productivity of the ocean is based and large part on this nitrogen cycle and phosphorous run out from the continental landmass around the world.

Secondary treatment will not make Gloucester immune to further violations. There are many examples of secondary treatment plant failures listed. For example, on the EPA website which I'm sure you're all aware of. I went and looked it up, there's a big long list when you go to the compliance page of violations and how those were addressed and the details of exactly what occurred in all those different cities and towns. Secondary treatment doesn't remove ammonia unless used with advanced type with nitrogen fixation as part of the treatment which is very expensive. So the $6 million [most likely a transcription error and it is likely the commentor said $60 million] really isn't going to do anything for us. It's not going to change if we use the standard type of secondary treatment. It won't change the ammonia going out there. The ammonia is naturally metabolized by the organisms in the ocean, and it's really not an issue anyway as we know from the studies done in the 20 years have testing. Thank you.

Response 130

EPA has carefully considered the above comment, which touches on a number of different issues primarily related to permit violations by the Gloucester's WPCF.

The commenter first addresses violations of oil and grease limits, asserting that there were only a few such exceedances and additional exceedances are not expected because they were caused by CSO discharges and storm water runoff problems that the City has largely addressed. The commenter further states that there have been no violations since 2009 as a result of the City's work on the sewer system to abate CSO discharges. EPA discusses the state's water quality criteria for oil and grease and petrochemicals in detail in Responses 11 and 12 above. EPA also explains in detail the new permit's limits for those parameters (i.e., for oil and grease ("O&G") and Total Petroleum Hydrocarbons ("TPH")) based on the state's water quality standards. *Id.* Finally, in Responses 11 and 12, EPA also explains that the City's effluent data shows that since 2009, the WPCF has continued frequently to discharge O&G and TPH at levels above the state's criteria and the new permit limits. *Id. See also* Responses to Comments, Appendix A.

The commenter also urges that only a few isolated fecal coliform violations had occurred over the prior two years (i.e., roughly from 2009 to 2011) and they were either due to equipment failure or operator error at the treatment plant. The commenter further stated that future bacteria exceedances would not be expected due to the dramatic improvements made to the treatment plant by the City. In Response 13, EPA addresses in detail the issue

of setting water quality-based permit limits for bacteria to protect primary contact recreational use of the receiving water for Gloucester's discharge. EPA explains both that additional exceedances had occurred after 2009, including as recently as 2021, and that secondary treatment would provide better removal of pathogenic bacteria from the City's wastewater. *Id*. Response 13 also explains that in light of these issues, Gloucester's application for renewal of the Section 301(h) modification did not satisfy the criterion specified in Section 301(h)(2) (the application must demonstrate that "the discharge of pollutants in accordance with such modified requirements will not interfere, alone or in combination with pollutants from other sources, with the attainment or maintenance of that water quality which … allows recreational activities, in and on the water"). *See also* Response 19. In Response 14 above, EPA discusses in detail setting water quality-based effluent limits for bacteria intended to protect shellfishing use of the receiving water. Again, EPA found that the City's effluent had violated, and was likely to continue to violate, such limits on an periodic basis. Again, this analysis supports the Region's decision to deny the City's modification request under Section 301(h).

The commenter also raises issues about EPA's assessment of the toxicity of the City's effluent and the use of the WET tests in that regard, including questions about the WET test conditions and ammonia toxicity. EPA has responded to these same issues in Responses 10 and 53 above.

EPA disagrees with the commenter's assertion that ammonia should not really be characterized as a pollutant, particularly in marine environment. *See* EPA's ambient water quality criteria for ammonia in marine waters.[121] In addition, while the commenter is correct that ammonia has been identified as a source of toxicity in the WPCF's wastewater, Toxicity Identification Evaluation ("TIE") studies of the City's wastewater were conducted and they also identified other possible sources of such toxicity. *See* Responses 10, 53.

Finally, EPA agrees that secondary treatment would not make Gloucester immune to the possibility of any future permit violations, but this is not relevant to the points at hand. The question here is whether the City satisfies the requirements of Section 301(h) of the statute and the applicable regulations. Whether a POTW's NPDES permit includes secondary treatment limits or limits based on a Section 301(h) modification, that POTW is not immune from the possibility of permit violations. Indeed, no permittee has such immunity. All permittees must operate and maintain their treatment plants in order to meet their permit limits, whatever they may be. That said, and as discussed in other Responses in this document, *see, e.g.*, Response 1 (Table 1), a secondary treatment plant removes substantially more pollutants, including toxic pollutants, than a primary treatment plant. As a result, secondary treatment will provide substantial water quality benefits to the waters receiving the City's wastewater discharges.

[121] EPA, Office of Water Regulations and Standards, Criteria and Standards Division, Washington, DC 20460, Ambient Water Quality Criteria for Ammonia (Saltwater), Document Number: EPA 440/5-88-004, April 1989.

Comment 131.

Dr. Damon Cummings, resident: I want to preface my comments by making it clear that my doctorate isn't from the Department of Ocean Engineering at MIT and not in Civil Engineering; therefore, I am speaking not as an expert in water technology but as a citizen of the City of Gloucester. However, I do know a little bit about hydrodynamics and diffusion, dispersion, currents, and dissolved oxygen. I'm flabbergasted by the initial decision made by the EPA to require a gigantic invest in a secondary treatment here where years of monitoring at the outfall have shown no indication whatsoever of adverse effect on Massachusetts Bay. We have never had a beach closing or any other emergency due to effluent from our outfall outside the harbor. Monitoring does not even detect the effects on foreign [word missing] found at the outfall. In fact, we have had no violations of the plant itself since 2009, an earlier violation related to water quality at the plant not at the outfall. Some of these were due to simple mismanagement of the plant, and some were the result of combined sewer and road runoff coming to the plant. We also have a problem introducing a step system outflow from North Gloucester to the plant. Over the last several years we have not only upgraded the sewer plant itself at a cost of $20 million, but we have invested another $35 million in eliminating connections between sewer lines and street runoff during the CSO project which is ongoing. In other words, we've had no violations since we started upgrading our system and we are presently making a major investment in establishing an excellent waste water system. We would like the opportunity to establish that we are not violating any standards before rebuilding the entire plant. We are well aware that even secondary plants have failures and make mistakes. Our DPW, as various people have mentioned, is presently cleaning up after Hooksett. Meanwhile, we have extreme real need for investment in the water supply side of the system. After a series of burst pipe emergencies and a protracted spell of boiling all our household water, we became aware that our antiquated dams, two water treatment plants and a water distribution system were in desperate need of attention. The treatment plants have been upgraded over the last two years, another huge expense this city has gone through. First, the Little River Plant in West Gloucester, the Babson Plant on this side of the river, however those plants are connected by extremely old and fragile piping including a vital and ancient main that runs under the Annisquam River. These are the issues that we here see as a highest priority. We need dams and pipes repaired and replaced. We do not think it makes sense to use the money that will be difficult enough to raise for those essential projects to satisfy demands for an unnecessary sewer plant that will not improve the quality of our discharge in the Massachusetts Bay one little bit. Please continue the waiver for primary waste water treatment so that we can fix our far higher priority water supply system. Thank you very much.

Response 131

These comments are identical to Comment 101 above, which EPA responds to in Response 101 above. *See also* Response 23.

Comment 132.

Peter V. Asara, resident: I'm here tonight as a disgruntled tax payer. My budget is stressed to the end. I'm very disgusted with what's going. I blame the -- I start right at the top, President

Obama. We have a playboy for a president. He is as bad as Wilson used to be. Woodrow Wilson was the worst president we ever had. Now Obama is going to fall in the same class. They are both socialists. And I feel bad because of all the money he spent on vacations, taking trips and so forth. I'm not a prejudice person. I have black friends that are very close to me.

I'm here, lady. I'm setting the ground work of what we're talking about. You want money for the sewer, you want money for this water thing, and money is being thrown away by a president that should be helping each governor in each state giving us money so the governor give it to the communities. This is where the problem is. When President Bush left office, it was one-trillion, point three in the red. Obama's been in office -- what, two-and-a-half years? We are over fourteen trillion dollars in the hole. I'm very disgruntled. It's bad. It just ain't right. It just isn't right, and I just don't know what to do about it. These people are trying to help us. It's impossible. We haven't got the money. There's people like me that are retired, I'm 77 years old. And I've been retired for about 7 years and money is going out all the time and my budget is getting small. I'll give you an example. I went to buy groceries a couple of days ago, I spent over $300. The same groceries two months ago only cost me $160. So don't tell me this president is helping us. He's not. He's taking money away from the fathers, more companies, it's just impossible. He is supposed to help his country. He gave away billions of dollars to other countries. Look at the other day he took a trip to Brazil. He came back. He gives them $2 billion dollars to start drilling oil in our country in the Gulf of Mexico. That isn't right. We had BP there with forty drills. He pulled them out of there. They had an accident. Things happen, but they cleaned it up and they gave him $20 million more. So, I'm very disgruntled. It just isn't right that we have to suffer like this. And I feel bad for our own governor, his back is against the wall. He can't do anything, and that's what it. That's how I feel. Thank you.

Response 132

EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and is committed to working with the City on an implementation schedule for secondary treatment that will take the City's competing financial challenges into account. *See* Response 23. Other aspects of the above comment are beyond the scope of this NPDES permit proceeding.

Comment 133.

Robert Gillis, resident: And I just want to say that in my opinion we cannot afford this secondary treatment plant. Over the last 35 years, I've had the very good fortune to work in a local bank here in Gloucester. I've been very lucky. I've dealt with thousands of people, businesses, and I continue to do so, and I have a pretty good idea of what the people in businesses in this community can afford and what they can't. And I can tell you that they can't afford this secondary treatment plant. And I just want to say finally that Gloucester, Massachusetts is not a seaside resort. We are a working town and we cannot afford this secondary treatment plant. Thank you very much.

Response 133

EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and is committed to working with the City on an implementation schedule for secondary treatment that will take the City's competing financial challenges into account. *See* Response 23. At the same time, EPA is not authorized by the statute or regulations to consider the cost of secondary treatment, or other financial considerations, in determining whether to grant or renew a Section 301(h) waiver. *See 33* U.S.C. § 1311(h); 40 CFR Part 125, Subpart G.

Comment 134.

Suzyn Ornstein, resident: I'm here to speak to you as a taxpayer in Gloucester and as somebody who spends every morning at 7:00 A.M. on the beach at Good Harbor with her dogs. From a taxpayer's perspective I think everyone has made abundantly clear that this is going to harm our community dramatically. It's not just the individual taxpayers, it's clearly also the business community, it is the City of Gloucester and the city's budget. I speak also as a parent of a senior in the local high school, the high school budgets have been cut routinely year in and year out. The school is on fumes. There are all kinds of need for more money to be spent on the school but there will be no chance to have happen if indeed we are required to build a secondary treatment plant. From the perspective of someone who spends every day on the beach, I am clearly concerned about the water. I am very happy to tell you that the water at the beach is clean. The biggest pollution that we have is not from our sewer outflow, it is from the people who come to the beach and leave their plastic bags all over the place which also harm the fish to a great extent.

It's people who leave their food trash on the beach, some of whom clearly live in Gloucester but a number of whom come here from places outside of the city and have no concern for the way that we want to live here in a clean environment, and I would vastly rather see something on the order of $600,000 spent to get appropriate beach clean-up, which also has impact on fish and the wildlife as well as the dogs and local foxes and coyotes that roam the beach area, as well as the children who play in the sand. It makes much more sense to me in terms of something that can have an immediate impact. Finally, in my professional life, I am a professor of management and entrepreneurship at Suffolk University and one of my specialties is leadership. I think in a different way from the speaker we heard recently. I think many people are frustrated with leadership in government and I would like to implore you take this opportunity as government employees as leaders in your community to demonstrate leadership to help restore people's faith in the fact that the government can, in fact, make appropriate and effective decisions for the communities. You have an opportunity here by continuing to grant us our waiver to show us that you are not simply pencil pushers, that you are not looking at a list saying, okay, you failed here, you failed here, you failed here, so we're going to impose this. Do something that makes sense and help us believe in you so that we can indeed work together to improve our community not just here in Gloucester but around the country as well. Thank you very much.

Response 134

This comment touches on several different points. EPA agrees with the commenter that that leaving trash, including plastic bags, on beaches can result in harm to wildlife as well as detract from the public's enjoyment of their beaches. While beyond the scope of this permit, EPA certainly supports efforts to remove trash and other solid wastes from our beaches and waterways. EPA does not, however, agree with the comment's suggestion that trash on the beaches is necessarily a more important pollution problem than is represented by pollutants found in the WPCF's wastewater. This is really an "apples and oranges" type of comparison: trash on the beaches and pollutants in the City's wastewater represent two different types of problems, both of which are worthy of addressing. As discussed in these Reponses to Comments, the City's effluent has failed to meet standards for toxicity, bacteria, oil and grease, and total petroleum hydrocarbons. *See* Responses 10 – 19, above. In addition, the WPCF has not been able to satisfy the statutory and regulatory criteria for maintaining a Section 301(h) modification. *See id.*

That said, EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and is committed to working with the City on an implementation schedule for secondary treatment that will take affordability and the City's competing financial demands into account. *See* Response 23.

Comment 135.

Valerie Nelson, resident: I've been a resident for almost 30 years and I was on the city council maybe 15 years ago, so I've come to understand I think a great deal about the complexity of the water issues and the financial issues of this community. I understand, I think, a bit about the difficulties of this place. We are surrounded by water and water resources and we have more miles per person I think than any other community in the Commonwealth, there's a lot of mile of water and sewer lines. The infrastructure is very old. We started out in the 1600s and, you know, it's broken down, broken pipes, etcetera. And we have a lot of water resources that we care about shellfish beds and we have a fishing industry, and you know water is a very present issue. But we also really lack the financial resources that a lot of other communities, maybe a Concord or a Lexington, and with this a lot of miles of pipes and aging infrastructure it's a difficult challenge for everyone how to navigate through this problem. And I understand why the EPA has said at the outset has given extensions or tried to work out schedules by which we would fix our problem in a deliberate pace, make progress but not overwhelm the situation financially. And there is a Clean Water Act. There are ways in which we have been out of compliance and technically, maybe financial considerations are not part of the law or the case history, so I acknowledge that EPA has historically tried to help this community. But now we're kind of at the end of the line having built miles of sewer lines in various parts of the community, including the ward I represented some years back in the '90s, and have done quite a bit of repairs to the waste water treatment plant, done CSO's, and here's this last project now to go from enhanced primary to secondary treatment in the letter of the law so that we are no longer an outlier. And I'd like to suggest that in the spirit of how EPA has worked with the community in the past that it's now time to reconsider this last mandate and work with this community in the

future in a really substantially different and transformational way for all of us. And that would be to accept that for that amount of money the justification really isn't there for that last project we're talking about tonight. And for that amount of money there are so many better ways to spend the money in this community to protect water and save money and do better. And that EPA is fully capable continuing to partner with this community to make sure that those kinds of projects are done in the future. Certainly our Mayor and others described their desire for a real master planning process that laid out all the needs, the full scope of needs and opportunities in this community and I think EPA should consider the use that it has to issue another waiver and then continue to work with this community on far better steps to continue to improve water quality and water resources.

Now let me say also that I have worked in the water field. I am a director of the Water Alliance which is a national multi-state holder group interested in fundamental changes in how we build our infrastructure. And so I've been privileged to participate in quite a few EPA procedures to consider where we should be going in the future and how we do infrastructure. And I'd like to suggest that in terms of those conversations this decision that EPA has to make about whether to mandate this secondary treatment or to move forward with the city on a genuine master planning process instead about the full scope of needs is really a classic case now of what is under discussion. I went a little less than a year ago to the administrators coming together for a clean water conference. And 100 of the country's top leadership, including former EPA administrators were there, mayors, environmental organizations, and Lisa Jackson as the EPA administrator said at the outset, "We cannot solve the water problems of the future in the ways that we have been doing it in the past." And she challenged the crowd there to think about innovation, multiple benefits, very different ways of building infrastructure that would depart from always centralizing and sideline efforts.

I went in December to a national academy of sciences meeting that Paul Anastas requested, actually Lisa Jackson at Paul's advice, for recommendations on how to instill in EPA throughout all of its activities the principles of resilience and sustainability. And the foundational work on that is that, again, EPA recognizes that to continue with its current infrastructure models is not sustainable either in the environment or financially. And it's important in their seeking the advice of the national academy to understand very different ways of going forward.

I attended the office of research and development workshop on a research agenda in January in which the conclusion was made, again, that the way we've built infrastructure central sewers and these treatment plants and outfalls is not sustainable into the future and that there are many transformational innovations that have to happen if water quality and communities and public health are to be protected in the future. And I spoke on Monday at the regional office in EPA in response to President Obama's request for commonsense regulation in regulatory review. And the questions that the president is asking about economic, environmental, social sustainability and whether the regulations that we've had for a number of decades in this field and others, are a hindrance to the way we need to go forward.

So, in the case of Gloucester, let me say again that I think if we were talking about a $6 million secondary upgrade, go with it. But you're talking about $60 million in which it's very easy to argue that the benefit that you can say will come from that funding is so small compared to the kinds of advances in the environment and public health that could be accomplished through use of that money in a better way. And I think Gloucester really gives the agency because they offered to work on master planning and have shown good faith in the upgrades that they're making and the CSO project that Gloucester will work with the agency to do a better job.

So, I've made a little list of the kinds of problems that instead of a marginal, incremental improvement in a secondary $60 million project, things that really we should be looking at that I know EPA recognizes.

No. 1: Climate change. We are surrounded by water. We've seen a tsunami in Japan. We have very vulnerable resources here. How are we going to protect, should we even be building that treatment plant down by the water? What are we doing to protect for climate change?

We have alewife brooks and shellfish beds and marshes, are those fully protected? Would we be better spending our money on protecting those drain flows and marshes? Research is now showing that those are actually tremendously important for the health of the ocean fish.

Essentially the message that's coming from us in all these deliberations with EPA is that the mistake is to live by the letter of the law for a minor silo project when in the future we're being confronted with huge and growing threats, climate change, energy shortages. What about the fact that other communities are doing energy recovery from their waste water and nutrient recovery?

What about the fact that we have fish processing industry that is desperately in need of waste water treatment dedicated to update need on the harbor?

What about storm water management and the use of trees for cooling and other environmental benefits that we could use that money for?

What about smart information bids like they're doing in Singapore or Korea or Dubuque, Iowa? We start using information technology and satellite systems to really try to achieve the kind of resilience and economic and environmental value that the agency is challenging itself to understand how we need to do better, how we must do better. All of those kinds of needs and opportunities are in this community.

Lisa Jackson also a year ago challenged the environmental agency and community to do science-based management and I think that was brought up here tonight as well. Too often these permits have been done without fully understanding the ecosystem and what happens. Adaptive management is another major theme.

Philadelphia is good example of a community where moving away from the letter of the law in storm water management and spending hundreds of millions, if not a few extra billions of dollars to achieve that last letter of the law is foolish when one can compare what they are proposing with multiple benefits to the community at large through storm water management in a different way.

Response 135

EPA has carefully considered the thoughtful comments presented immediately above and appreciates the commenter's past contributions to Gloucester's city government as well as to national discussions about how best to address water quality problems. EPA also understands that the commenter is concerned about how the community can address the range of complex water issues it faces even as it deals with significant financial limitations. The commenter suggests that at a cost of $60 million for secondary treatment, the money could perhaps be better spent in other more innovative ways to improve water quality and suggests that EPA should work with the community on innovative approaches rather than require secondary treatment. While EPA intends no criticism of the various ideas alluded to in the comment (e.g., marsh protection; planting trees for shade/cooling benefits, improving wastewater treatment for seafood processing plants) – all of which may involve helpful, positive actions – there are ultimately legal and technical problems with the overall approach suggested by the comment.

On the legal side, Congress enacted an express, baseline legal requirement that POTWs provide secondary treatment for their sewage, *see* 33 U.S.C. § 1311(b)(1)(B), except for marine dischargers that demonstrate their ability to meet all of the environmental criteria in Section 301(h) of the CWA and EPA's implementing regulations at 40 CFR Part 125, Subpart G. Since EPA has found that Gloucester is unable to satisfy these criteria, it is required by the law to provide secondary treatment as the *minimum* level of treatment under the statute. Again, the vast majority of POTWs have met this minimum level of treatment. While other innovative steps may be adopted in addition to meeting the basic requirement of secondary treatment, they are not a replacement for it.

On the technical side, the comment does not propose or establish specifically what alternative measures should be taken or how much water quality protection or pollution removal they would achieve. Indeed, Congress adopted a "technology-forcing" approach in the CWA that relied on minimum federal technology-based standards specifically because a more site-specific, water quality-based approach like that proposed by the commenter had proven unsuccessful at addressing the nation's water pollution problems. *See* https://sgp.fas.org/crs/misc/RL30030.pdf , p. 2. Innovative approaches such as those suggested by the commenter may be desirable, but only after the essential, baseline wastewater treatment requirements are met in the first instance. While the commenter points to innovative stormwater management proposals by the City of Philadelphia, PA, EPA notes that Philadelphia already provides secondary treatment to its wastewater. As EPA has discussed in other Responses, see Response 1 (Table 1), secondary treatment can remove substantially more pollution from the City's wastwater (including toxic

pollutants and pathogenic bacteria) than the existing primary treatment plant and this will greatly benefit water quality.

The commenter correctly alludes to EPA's efforts to work with communities to decide how to address municipal water pollution problems and EPA expects to works closely with Gloucester to develop an implementation schedule for secondary treatment that is sustainable and within municipal financial capability. User rates are a critical measure of affordability and EPA is committed to working with Gloucester to develop an appropriate schedule for upgrading the WPCF to provide secondary treatment. (*See* Response 23). *See* Response 1, footnote 2, and Response 23. *See also Guam*, 15 EAD at 467 n. 46.

EPA also does not agree with the comment's suggestion that "[e]ssentially the message that's coming from us in all these deliberations with EPA is that the mistake is to live by the letter of the law for a minor silo project when in the future we're being confronted with huge and growing threats, climate change, energy shortages." Living within the letter of the nation's environmental laws is not a mistake. There may be additional things that should be done, or perhaps there may be smarter ways to live within the law, such as finding more energy efficient ways to run a needed treatment plant, but identifying these new, emerging considerations is not a reason or excuse for failing to meet basic, foundational legal requirements.

The commenter raises the question of whether secondary treatment facilities should be added to the City's coastal treatment plant in light of the issue of sea level rise associated with climate change. EPA agrees that the location of the secondary treatment plant in light of sea level rise is a crucial consideration and notes that since this comment was submitted, the City has investigated this very issue and factored it into its planning. *See* Responses 27 – 29. In addition, EPA encourages the City to explore design options that can reduce greenhouse gas emissions while providing multiuse benefits. For example, in terms of climate change impacts, secondary treatment plants can be designed to produce and/or use renewable energy that offsets operational costs and greenhouse gas emissions. EPA recommends researching all possible sustainability measures available for sewage treatment plants, as well as researching innovative approaches for minimizing climate change impacts associated with storm water runoff. Taking such steps can minimize the greenhouse gas contributions of a secondary treatment plant while offsetting operational costs and gaining the substantial water quality benefits that it will provide (*see* also Response 27).

Comment 136.

Elizabeth Neumeier, resident: I am currently paying the benefit charges for the step sewer system that Valerie mentioned. It was installed shortly after I moved there. I'm happy to be paying my share of that betterment. Within two weeks of that system going inactive, I could see the difference in the waters I stood in off my rocks. I like swimming in clean ocean water. I kayak, I surf my kayak. I believe clean water is worth paying for and I will enthusiastically pay my

share through betterments, water, sewer bills and taxes. I am an environmentalist, and I am alarmed at the current political atmosphere. The attacks on needed government regulation are unceasing. The EPA must show the public that its regulations will make a meaningful and worthwhile difference in our lives, our health and that of our environment. But the EPA's current approach to the Gloucester's secondary treatment issue is doing exactly the opposite. If the hard working citizens of Gloucester are going to pay an additional $60 million for secondary sewage treatment plant, the benefits must be clear to all. What will we get from all of that money? What problem would be fixed? Please consider why do you have to remove the waiver right now in the midst of the worst economy since the Great Depression? What would be the downside in extending the waiver, letting us finish the CSO project and then measuring the results of the improvements we have made. I can't see any urgency for revoking the waiver. I urge you to let us finish our hard work and see where we are in an appropriate time after those projects are completed. Thank you.

Response 136

This comment asks what the benefits of providing secondary treatment will be. A number of the Responses to Comments have addressed this subject, *See* Responses 42 and 27 (discussing the environmental impacts of the WPCF effluent). *See also* Response 1 (Table 1) (identifying the improved pollutant removals of secondary treatment as compared to primary treatment); Responses 10 – 15 (discussing issues with discharges of toxic effluent and excessive levels of oil and grease, TPH, and bacteria). The comment also mentions the City's CSO abatement work and this topic is discussed in Response 4, above.

Comment 137.

Greg Nowak, citizen: Like the previous speaker I consider myself environmentally sensitive. I'm called the recycling Nazi at my office. With that in mind, I would like to offer some perspective. A lot of technical points I think have been made many times over and more eloquently than I ever will, but there's a lot of fire and brimstone with environmental issues. Sometimes it's well founded; oftentimes I think it's not. For example, the Salem Power Point is supposedly killing us. My grandmother lived in that neighborhood. She passed away a year-and-a-half ago when she was 99. I don't think the power plant killed her. My great uncle lived right behind her. He passed away in his 90s. I don't think the power plant killed him. I've been coming to Gloucester beaches for years and I eat the seafood here, I'm fine. I take my family to these beaches. I take my family to the restaurants here. We have the best seafood in the nation. I've traveled all over the nation. I've gone to beaches all over the nation. Our beaches our clean with the exception as to some of the trash that people leave, but the water is clean. The fish is fresh. It tastes great. I don't get sick from it. I don't know anyone who does get sick from the fish. And I look around here tonight, I stand out a little bit, there are a lot of people here who are a lot older than I am and I'm sure they've been swimming in these waters longer than I have, they've been eating the fish longer than I have and they look pretty damn good to me. So I urge you to use a little perspective and discretion. Thank you.

Response 137

EPA acknowledges the commenter's perspective that if people eat fish from the area and do not get immediately ill, and if the people that frequently swim in the ocean appear to remain healthy, then the water must be clean enough and Gloucester should not be required to spend large sums of money to provide a higher treatment standard than primary treatment. EPA disagrees with the suggestion implicit in the comment that all people and wildlife are equally sensitive to pollution. Epidemiological studies, which are concerned with the frequency and pattern of health events in a population, including the consideration of environmental exposures,[122] are used, along with other information, to derive criteria to protect human and wildlife populations. These criteria are based on the overall population that is subjected to environmental exposure, including the most sensitive organisms, to ensure protection for all of the organisms and their habitat, not just the least sensitive or one particular individual. In any event, as explained in detail in other Responses, the City has not satisfied the criteria of Section 301(h) and, as a result, secondary treatment is required by the statute. *See generally* Responses 42 and 27 (discussing the environmental impact of the WPCF effluent). *See also* Response 1 (discussing the statutory and regulatory basis for the denial of Gloucester's 301(h) waiver renewal request); Responses 10 (discussing WET violations), 11 (discussing O/G violations), 12 (discussing TPH violations), 13, 14, 19 (discussing bacteria violations); and Responses 16 and 17 (discussing failure of the City's discharge to attain or maintain the water quality needed to assure protection of a balanced indigenous population in the receiving water). All of this being said, EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and is committed to working with the City on an implementation schedule for secondary treatment that will take affordability and the City's competing financial demands into account. *See* Response 23.

Comment 138.

Betsy Works, Water Advisory Team: My name is Betsy Works and I am a part of the Water Advisory Team of citizens that the Mayor has recently established in the city so the citizens can look at what's happening with the water situation in our city. We put out a bulletin to all the citizens in the past week and I want to read the last line, because it's basically been covered. The last line says this: "In fact, all federal and state water quality standards are met in the marine environment around the outfall." On that fact I would like to say we need to stand on that and ask you to stand on that too, because you gave a great presentation tonight but I've been researching this for a long time and I couldn't understand what you were saying. There was a lot of information there that was really glossed over. And for someone who has been looking at this in detail, I want to know the details. I wanted to know when the sites were done. I wanted to know how you did all those testings, and I didn't see any of that tonight. And I thought all of these people came here to listen to what was being done and I did the research and I didn't understand it. So for your future presentations, you really need to put facts in there and details in

[122] CDC, Introduction to Epidemiology, https://www.cdc.gov/csels/dsepd/ss1978/lesson1/section1.html

there so we can understand it. I know Doug got up and he's a scientist, he can read all that those scientific facts. But a lot of people can't. I can't. I had to go do the research myself. So for future presentations I'm going to ask that you come and give presentations for every single person in the room can understand what you're saying.

And last but not least, the city and I have worked really hard to put together a water system that's been breaking down for years and years and years, not only all the other infrastructure systems in the United States but we have worked really hard to put this together. The administration has committed themselves to putting this forward and making it a priority in our lives and every single person in the city wants to see it fixed. So when you come in and you're the federal government, you guys are where our taxes are going that we pay every week. We want to see you say, hey, you know what, you're right. You are doing a good job here. This doesn't make sense here anymore. So you know what, that was an old mandate. Let's re-look at the mandate. Let's see what the city really needs. That's what we need from the EPA. Thank you.

Response 138

EPA notes the commenter's frustration with the explanation of the permit at the public meeting that occurred prior to the March 24, 2011 public hearing. EPA endeavours to be clear in its communication to the public regarding regulatory decisions and scientific findings. These matters are discussed in detail in the 2010 TD as well as the Fact Sheet supporting the Draft Permit. In addition, please find further explanation of the concepts that have formed the basis of the permitting decisions made in this case in the following Responses to Comments. *See generally* Responses 42 and 27 (discussing the environmental impact of the WPCF effluent). *See also* Response 1 (discussing the statutory and regulatory basis for the denial of Gloucester's 301(h) waiver renewal request); Responses 10 (discussing WET violations), 11 (discussing O/G violations), 12 (discussing TPH violations), 13, 14, 19 (discussing bacteria violations); and Responses 16 and 17 (discussing failure of the City's discharge to attain or maintain the water quality needed to assure protection of a balanced indigenous population in the receiving water). All of this being said, EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester and is committed to working with the City on an implementation schedule for secondary treatment that will take affordability and the City's competing financial demands into account. *See* Response 23. Financial considerations are not, however, included in the statutory criteria listed in the applicable provisions of the Clean Water Act, or the implementing regulations for 301(h) waivers. 33 U.S.C. § 1311(h); 40 CFR 125.56 *et seq*. (Subpart G). Gloucester's Water Pollution Control Facility is not meeting water quality standards and the statutory criteria to maintain a 301(h) modification are not being met. (*See* comments 9 – 19). As

EPA has maintained in denials of other 301(h) modifications, the decision on whether to issue or renew a 301(h) modification does not include cost considerations.[123]

Comment 139.

Valerie Nelson part 2: I left off at New York City and I met with the chief financial officer of New York City and it struck me how it was so much like Gloucester because he explained that New York City is spending huge amounts of money in the water/waste water field. So is Gloucester. This is probably the biggest talked about stream funding, right? You can't do schools and city hall or whatever because water and waste water is such a huge capital expense here. And it is in that spirit of good faith and commitment that New York City and Gloucester are both making, very much aware of and on the ground of what the local issues are and try and systematically to do better at protecting public health and water quality. But what he said is, things really have to change because the danger is that so many times these mandates come in and for a few percentages or just a little bit of change over here huge amounts of money flow off in one direction that compromise the ability of the community to really look at the whole scope of the water issues and make progress that is in the best interest of the water quality and the community and the economy of the city or, in this case, Gloucester. And so I really look at what this speech was about was the need for EPA to work better with communities to find better solutions like in Philadelphia, more benefits out of the infrastructure that you do, more careful work. This country doesn't have enough money to fix the infrastructure, the broken down state that it's in and build new infrastructure, and in any case if we did it we understand now that it doesn't achieve the protection of the environment into the future, nor protect us from the climate change. So what EPA needs to, so they said from New York is, work productively in partnership with communities on identifying the best ways and the most important priorities, and Gloucester has more than shown you tonight that they are there, they understand the drinking water issues and other issues. They are talking about master plans, and to the degree that EPA has leverage over this community, I encourage you to consider extending the waiver and working in partnership to deliver with the least cost and the highest benefits in the face of these great uncertainties and needs that we have. And Gloucester has a history in one field after another of being tremendously innovative. And it values its resources very much and it will work with you to do a much better job and can be one of those pivot turning points in EPA really moving into the future in a most productive way. So instead of a last letter of the law of dinosaur project, please consider moving with this wonderful community here into inventing a transformational, high value environmental protection of the future, and I know that's what Administrator Jackson is really hoping to see and will step up to the plate.

Response 139

The commenter raises the point that EPA should extend the 301(h) modification and work with the City to deliver the least cost and highest benefits in the face of these great

[123] See e.g., Response to Comments on Tentative Decision to Deny the City and County of Honolulu's Request for a Variance at the Sand Island Wastewater Treatment Plant under Section 301(h) of the Clean Water Act, page 66 United States Environmental Protection Agency, Region 9 (January 5, 2009).

uncertainties. *See* Response 23 for a discussion regarding cost. EPA acknowledges that the construction and operation of a secondary treatment plant will be a significant expense for Gloucester, but financial considerations are not included in the statutory criteria listed in the applicable provisions of the Clean Water Act, or the implementing regulations for 301(h) waivers. 33 U.S.C. § 1311(h); 40 CFR Part 125, Subpart G. Gloucester's Water Pollution Control Facility is not meeting water quality standards and the statutory and regulatory criteria for maintaining a 301(h) modification are not being met. (*See* Responses 9 – 19). As it has turned out, EPA has moved slowly on its decision on the City's request to renew the Section 301(h) waiver. Indeed, the comment was submitted more than 10 years ago. While this has delayed any financial commitment from the City toward constructing secondary treatment, it has also given more time for more effluent data to be collected. This data shows that the City still is unable to meet the standards for determining whether a waiver from secondary treatment can be granted. *See* Responses 9 – 19 and Appendix A. That said, given that construction and operation of a secondary treatment plant will be a significant expense for Gloucester, EPA is committed to working with the City on an implementation schedule for secondary treatment that will take affordability and the City's competing financial demands and infrastructure needs into account. *See* Response 23.

Outfall 001

Parameter	Flow	BOD5	BOD5	BOD5	TSS	TSS	TSS	pH
	Annual Rolling Ave	Monthly Ave	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Daily Max	Minimum
Units	MGD	lb/d	mg/L	mg/L	lb/d	mg/L	mg/L	SU
Effluent Limit	**5.15**	**10520**	**245**	**367**	**6010**	**140**	**210**	**6**
Minimum	**2.22**	**2.957**	**66**	**93**	**989**	**29**	**44**	**6.1**
Maximum	**3.97**	**3908**	**180**	**321**	**4522**	**82**	**166**	**605**
Median	**3.31**	**3110**	**114**	**159**	**1380**	**52**	**76**	**6.5**
No. of Violations	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
12/31/2016	3.14	3718	141	193	1549	60	110	6.3
1/31/2017	3.2	3765	95	133	2172	48	99	605
2/28/2017	3.18	3172	89	134	1858	53	93	6.4
3/31/2017	3.09	3158	113	160	1323	48	105	6.7
4/30/2017	3.26	3588	86	129	1968	45	76	6.5
5/31/2017	3.32	3056	104	133	1640	55	76	6.8
6/30/2017	3.76	3184	114	167	1830	64	101	6.1
7/31/2017	2.75	3468	151	185	1933	82	106	6.7
8/31/2017	2.98	3447	180	321	1428	75	106	6.7
9/30/2017	2.75	2954	164	181	1321	74	128	6.7
10/31/2017	2.22	2812	157	184	1420	78	105	6.5
11/30/2017	3.37	3318	163	224	1444	71	149	6.4
12/31/2017	2.67	2912	127	159	1430	62	114	6.8
1/31/2018	3.62	3056	111	174	1537	55	70	6.8
2/28/2018	3.97	3166	93	110	1488	43	54	6.7
3/31/2018	3.37	2863	75	97	1346	35	53	6.7
4/30/2018	3.88	3209	99	113	1742	54	72	6.4
5/31/2018	3	3128	128	189	1441	58	89	6.2
6/30/2018	3.06	3070	155	185	1163	59	78	6.7
7/31/2018	3.04	3202	164	193	1487	76	166	6.8
8/31/2018	3.05	3221	161	185	1298	65	79	6.8
9/30/2018	3.09	3313	140	197	1404	57	72	6.5
10/31/2018	2.86	2756	122	146	1214	53	67	6.5
11/30/2018	3.44	3416	66	110	2077	40	64	6.7
12/31/2018	3.52	2718	94	134	4522	65	159	6.4
1/31/2019	3.95	2645	102	143	1366	52	103	6.5
2/28/2019	3.45	2886	102	127	1098	38	44	6.6
3/31/2019	3.36	2861	89	108	1126	35	48	6.4
4/30/2019	3.36	3419	104	129	1599	46	56	6.2
5/31/2019	3.42	3111	111	163	1601	57	97	6.6

Outfall 001

Parameter	Flow	BOD5	BOD5	BOD5	TSS	TSS	TSS	pH
	Annual Rolling Ave	Monthly Ave	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Daily Max	Minimum
Units	MGD	lb/d	mg/L	mg/L	lb/d	mg/L	mg/L	SU
Effluent Limit	**5.15**	**10520**	**245**	**367**	**6010**	**140**	**210**	**6**
6/30/2019	3.16	3340	148	177	1525	67	109	6.4
7/31/2019	3.21	3386	147	178	1250	54	80	6.7
8/31/2019	2.55	3365	164	198	1124	54	72	6.5
9/30/2019	2.31	3110	164	185	1038	55	72	6.3
10/31/2019	2.71	2746	127	164	989	44	61	6.6
11/30/2019	3.38	2995	104	138	1405	45	55	6.2
12/31/2019	3.31	3181	75	153	1284	29	44	6.5
1/31/2020	3.33	2637	91	126	1092	37	59	6.2
2/29/2020	3.31	2887	113	134	1099	43	56	6.5
3/31/2020	3.25	2659	95	111	1247	45	56	6.5
4/30/2020	3.33	2540	66	93	1441	37	47	6.7
5/31/2020	3.33	2670	98	144	1393	50	76	6.5
6/30/2020	3.32	3032	137	195	1320	59	74	6.7
7/31/2020	3.33	2994	128	165	1016	44	73	6.4
8/31/2020	3.34	3106	140	161	1032	46	64	6.6
9/30/2020	3.36	3294	162	204	1195	58	82	6.7
10/31/2020	3.38	3214	143	231	1315	56	76	6.6
11/30/2020	3.35	3249	126	206	1380	52	84	6.7
12/31/2020	3.26	3072	97	130	1499	47	95	6.5
1/31/2021	3.22	3072	119	159	1242	48	54	6.6
2/28/2021	3.27	3382	97	139	1714	48	74	6.6
3/31/2021	3.25	3110	126	158	1288	51	85	6.3
4/30/2021	3.14	3184	114	146	1231	44	69	6.7
5/31/2021	3.19	2782	94	122	1244	43	72	6.6
6/30/2021	3.23	3009	118	161	1196	46	64	6.3
7/31/2021	3.36	2.957	78	140	1741	43	53	6.2
8/31/2021	3.45	3209	108	133	1211	40	53	6.5
9/30/2021	3.55	2963	108	166	1197	42	87	6.2
10/31/2021	3.56	2998	121	159	1321	53	77	6.4
11/30/2021	3.56	3103	125	176	1483	60	76	6.6
12/31/2021	3.47	3908	165	221	1733	74	105	6.7

Outfall 001

Parameter	pH	Fecal Coliform	Fecal Coliform	TRC	TRC	Oil & grease	Hydrocarbons, petroleum	Solids, settleable
	Maximum	Monthly Geometric Mean	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Daily Max
Units	SU	#/100mL	#/100mL	mg/L	mg/L	mg/L	mg/L	mL/L
Effluent Limit	8.5	200	400	0.49	0.77	25	5	0.8
Minimum	6.8	10	10	0.15	0.48	4.3	1	0
Maximum	7.8	39	1300	0.41	0.75	19.3	8.8	0
Median	7	13	60	0.25	0.68	10.8	3	0
No. of Violations	0	0	3	0	0	0	8	0
12/31/2016	6.9	16	75	0.27	0.65	10.8	2	0
1/31/2017	6.9	14	60	0.23	0.68	12	5	0
2/28/2017	6.9	21	105	0.23	0.75	11.5	4	0
3/31/2017	7.3	18	115	0.2	0.57	14	1	0
4/30/2017	6.8	13	35	0.21	0.65	14.6	4	0
5/31/2017	7.3	18	105	0.23	0.69	11.2	2	0
6/30/2017	7.7	29	255	0.15	0.56	10.3	6.3	0
7/31/2017	7.3	39	440	0.17	0.55	13.8	7.5	0
8/31/2017	7	18	75	0.2	0.58	16	6.5	0
9/30/2017	7	21	65	0.24	0.59	15.5	8.8	0
10/31/2017	7	17	160	0.23	0.7	19.3	5	0
11/30/2017	7.2	39	1125	0.32	0.71	17.8	6.8	0
12/31/2017	7.2	14	65	0.22	0.72	16	4	0
1/31/2018	6.9	12	30	0.21	0.75	11.6	5	0
2/28/2018	6.9	10	14	0.25	0.61	9.3	2	0
3/31/2018	7	11	30	0.25	0.6	7.3	3	0
4/30/2018	7.1	10	15	0.24	0.6	11.3	4	0
5/31/2018	7	17	210	0.15	0.48	10.2	4	0
6/30/2018	7.1	15	120	0.23	0.59	12.8	4.5	0
7/31/2018	7	18	80	0.31	0.72	16.8	5	0
8/31/2018	7	20	125	0.27	0.66	14.8	3	0
9/30/2018	7	15	40	0.32	0.71	16	4	0
10/31/2018	7.3	16	60	0.3	0.69	10.8	5	0
11/30/2018	6.8	16	45	0.33	0.74	8.8	2	0
12/31/2018	6.9	13	245	0.25	0.64	9.5	5	0
1/31/2019	7.1	12	30	0.19	0.66	8.6	5	0
2/28/2019	7	11	40	0.22	0.71	11	2	0
3/31/2019	6.9	10	10	0.27	0.73	7.8	3	0
4/30/2019	6.9	11	30	0.32	0.68	9.4	2	0
5/31/2019	6.9	18	120	0.18	0.65	10.8	3	0

Outfall 001

Parameter	pH	Fecal Coliform	Fecal Coliform	TRC	TRC	Oil & grease	Hydrocarbons, petroleum	Solids, settleable
	Maximum	Monthly Geometric Mean	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Daily Max
Units	SU	#/100mL	#/100mL	mg/L	mg/L	mg/L	mg/L	mL/L
Effluent Limit	8.5	200	400	0.49	0.77	25	5	0.8
6/30/2019	7.8	16	175	0.23	0.53	14	6	0
7/31/2019	6.9	13	60	0.26	0.7	14.6	4	0
8/31/2019	6.9	13	60	0.23	0.67	15.3	4	0
9/30/2019	7	10	10	0.23	0.69	18.3	5.8	0
10/31/2019	7	14	180	0.27	0.71	11	2	0
11/30/2019	6.8	10	10	0.29	0.68	14	4	0
12/31/2019	7	13	90	0.34	0.66	7	2	0
1/31/2020	7	11	65	0.25	0.56	7	3	0
2/29/2020	7	11	20	0.23	0.75	8.8	4.5	0
3/31/2020	7.1	13	310	0.3	0.68	6.8	2	0
4/30/2020	7	10	10	0.29	0.68	6	5	0
5/31/2020	7	13	75	0.23	0.6	7.5	2	0
6/30/2020	7.2	17	305	0.3	0.65	8.6	3	0
7/31/2020	7.1	12	40	0.39	0.75	9	3	0
8/31/2020	7.1	16	180	0.39	0.73	9.3	2	0
9/30/2020	7.2	11	25	0.34	0.61	13.4	5	0
10/31/2020	7.2	12	60	0.41	0.72	9.5	5	0
11/30/2020	7	18	65	0.34	0.71	10.8	3	0
12/31/2020	7	11	50	0.33	0.72	9	2	0
1/31/2021	7	11	25	0.26	0.63	10	3	0
2/28/2021	7	11	35	0.23	0.63	8.5	5	0
3/31/2021	6.9	12	25	0.29	0.74	13.6	3	0
4/30/2021	7	10	10	0.32	0.68	9.5	3	0
5/31/2021	6.9	10	10	0.28	0.71	7	2	0
6/30/2021	7	15	1300	0.29	0.64	7.6	2	0
7/31/2021	7	11	40	0.28	0.75	6.3	2	0
8/31/2021	7	17	11	0.24	0.62	7.8	2	0
9/30/2021	6.9	12	30	0.17	0.72	4.3	2	0
10/31/2021	7	10	10	0.16	0.71	11.8	3	0
11/30/2021	7	10	10	0.2	0.61	9.6	2	0
12/31/2021	7.1	11	20	0.37	0.75	11.8	5.3	0

Outfall 001

Parameter	Priority pollutants total effluent
	Daily Max
Units	mg/L
Effluent Limit	Report
Minimum	**0.089**
Maximum	**0.216**
Median	**0.1638**
No. of Violations	N/A
10/31/2017	0.216
10/31/2018	0.1638
10/31/2019	0.166302
10/31/2020	0.089
10/31/2021	0.111635

Outfall 001 - WET

Parameter	LC50 Acute Menidia	LC50 Static 48Hr Acute Mysid. Bahia
	Monthly Ave Min	Monthly Ave Min
Units	%	%
Effluent Limit	100	100
Minimum	17.1	24.1
Maximum	100	100
Median	57.9	100
No. of Violations	18	9
12/31/2016	100	100
3/31/2017	61.1	82.3
6/30/2017	100	100
9/30/2017	50	74.6
12/31/2017	46.1	100
3/31/2018	72.2	100
6/30/2018	66.2	69.7
9/30/2018	31.3	68
12/31/2018	84.5	89.1
3/31/2019	67.6	100
6/30/2019	56.6	100
9/30/2019	47.3	74
12/31/2019	87.1	100
3/31/2020	28.3	58.4
6/30/2020	25	100
9/30/2020	18.2	24.1
12/31/2020	88.3	100
3/31/2021	31.8	100
6/30/2021	100	100
9/30/2021	57.9	95.9
12/31/2021	17.1	100

Outfall 001 - Influent

Parameter	BOD5	BOD5	BOD5	TSS	TSS	TSS	BOD5	TSS
	Monthly Ave	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Daily Max	Monthly Ave Min	Monthly Ave Min
Units	lb/d	mg/L	mg/L	lb/d	mg/L	mg/L	% removal	% removal
Effluent Limit	Report	Report	Report	Report	Report	Report	30	30
Minimum	4450	131	174	3838	131	180	4450	131
Maximum	7084	353	756	8120	334	526	7084	353
Median	5674	210	304	5643	211	308	5674	210
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	0	0
12/31/2016	6499	249	388	5546	214	316	34	70
1/31/2017	7084	178	221	7609	174	292	NODI: 9	NODI: 9
2/28/2017	6342	179	263	7265	203	308	NODI: 9	NODI: 9
3/31/2017	5867	210	297	4960	186	282	NODI: 9	NODI: 9
4/30/2017	7010	168	231	6949	159	290	NODI: 9	NODI: 9
5/31/2017	5674	194	258	6780	229	324	NODI: 9	NODI: 9
6/30/2017	6680	230	427	6874	237	296	48	74
7/31/2017	5934	259	390	7126	303	360	NODI: 9	NODI: 9
8/31/2017	6756	353	756	6014	315	492	49	74
9/30/2017	5778	320	425	5814	323	376	49	77
10/31/2017	5651	317	414	6148	334	518	50	77
11/30/2017	6250	307	484	5016	248	338	47	71
12/31/2017	6376	280	533	5741	252	455	49	75
1/31/2018	6669	246	408	6537	228	336	55	76
2/28/2018	6693	195	270	6528	190	261	53	77
3/31/2018	6151	158	190	6676	169	200	53	79
4/30/2018	5671	176	218	6528	200	259	44	73
5/31/2018	5834	240	345	5996	243	406	47	76
6/30/2018	5922	299	356	5590	282	378	48	77
7/31/2018	5590	285	333	5321	265	376	41	71
8/31/2018	5466	274	338	5130	257	472	41	75
9/30/2018	5559	236	355	5035	209	275	41	73
10/31/2018	5441	242	431	4783	209	292	50	75
11/30/2018	6755	134	283	6688	131	317	50	70
12/31/2018	5972	172	211	5643	192	300	45	66
1/31/2019	4926	190	267	5265	200	331	46	72
2/28/2019	5088	181	253	5460	194	259	44	80
3/31/2019	5015	156	186	4959	154	192	43	77
4/30/2019	6237	189	250	4617	138	180	45	66
5/31/2019	5504	196	271	4969	176	248	43	68
6/30/2019	6006	265	335	4856	212	336	44	68
7/31/2019	5709	247	318	4904	212	288	41	74
8/31/2019	5737	280	346	4555	220	260	41	75

Outfall 001 - Influent

Parameter	BOD5	BOD5	BOD5	TSS	TSS	TSS	BOD5	TSS
	Monthly Ave	Monthly Ave	Daily Max	Monthly Ave	Monthly Ave	Daily Max	Monthly Ave Min	Monthly Ave Min
Units	lb/d	mg/L	mg/L	lb/d	mg/L	mg/L	% removal	% removal
Effluent Limit	Report	Report	Report	Report	Report	Report	30	30
9/30/2019	6037	318	363	4210	220	329	49	75
10/31/2019	5495	253	328	4538	205	265	50	78
11/30/2019	6013	204	266	5601	176	316	49	75
12/31/2019	6595	155	226	7345	171	290	51	83
1/31/2020	5745	195	284	6179	207	250	53	82
2/29/2020	5589	221	320	5052	199	283	49	79
3/31/2020	5250	192	239	5800	210	263	50	79
4/30/2020	5057	131	174	6229	157	239	50	76
5/31/2020	5346	200	336	5721	207	294	51	76
6/30/2020	5481	247	353	6686	303	400	50	79
7/31/2020	5742	246	303	6105	262	402	49	79
8/31/2020	5620	253	334	6301	283	397	48	80
9/30/2020	5405	265	304	5153	252	526	46	80
10/31/2020	5353	241	367	5242	231	330	45	80
11/30/2020	5543	215	351	4733	181	246	43	79
12/31/2020	5682	183	286	5587	180	414	44	78
1/31/2021	4451	173	200	4009	156	202	41	75
2/28/2021	5168	151	202	6155	175	279	39	73
3/31/2021	5813	237	317	5571	219	395	40	73
4/30/2021	5493	195	267	6975	237	360	40	74
5/31/2021	4581	154	193	6115	212	368	40	76
6/30/2021	5516	216	305	6938	271	452	40	77
7/31/2021	5625	151	216	8120	211	268	43	79
8/31/2021	5282	177	270	7002	234	356	43	81
9/30/2021	5085	184	329	5504	192	238	42	81
10/31/2021	4450	181	256	3838	159	238	41	79
11/30/2021	4888	197	279	5610	223	256	41	77
12/31/2021	6224	265	353	5600	239	398	39	75

Outfall 001

Parameter	BOD5	TSS
	Monthly Ave Min	Monthly Ave Min
Units	% removal	% removal
Effluent Limit	30	30
Minimum	34	66
Maximum	55	83
Median	44	75
No. of Violations	0	0
12/31/2016	34	70
1/31/2017	NODI: 9	NODI: 9
2/28/2017	NODI: 9	NODI: 9
3/31/2017	NODI: 9	NODI: 9
4/30/2017	NODI: 9	NODI: 9
5/31/2017	NODI: 9	NODI: 9
6/30/2017	48	74
7/31/2017	NODI: 9	NODI: 9
8/31/2017	49	74
9/30/2017	49	77
10/31/2017	50	77
11/30/2017	47	71
12/31/2017	49	75
1/31/2018	55	76
2/28/2018	53	77
3/31/2018	53	79
4/30/2018	44	73
5/31/2018	47	76
6/30/2018	48	77
7/31/2018	41	71
8/31/2018	41	75
9/30/2018	41	73
10/31/2018	50	75
11/30/2018	50	70
12/31/2018	45	66
1/31/2019	46	72
2/28/2019	44	80
3/31/2019	43	77
4/30/2019	45	66
5/31/2019	43	68
6/30/2019	44	68
7/31/2019	41	74
8/31/2019	41	75

Outfall 001

Parameter	BOD5	TSS
	Monthly Ave Min	Monthly Ave Min
Units	% removal	% removal
Effluent Limit	30	30
9/30/2019	49	75
10/31/2019	50	78
11/30/2019	49	75
12/31/2019	51	83
1/31/2020	53	82
2/29/2020	49	79
3/31/2020	50	79
4/30/2020	50	76
5/31/2020	51	76
6/30/2020	50	79
7/31/2020	49	79
8/31/2020	48	80
9/30/2020	46	80
10/31/2020	45	80
11/30/2020	43	79
12/31/2020	44	78
1/31/2021	41	75
2/28/2021	39	73
3/31/2021	40	73
4/30/2021	40	74
5/31/2021	40	76
6/30/2021	40	77
7/31/2021	43	79
8/31/2021	43	81
9/30/2021	42	81
10/31/2021	41	79
11/30/2021	41	77
12/31/2021	39	75

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),

The City of Gloucester
9 Dale Avenue
Gloucester, MA 01930

is authorized to discharge from the facility located at:

Gloucester Water Pollution Control Facility
50 Essex Avenue, Gloucester, MA 01930
and from five (5) Combined Sewer Overflows (CSOs)
(see Page 8 of this permit for locations
to receiving waters named:

OUTFALLS	RECEIVING WATERS	BASINS	CLASS
WPCF outfall (outfall 001)	Massachusetts Bay	USGS HUC Code - 01090001	Class SA
5 CSOs (outfalls 002-006)	Gloucester Harbor	North Coastal Basin – MA93-18	Class SB

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

This permit shall become effective on**

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 signed on August 28, 2001 and which became effective on October 27, 2001.

This permit consists of 17 Pages in Part I including effluent limitations, monitoring requirements, etc.; Attachments A (Acute Toxicity Test Procedure and Protocol), B (Industrial Pretreatment Annual Report), C (Reassessment of Technically Based Local Limits), and D (Nine Minimum Controls Guidance); and Part II Standard Conditions.

Signed this day of , 2010

_____
Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

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

****** This permit will become effective on the date of signature if no comments are received during public notice. If comments are received during public notice, this permit will become effective no sooner than 30 days after signature.

PART I

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

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE[3] TYPE**
FLOW[2]	**********	**********	7.24 mgd	**********	**********	CONTINUOUS	RECORDER
FLOW[2]	**********	**********	Report mgd	**********	Report mgd	CONTINUOUS	RECORDER
BOD_5[4]	1811 lbs/Day	2717 lbs/Day	30 mg/l	45 mg/l	Report mg/l	3/WEEK	24-HOUR COMPOSITE[5]
TSS [4]	1811 lbs/Day	2717 lbs/Day	30 mg/l	45 mg/l	Report mg/l	3/WEEK	24-HOUR COMPOSITE[5]
pH RANGE[1]	6.5 - 8.5 SU. SEE PARAGRAPH I.A.1.b.					1/DAY	GRAB
TOTAL CHLORINE RESIDUAL[7]	**********	**********	0.48 mg/l	**********	0.83 mg/l	3/DAY	GRAB
OIL AND GREASE[8]	**********	**********	**********	**********	0.0 mg/l	1/WEEK	GRAB
TOTAL PETROLEUM[8] HYDROCARBONS	**********	**********	**********	**********	0.0 mg/l	1/WEEK	GRAB
FECAL COLIFORM[1,6]	**********	**********	14 MPN/100 ml	**********	28 MPN/100 ml	3/WEEK	GRAB
ENTEROCOCCI BACTERIA[1,6]	**********	**********	35 MPN/100 ml	**********	276 MPN/100 ml	3/WEEK	GRAB
WHOLE EFFLUENT TOXICITY SEE FOOTNOTES 9, 10, and 11	Acute $LC_{50} \geq 100\%$					4/YEAR	24-HOUR COMPOSITE[5]

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.

   The annual average flow limit is 5.15 MGD until such time as a flow increase to 7.24 MGD is: 1) deemed appropriate by a state antidegradation review, 314 CMR 4.04, 2) is supported by a comprehensive wastewater management plan (CWMP), 301 CMR 11.00, 3) is supported by a Massachusetts Environmental Policy Act (MEPA) review, M.G.L. c. 30 § 61, *et seq*, and 4) the City has obtained a Massachusetts Ocean Sanctuaries Act variance authorizing the increased discharge, M.G.L. c. 132A § 12A, *et seq* 5) and the City has completed construction of the secondary treatment facilities.

   The City shall notify EPA and MassDEP **at least 60 days in advance of the expected date for completing the 7.24 MGD secondary treatment facility**.

3. All required effluent samples shall be collected at a representive point. Any change form the current sampling location must be reviewed and approved in writing by EPA and MassDEP. 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. The permittee is required to submit the results to EPA and MassDEP of any additional testing done than that required in the permit, if it is conducted in accordance with EPA approved methods, consistent with the provisions of 40 CFR §122.41(l)(4)(ii).

   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.

4. Sampling required for influent and effluent.

5. 24-hour composite samples will consist of at least twenty four (24) grab samples taken during one consecutive 24 hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

6. Enterococci samples shall be taken concurrently with fecal coliform samples. Each bacterium sampling event will also be conducted concurrent with a required total residual chlorine sample. The monthly average limit for fecal coliform and enterococci are expressed as geometric means.

7. Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection, or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

8. Both total petroleum hydrocarbons (TPH) and oil and grease shall be tested using EPA Method 1664A- n-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated n-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry Revision A or Standard Methods Online, Method 5520 B–01.

   The permittee shall have no detectable discharge of oil and grease or TPH. Compliance shall be measured at the minimum level-ML (of detection) for the EPA approved test methods. The oil and grease and TPH ML is 5 mg/l using EPA Method 1664A, where the ML is the lowest point on the curve used to calibrate the test equipment for the pollutant of concern. If EPA approves methods under 40 CFR Part 136 for either, oil and grease or TPH that have a ML lower than 5 mg/l, the permittee shall be required to use the improved method.

9. The permittee shall conduct four acute WET tests per year. The tests use two aquatic species, mysid shrimp (Mysidopsis bahia or Americamysis bahia) and inland silverside (Menidia beryllina) in a definitive 48-hour test.

   Toxicity test samples shall be collected on the same weeks of each of the months of March, June, September, and December. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

Test Dates Same Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**
March June September December	April 30th July 31st October 31st January 30th	Mysid shrimp (Mysidopsis bahia) or (Americamysis bahia) Inland silverside (Menidia beryllina) See Attachment A	≥100%

   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.

10. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

11. 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 in Attachment G of *NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA Region I web site at http://www.epa.gov/Region1/enforcementandassistance/dmr.html. 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 waters**.**

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 waters.

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

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of 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.

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

a. Any new introduction of pollutants into that POTW from an indirect discharger in a primary industry category discharging process water; and

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

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

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

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

A.3. Prohibitions Concerning Interference and Pass Through:

a. Pollutants introduced into POTWs by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

B. **DEVELOPMENT OF LIMITATIONS FOR INDUSTRIAL USERS:**

1. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. **Within 120 days of the effective date of this permit,** the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the permittee shall assess how the POTW performs with respect to influent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form, **Attachment C**, with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits analysis in accordance with EPA's Local Limits Development Guidance (July, 2004).

2. **Within 120 days of the effective date of this permit**, the permittee shall develop and submit to EPA a Maximum Allowable Industrial Headworks Loading (MAIHL) for Oil and Grease. The proposed MAIHL should be submitted to EPA for approval in accordance with 40 CFR 403.18(c). Upon EPA approval, the MAIHL shall be adopted, immediately, into the City's Sewer Use Ordinance. This requirement is in addition to the evaluation of all local limits required by the preceding paragraph.

C. INDUSTRIAL PRETREATMENT PROGRAM

1. The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR 403.

   At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program ("IPP"):

   a. Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

   b. Issue or renew all necessary industrial user control mechanisms within 120 days of their expiration date or within 180 days after the industry has been determined

to be a significant industrial user.

c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement; and

d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

2. The permittee shall provide the EPA and the MA DEP with an annual report describing the permittee's pretreatment program activities over the twelve month period ending 60 days prior to the due date in accordance with 403.12(i). **The annual report shall be consistent with the format described in Attachment B of this permit and shall be submitted no later than March 1, of each year.**

3. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).

4. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR 405 et. seq.

5. On October 14, 2005, EPA published in the Federal Register final changes to the General Pretreatment Regulations. 70 Fed. Reg 60134 (codified at 40 CFR Part 403). The final "Pretreatment Streamlining Rule" is designed to reduce the burden to industrial users and provide regulatory flexibility in technical and administrative requirements for industrial users and POTWs. To the extent that the POTW's legal authorities are not consistent with the required changes, they must be revised and submitted to EPA for review within 60 days of the effective date of this permit.

6. The City shall operate a "fats, oil, and grease" (FOG) program to educate private and commercial sewer users about practices to eliminate fats, oils and grease at the source, rather than introducing FOG to the collection system.

D. TOXICS CONTROL

1. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

2. 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.

3. EPA or MassDEP 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.

E. COMBINED SEWER OVERFLOWS (CSO)

1. During wet weather, the permittee is authorized to discharge stormwater/wastewater from the following combined sewer outfalls subject to the following effluent limitations:

Number	Name	Receiving Water
002	Mansfield Street Drain	Gloucester Harbor
004	Rogers Street CSO	Harbor Cove
005	Main Street CSO	Gloucester Inner Harbor
006	East Main Street CSO	Gloucester Inner Harbor
006A	East Main Street CSO	Gloucester Inner Harbor

a. The discharges shall not cause or contribute to violations of federal or state Water Quality Standards

b. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgment (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control includes the implementation of Nine Minimum Controls (NMC) specified below and detailed further in Part I.E.2, "Nine Minimum Controls Minimum Implementation Levels" of this permit:

(1) Proper operation of, and regular maintenance programs for, the sewer system and the CSOs.

(2) Maximize the use of the collection system for storage of combined wastewater and stormwater in order to minimize CSO discharges.

(3) Review and, as appropriate, modify the pretreatment program to minimize the adverse effects of CSO discharges.

(4) Maximize the proportion of the system's wastewater, and combined wastewater/stormwater, flow that is conveyed to the POTW for treatment.

(5) Dry weather overflows from CSOs are prohibited and must be eliminated.

(6) Minimize the discharge of solid and floatable materials in CSO discharges.

(7) Implement pollution prevention programs that focus on contaminant reduction activities.

(8) Provide adequate notice to the public of CSO occurrences and CSO impacts.

(9) Monitor to effectively characterize CSO impacts and the efficacy of CSO controls.

2. The permittee shall continue to implement the Nine Minimum Control Program (NMC) as documented as of September, 1996, or as subsequently modified to enhance the effectiveness of the controls. **Within one year of the effective date of the permit, the permittee shall submit to EPA and MassDEP an updated NMC program, including an updated High Flow Management Plan. Annually, by March 1, the permittee shall submit to EPA and MassDEP, documentation of its implementation of the Nine Minimum Controls**. EPA and MassDEP consider that an approvable program must include the minimum requirements set forth in Part I.E.2 of this permit and additional activities the permittee can reasonably undertake. (See Permit Attachment D – Nine Minimum Controls).

(1) Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected to insure that they are in good working condition and adjusted to minimize combined sewer discharges and tidal surcharging. Such inspections shall occur monthly unless EPA approves a site specific inspection program which has been determined by EPA to provide an equal level of effectiveness (NMC #1, 2, and 4).

(2) The following inspection results shall be recorded: the date and time of the inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The permittee shall maintain all records of inspections for at least three (3) years.

(3) **Annually, no later than <u>January 15th</u>**, the permittee shall submit a certification to the State and EPA which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained.

(4) The State and EPA have the right to inspect any CSO related structure or outfall, without prior notification to the permittee.

(5) Discharges to the combined system of septage, holding tank wastes or other material which may cause a visible oil sheen or containing floatable material are prohibited during wet weather when CSO discharges may be active. (NMC# 3, 6, and 7).

(6) Dry weather overflows (DWOs) are prohibited (NMC# 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and the State within twenty four (24) hours in accordance with the reporting requirements for plant bypass (Paragraph D.1.e, of the General Requirements of this permit.

(7) The permittee shall quantify and record discharges from the combined sewer outfalls (NMC# 9). Quantification may be through direct measurement or estimation. When estimating, the permittee shall make reasonable efforts (i.e., gaging, measurements) to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

(a) Estimated duration (hours) of discharge;
(b) Estimated volume (gallons) of discharge; and
(c) National Weather Service precipitation data from the nearest gage where precipitation is available at daily (twenty four (24) hour) intervals and the nearest gage where precipitation is available at one-hour intervals.

(8) Cumulative precipitation per discharge event shall be calculated.

(9) The permittee shall maintain all records of discharges for at least six (6) years after the effective date of this permit, as it is collected, on an ongoing basis.

(10) **Within 3 months of the effective date of this permit**, the permittee shall verify that identification signs are in place for all combined sewer outfall structures. The signs must be located at or near the combined sewer outfall structures and easily readable by the public. These signs shall be a minimum of twelve x eighteen (12 x 18) inches in size, with white lettering against a green background, and shall contain the following information:

WARNING:
WET WEATHER
SEWAGE DISCHARGE
GLOUCESTER OUTFALL (No. XXX)

3. This permit may be reopened to add additional technology-based requirements based on information assembled during Gloucester's development of a Long-Term CSO Control Plan (as required by current Consent Decree).

4.. The permittee may consolidate CSO reports which are on similar reporting schedules.

F. UNAUTHORIZED DISCHARGES

1. The permit only authorizes discharges in accordance with the terms and conditions of this permit and only from the outfalls listed in Parts I.A.1 and I.E.1, of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) from any portion of the collection system owned and operated by the permittee or co-permittees are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e. (1) of the General Requirements of this permit (Twenty-four hour reporting).

   Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at http://www.mass.gov/dep/water/approvals/surffms.htm#sso.

G. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of this permit and the following terms and conditions. The permittee shall meet the following conditions for the collection system:

1. Maintenance Staff

   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

   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 update and continue to implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The 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 permittees 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

The permittee shall require, through appropriate agreements that all member communities develop and implement infiltration and inflow control plans sufficient to ensure that high flows do not cause or contribute to a violation of the permittees effluent limitations, or cause overflows from the permittees collection system.

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 MassDEP **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.

H. ALTERNATIVE POWER SOURCE

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

I. 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 Section 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 § 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 § 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) and pathogen 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 503.8.

7. Under 40 CFR § 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 § 503.9(r) – i.e., with "a person 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 § 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 § 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 (§ 503.18 (land application), § 503.28 (surface disposal), or § 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.

J. MONITORING AND REPORTING

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

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 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 this 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 this 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
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period. All reports required under this permit, including 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 or notifications required herein or in Part II shall be submitted to the Director at the following address:

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

Duplicate signed copies of all reports or notifications required above shall be submitted to the State at the following addresses:

MassDEP – Northeast Region
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

Any verbal reports, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA-New England and to MassDEP.

K. 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.

PERMIT ATTACHMENT A
MARINE ACUTE
TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable acute toxicity tests in accordance with the appropriate test protocols described below:

- Mysid Shrimp (Mysidopsis bahia or Americamysis bahia**) definitive 48 hour test.**

- **Inland Silverside (Menidia beryllina) definitive 48 hour test.**

Acute toxicity data shall be reported as outlined in Section VIII.

II. METHODS

Methods to follow are those recommended by EPA in:

Weber, C.I. et al. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, Fourth Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH. August 1993, EPA/600/4-90/027F.

Any exceptions are stated herein.

III. SAMPLE COLLECTION

A discharge sample shall be collected. 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 1.0 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^{o}C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected at a point away from the discharge which is free from toxicity or other sources of contamination. 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 conductivity, salinity, total suspended solids, 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 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
5 Post Office Square Suite 100
Mail Code OEP06-5
Boston, MA 02109-3912

It may prove beneficial 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 tests be performed using four replicates of each control and effluent concentration because the non-parametric statistical tests cannot be used with data from fewer replicates. The following tables summarize the accepted Mysid and Menidia toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND RECOMMENDED EFFLUENT TOXICITY TEST CONDITIONS FOR THE MYSID, MYSIDOPSIS BAHIA 48 HOUR TEST[1]

1. Test type	Static, non-renewal
2. Salinity	25ppt ± 10 percent for all dilutions by adding dry ocean salts
3. Temperature (^{o}C)	20^{o}C ± 1^{o}C or 25^{o}C ± 1^{o}C
4. Light quality	Ambient laboratory illumination
5. Photoperiod	16 hour light, 8 hour dark
6. Test chamber size	250 ml
7. Test solution volume	200 ml
8. Age of test organisms	1-5 days
9. No. Mysids per test chamber	10
10. No. of replicate test chambers per treatment	4
11. Total no. Mysids per test concentration	40
12. Feeding regime	Light feeding using concentrated Artemia nauplii while holding prior to initiating the test
13. Aeration[2]	None
14. Dilution water	Natural seawater, or deionized water mixed with artificial sea salts
15. Dilution factor	≥ 0.5
16. Number of dilutions[3]	5 plus a control. An additional dilution at the permitted effluent concentration (%effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality - no movement of body appendages on gentle prodding

18. Test acceptability	90% or greater survival of test organisms in control solution
19. Sampling requirements	For on-site tests, samples are 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.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters

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Footnotes:

1. Adapted from EPA/600/4-90/027F.

2. If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks are recommended.

3. 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 TOXICITY TEST CONDITIONS FOR THE INLAND SILVERSIDE, MENIDIA BERYLLINA 48 HOUR TEST[1]

1.	Test Type	Static, non-renewal
2.	Salinity	25 ppt ± 2 ppt by adding dry ocean salts
3.	Temperature	20°C ± 1°C or 25°C ± 1°C
4.	Light Quality	Ambient laboratory illumination
5.	Photoperiod	16 hr light, 8 hr dark
6.	Size of test vessel	250 mL (minimum)
7.	Volume of test solution	200 mL/replicate (minimum)
8.	Age of fish	9-14 days; 24 hr age range
9.	No. fish per chamber	10 (not to exceed loading limits)
10.	No. of replicate test vessels per treatment	4
11.	total no. organisms per concentration	40
12.	Feeding regime	Light feeding using concentrated Artemia nauplii while holding prior to initiating the test
13.	Aeration[2]	None
14.	Dilution water	Natural seawater, or deionized water mixed with artificial sea salts.
15.	Dilution factor	≥ 0.5
16.	Number of dilutions[3]	5 plus a control. An additional dilution at the permitted concentration (% effluent) is required if it is not included in the dilution series.
17.	Effect measured	Mortality-no movement on gentle prodding.

18.	Test acceptability	90% or greater survival of test organisms in control solution.
19.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time they are removed from the sampling device. Off-site test samples must be used within 36 hours of collection.
20.	Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters.

Footnotes:

1. Adapted from EPA/600/4-90/027F.

2. If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks recommended.

3. When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

VI. CHEMICAL ANALYSIS

At the beginning of the static acute test, pH, salinity, and temperature must be measured at the beginning and end of each 24 hour period in each dilution and in the controls. The following chemical analyses shall be performed for each sampling event.

Parameter	Effluent	Diluent	Minimum Quanti-fication Level (mg/L)
pH	x	x	---
Salinity	x	x	PPT(o/oo)
Total Residual Oxidants[*1]	x	x	0.05
Total Solids and Suspended Solids	x	x	---
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Metals			
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

Superscript:

[*1] Total Residual Oxidants

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

-Method 4500-Cl E Low Level Amperometric Titration (the preferred method);
-Method 4500-CL G 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

An estimate of the concentration of effluent or toxicant that is lethal to 50% of the test organisms during the time prescribed by the test method.

Methods of Estimation:

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

See flow chart in Figure 6 on page 77 of EPA 600/4-90/027F for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See flow chart in Figure 13 on page 94 of EPA 600/4-90/027F.

VIII. TOXICITY TEST REPORTING

The following must be reported:

- 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 toxicity test data must be included.
- Raw data and bench sheets.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.
- Statistical tests used to calculate endpoints.

ATTACHMENT B
NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 C.F.R. 403.8(f)(2)(i), indicating compliance or noncompliance with the following:
- baseline monitoring reporting requirements for newly promulgated industries
- compliance status reporting requirements for newly promulgated industries
- periodic (semi-annual) monitoring reporting requirements, categorical standards, and local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:
- significant industrial users inspected by POTW (include inspection dates for each industrial user),
- significant industrial users sampled by POTW (include sampling dates for each industrial user),
- compliance schedules issued (include list of subject users),
- written notices of violations issued (include list of subject users),
- administrative orders issued (include list of subject users),
- criminal or civil suits filed (include list of subject users) and,
- penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 C.F.R. 403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for Northampton's Wastewater Treatment System and effluent sampling results versus water quality standards.

Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling program described in this Permit.

At a minimum, annual sampling and analysis of the influent and effluent of the Northampton Wastewater Treatment Plant shall be conducted for the following pollutants:

a.) Total Cadmium	f.) Total Nickel
b.) Total Chromium	g.) Total Silver
c.) Total Copper	h.) Total Zinc
d.) Total Lead	i.) Total Cyanide
e.) Total Mercury	j.) Total Arsenic

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;

7. A thorough description of all investigations into interference and pass-through during the past year;

8. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;

9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the Town is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

PERMIT ATTACHMENT C
REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS
(TBLLs)

POTW Name & Address: _____

NPDES PERMIT #: _____

Date EPA approved current TBLLs :
_____

Date EPA approved current Sewer Use Ordinance:
_____

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.		
	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?

If yes, explain.

_____

_____

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain. _____

_____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Industrial Headwork Loading (MAIHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAIHL value was established, i.e. water quality, sludge, NPDES etc.

Pollutant	Column (1) Influent Data Analyses Maximum (lb/day)	Average (lb/day)	Column (2) MAHL Values (lb/day)	Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1) Effluent Data Analyses		Columns (2A) (2B) Water Quality Criteria (Gold Book)	
	Maximum (ug/l)	Average (ug/l)	From TBLLs (ug/l)	Today (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.			
Column (1) NEW PERMIT		Column (2) OLD PERMIT	
Pollutants	Limitations (ug/l)	Pollutants	Limitations (ug/l)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that were used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Column (1) Pollutant Biosolids Data Analyses	Average (mg/kg)	Columns (2A) Biosolids Criteria From TBLLs (mg/kg)	(2B) New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

Attachment D
NINE MINIMUM CONTROLS
DOCUMENTATION AND IMPLEMENTATION GUIDANCE

The following guidance is for communities preparing documentation to demonstrate adequate implementation of the nine minimum technology based control measures for combined sewer overflows. For further information see *Combined Sewer Overflows: Guidance for Nine Minimum Controls (EPA MAY 1995)(EPA 832-B-95-003)*.

EPA has made a Best Professional Judgment (BPJ) determination that adequate implementation of technology based requirements, Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants, and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants, must include implementation of the nine minimum controls.

Documentation Requirements

Documentation should provide sufficient information to demonstrate:

- that alternatives were considered for each of the nine minimum control measures.
- the reasoning for the alternatives that were selected.
- that the selected alternatives have been implemented.
- that the permittee has developed a schedule for actions that have been selected but not yet fully implemented.

Nine Minimum Controls (NMC)

The following is a summary of specific information which must be included in the documentation of each of the NMCs.

1. Proper operation and regular maintenance programs for the sewer system and combined sewer overflow points.

a. An organizational chart showing the staff responsible for operation and maintenance (O&M) of the combined sewer system. Document that organization and staffing levels are adequate.

b. The funding allocated for O&M of the combined sewer system. Document that funding is adequate.

c. A list of facilities and structures that are critical to the performance of the combined sewer system, including all regulators, tide gates, pumping stations, and sections of sewer lines which are prone to sedimentation or obstruction. Include an inspection plan which identifies the locations, frequency, procedures, documentation, and reporting of periodic and emergency inspections and maintenance. Document that these facilities are adequately operated and maintained.

d. A summary of safety training and equipment provided to inspection and maintenance personnel. For instance, workers entering sewers must be trained and equipped for confined space entry. Document that training listed is adequate.

e. A summary of technical training and maintenance equipment provided to inspection and maintenance personnel. Document that training and equipment are adequate to maintain the facilities identified in item 1.c. above.

2. Maximum Use of the Collection System for Storage

a. Collection system inspection: This should focus on the identification of maintenance or design deficiencies that restrict the use of otherwise available system capacity. This evaluation should document that inadequate regulators, piping bottlenecks, and pumping deficiencies have been identified and corrected, or scheduled for correction. Where increased inspection and/or maintenance is proposed, this shall be reflected in the inspection plan required in item 1.c.

b. Tide gate maintenance and repair: Tide gates prevent significant volumes of water from entering the conveyance system, thereby freeing up system storage capacity during wet weather periods. Where appropriate, document that tide gate maintenance and repair procedures are adequate.

c. Adjustment of regulator settings: Adjustment of regulating devices can increase in-system storage of CSO flows and maximize transport to the POTW. Care should be taken to ensure that the regulator adjustment will not result in unacceptable surcharging of the system. Document that regulators have been adjusted to optimum settings. The method by which the community determined the optimum regulator setting (e.g. modeling, trial and error) shall be included in the documentation.

d. Removal of obstructions to flow: Document that accumulations of debris which may cause flow restrictions are identified, and debris is removed routinely. Documentation shall include a summary of the locations where sediment is removed, the number of times each year the sediment is removed and the total quantity of material removed each year.

3. Review and Modification of the Industrial Pretreatment Program to assure CSO impacts are minimized.

a. Review legal authority: Review the community's legal authority (i.e. pretreatment program, sewer use ordinance) to regulate non domestic discharges to its collection system. Identify those activities for which the community has or can obtain legal authority to address CSO induced water quality violations. For example, does the community have legal authority to require non domestic dischargers to store wastewater discharges during precipitation events or can the community require non domestic dischargers to implement runoff controls?

b. Inventory non domestic dischargers: Identify those non domestic discharges that may, through quantity of flow or pollutant concentration or loadings, contribute to CSO induced water quality violations,

c. Assess the significance of identified dischargers to CSO control issues: Assess whether the identified non domestic sources cause or contribute to CSO induced water quality standards by using monitoring, dilution calculations or other reasonable methods.

d. Evaluate and propose feasible modifications: Identify, evaluate, and propose site-specific modifications to the pretreatment program which would address the non domestic dischargers identified as significant. Modifications which shall be considered include;
Volume-related controls: Document that detaining wastewater flows (sanitary, industrial, and/or storm water) within the industrial facility until they can be safely discharged to the POTW for treatment was considered and implemented where reasonable.

Pollutant Load-related controls: Document that reduction of concentrations of pollutants that enter the collection system during storm periods was considered and implemented where reasonable. Methods to be considered for reducing pollutant concentrations from storm water runoff controls include structural and non-structural controls such as covering material storage areas, reducing impervious area, detention structures, and good housekeeping.

4. Maximization of flow to the POTW for treatment

It is recognized that most of the actions recommended for maximization of the collection system for storage will also serve to maximize flow to the POTW. In addition to optimizing those controls to maximize flow to the POTW, the following specific controls should be evaluated and implemented where possible;

a. Use of off-line or unused POTW capacity for storage of wet weather flows.

b. Use of excess primary treatment for treatment of wet weather flows. If the use of excess primary capacity will result in violations of the community's NPDES permit limits, the community shall get approval of the proposed bypass from the permitting authority prior to implementation.

5. Prohibition of CSO discharges during dry weather

a. Document that the community's monitoring and inspections are adequate to detect and correct dry weather overflows (DWOs) in a timely manner.

b. Document that DWOs due to inadequate sewer system capacity have been eliminated. If elimination is scheduled but not yet completed, the documentation shall include the schedule.

c. Document that DWOs due to clogging of pipes and regulators or due to other maintenance problems have been eliminated to the maximum extent practicable. Increased inspection and maintenance of problem areas must be considered as well as modification or replacement of existing structures.

6. Control of Solid and Floatable Material in CSO Discharges

Document that low cost control measures have been implemented which reduce solids and floatables discharged from CSOs to the maximum extent practicable. Alternatives which shall be considered include;

a. baffles in regulators or overflow structures.

b. trash racks in CSO discharge structures.

c. static screens in CSO discharge structures.

d. catch basin modifications.

e. end of pipe nets.

f. outfall booms (on surface of receiving water)

7. Pollution prevention programs that focus on contaminant reduction activities.

a. Prevention: through public education or increased awareness. For example, a water conservation outreach effort could result in less dry weather sanitary flow to the POTW and an increase in the volume of wet weather flows that can be treated at the POTW.

b. Control of disposal: through the use of garbage receptacles, more efficient garbage collection, or again, through public education.

c. Anti-litter campaigns: Campaigns through public outreach and public service announcements can be employed to educate the public about the effects of littering, overfertilizing, pouring used motor oil down catch basins, etc.

d. Illegal dumping: Programs such as law enforcement and public education can be used as controls for illegal dumping of litter, tires, and other materials into water bodies or onto the ground. Free disposal of these products at centrally located municipal dump sites can also reduce the occurrence of illegal dumping.

e. Street cleaning

f. Hazardous waste collection days: Communities are encouraged to schedule one or two days a year where household hazardous wastes can be brought to a common collection area for collection and environmentally safe disposal.

8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

The objective of this control element is to ensure that the public receives adequate notification of CSO impacts on pertinent water use areas. Of particular concern are beach and recreational areas that are affected by pollutant discharges in CSOs.

Where applicable, the permittee shall provide users of these types of areas with a reasonable opportunity to inform themselves of the existence of potential health risks associated with the use of the water body (bodies). The minimum control level, found in Section C.2.f. of the permit is posting of CSO discharge points.

9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

As stated in the permit, in Section C.2.f. the minimum requirement is quantification and recording at the outfall. If possible, the permittee shall initiate monitoring, measuring and/or inspection activities above and beyond the minimum control levels specified in the permit. The purpose of these additional monitoring and/or inspection events is to better characterize quality of the CSOs and their impacts on all receiving waters. Examples of such events include CSO monitoring or receiving water monitoring for pollutants of particular concern.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete “Duty to Comply” regulations.

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be 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.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 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(a)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §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 permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(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 be reasonably 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. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(2) There were no feasible alternatives to the bypass, 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 judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
(3) 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 determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
(4) The permittee complied with any remedial measures required under B.3. above.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The permittee shall allow the Regional Administrator or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. Anticipated noncompliance. The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director 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 reoccurrence of the noncompliance.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
(b) Any upset which exceeds any effluent limitation in the permit.
(c) 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 40 CFR §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, 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 application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and Federal standards and limitations to which a “discharge”, a “sewage sludge use or disposal practice”, or a related activity is subject to, including “effluent limitations”, water quality standards, standards of performance, toxic effluent standards or prohibitions, “best management practices”, pretreatment standards, and “standards for sewage sludge use and disposal” under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in "approved States", including any approved modifications or revisions.

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

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" measured during the calendar week divided by the number of "daily discharges" measured during the 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 Judgment (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).

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

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, 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 soils 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.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

Daily Discharge means the discharge of a pollutant measured during the calendar day or any other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source", or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation (See "Point Source" definition).

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Regional Administrator on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States", the waters of the "contiguous zone", or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under Section 304(b) of CWA to adopt or revise "effluent limitations".

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore 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) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program".

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants";

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source"; and

(d) Which has never received a finally effective NPDES permit for discharges at that "site".

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore rig 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 issuance of a final permit to be in 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 or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge which exits 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, concentrated 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 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, 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 equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (Natural Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D. D.C. 1979)); also listed in Appendix A of 40 CFR Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (b) not a "POTW".

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary Industry Category means any industry which is not a "primary industry category".

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(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.

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 advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge use or disposal practice 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, raw materials used in food processing or production, hazardous substance designated under section 101(14) of CERCLA, 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 CWA (see 40 CFR §110.10 and §117.21) or Section 102 of 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 to 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 and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used 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 §122.26 (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 (a)(1) or, in the case of "sludge use or disposal practices" any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a "treatment works treating domestic sewage", where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

Waste Pile means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the 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.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration 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.

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.)

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.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at 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 respect to the 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 and 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 the 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 reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is 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 strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination or organic and inorganic substances, or pathogenic organism that, 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 on 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 requirements) 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 a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

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, cemeteries, 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 judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range 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 a site where the sewage sludge incinerator is located.

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

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 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; scum 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.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other 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 degrees 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. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
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 specified 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 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.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
FIVE 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: **MA0100625**

NAME AND ADDRESS OF APPLICANT:

The City of Gloucester
City Hall
9 Dale Avenue
Gloucester, MA 01930

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Gloucester Water Pollution Control Facility
Essex Avenue (West of Western Avenue)
Gloucester, Massachusetts 01930

OUTFALL	RECEIVING WATERS	BASIN	CLASS
Outfall 001	Massachusetts Bay	USGS HUC Code – 01090001	Class SA
5 CSOs	Gloucester Harbor	North Coastal Basin – MA93-18	Class SB

Fact Sheet Attachments:
A-DMR Data and Violations
B-Location Maps
C-Treatment Plant Schematic
D- Summary of Required Report Submittals

I. PROPOSED ACTION

The City of Gloucester, Massachusetts (Gloucester, City or permittee) has applied to the U.S. Environmental Protection Agency (EPA or the Agency) for reissuance of its NPDES permit authorizing pollutant discharges from the Gloucester Water Pollution Control Facility (WPCF) to the above-specified receiving waters pursuant to a Clean Water Act (CWA) Section 301(h) waiver (*i.e.*, a waiver from secondary treatment standards), 33 U.S.C. § 1311(h). *See also* 40 CFR Part 125, Subpart G). EPA intends to deny this waiver request and issue a permit with secondary treatment-based limits. This "tentative denial" is discussed in more detail in the accompanying "Tentative 301(h) Denial Decision" document.

The current permit was signed on August 28, 2001, became effective on October 27, 2001, and expired on October 27, 2006. The permittee applied for renewal of its permit and Section 301(h) waiver on May 26, 2006. The current permit has been administratively continued under the provisions of 40 CFR §122.6.

The upgrade from primary to secondary treatment at the WPCF will require extensive planning and design, and will also require the commitment of significant financial resources. EPA and the Massachusetts Department of Environmental Protection (MassDEP) are moving forward with this draft permit and fact sheet fully recognizing that permit modifications may be necessary as the City moves through its planning process. For example, the treatment plant design flow may change with the upgrade to secondary treatment. EPA and MassDEP will need to work with the City to establish compliance schedules for the treatment plant upgrade and interim limits applicable prior to its completion. This Fact Sheet underscores areas where more complete information may result in changes to the permit.

II. DESCRIPTION OF DISCHARGE

Quantitative descriptions of the WPCF's discharge in terms of significant effluent parameters based on discharge monitoring reports (DMRs) for January 1, 2006, though May 31, 2010 may be found in Fact Sheet, Attachment A.

III. LIMITATIONS AND CONDITIONS

The effluent limits and monitoring and other requirements proposed by EPA and MassDEP are set forth in the draft NPDES permit issued together with this Fact Sheet.

IV. BASIS OF PERMIT'S EFFLUENT LIMITS AND OTHER REQUIREMENTS

A. DISCHARGE LOCATIONS

Outfall	Description of Discharge	Outfall Location/Receiving Water
001	Treatment Plant Effluent	Massachusetts Bay
002	Combined Sewer Overflow (CSO)	Mansfield Street Drain Gloucester Harbor
004	Combined Sewer Overflow (CSO)	Rogers Street CSO Harbor Cove
005	Combined Sewer Overflow (CSO)	Main Street CSO Gloucester Inner Harbor
006	Combined Sewer Overflow (CSO)	East Main Street CSO Gloucester Inner Harbor
006A	Combined Sewer Overflow (CSO)	East Main Street CSO Gloucester Inner Harbor

The treatment plant and Gloucester collection system are owned by the City and are currently operated under contract by Violia Water Inc. The City, not the contract operator, has been named the permittee for the treatment plant and combined sewer overflow (CSO) discharges. This approach is consistent with the current permit and is also consistent with permits for other contract-operated publicly owned treatment works (POTWs) (*i.e.*, public sewage treatment plants) in the EPA Region.

B. EXISITING FACILITY PROCESS DESCRIPTION

General

The City has reported in prior applications that the WPCF was designed for an average daily flow rate of 7.24 million gallons per day (mgd) and a peak flow rate of 15 mgd. The facility is currently authorized to discharge a 12-month rolling average flow of 5.15 mgd. The current permitted flow limit, which is lower than the design flow, was initially established in the June 26, 1985 permit reissuance and has remained unchanged in the permit renewals since that time.

The existing treatment facility was put into service in 1984. It employs preliminary treatment, chemically enhanced primary treatment and disinfection, and discharges its treated effluent into Massachusetts Bay through a 14,869-foot ocean outfall. The outfall was extended to its current location in 1991. See Location Map Attachment B1.

Collection System

The wastewater collection system conveying flow to the Gloucester treatment plant includes sewers in the City of Gloucester and the Towns of Essex and Rockport. The system consists of both sanitary sewers and combined sewers. Sanitary sewers, which convey wastewater from homes and commercial/industrial sources comprise about 95 percent of the collections system. Combined sewers, which convey the same wastewater components as sanitary sewers, but also convey stormwater, comprise about five percent of the collection system. All of the combined sewers in the collections system are within the City of Gloucester. The following table shows the type of system and the population served within each municipality.

City/Town	**Population served by WWTP**	**Collection System**
Gloucester	24,000	Combined
Essex	1,800	Separate
Rockport	450 (Seasonal [peak])	Separate
Total[1]	**26,250**	

Wastewater is conveyed to the treatment plant through an interceptor sewer crossing under the Annisquam River through a double-barreled siphon, which then discharges to a 36-inch gravity sewer along Essex Avenue. This gravity sewer line then runs to the treatment plant.

Treatment Plant

Sewage enters the treatment plant through a manhole outside the grit chamber building equipped with a flow meter. A 36-inch sewer connects this manhole to two aerated grit tanks.

The treatment plant also receives eleven million gallons per year of trucked waste consisting of commercial and residential holding tank wastes from Gloucester and Essex, septage from Gloucester and Essex, Gloucester STEP (septic tank effluent pump) system septage, and industrial sludge. These wastes are added at various points in the treatment plant process. Septage is typically discharged to the septage wet well and processed through the plant's sludge treatment facilities. Holding tank wastes, which are less concentrated than septage, are typically added directly to the aerated grit chambers, but due to ongoing construction these wastes are also currently being added to the septage wet well.

The aerated grit chamber effluent flows into the raw sewage pumping wet well at the Headworks Building, where two screw pumps lift the flow to the comminutor channels, where two comminutors shred rags and debris contained in the flow stream.

[1] NPDES Permit Application, Form 2A, Section A-4 at 2 (May 26, 2006). *But see id.* 301(h) Renewal Application Table 3 at 7 (listing total population served by WPCF in 2005 as 42,450).

Flow is then conveyed by gravity to two primary clarifiers. In 1993, chemically enhanced primary treatment (CEPT) using ferric chloride and polymer was implemented to improve the removal of oil and grease, BOD and TSS.

Clarifier effluent is metered using a Parshall flume and then discharged to two chlorine contact tanks for disinfection. The contact tank effluent is then de-chlorinated and routed to the effluent diversion structure where the 24-hour composite sampler is located. The original design concept was that plant effluent would flow by gravity through the diversion structure and into the outfall during low tides, while it would be diverted to the effluent pumping station for pumping during high tides. Currently, the plant effluent flows over a weir in the diversion structure to the effluent pumping station at all times. The effluent pumps transport the final effluent through the 36-inch diameter, 14,869-foot long outfall to a discharge point 5,250 feet offshore of Dog Bar Breakwater (Eastern Point) into Massachusetts Bay. The outfall is equipped with a multi-port diffuser located at a depth of 90 feet below mean low water. *See* Figure B2 for the outfall location.

Sludge treatment

Sludge treatment consists of two gravity thickeners followed by a belt filter press. Sludge is then trucked off site for disposal.

C. ENFORCEMENT HISTORY AND COMPLIANCE SCHEDULES

Enforcement History

In April 1992, the United States, the Commonwealth of Massachusetts ("State") and Gloucester entered into a Consent Decree that addressed numerous wastewater issues and required the City to proceed with CSO abatement planning. Implementation of the CSO control plan was delayed while direct sewage discharges in the North Gloucester area were addressed.

In September 2005, the United States, the State and Gloucester entered into a modified consent decree ("2005 MCD") which included a CSO abatement schedule and a requirement to complete a supplemental environmental project that the State requested. The 2005 MCD superseded the April 1992 Consent Decree.

In addition to the 2005 MCD, from 2006 to the present, the State and the City have entered into a series of Administrative Consent Orders with proposed penalties (ACOP). ACOPs in 2006, 2007, 2008, and 2009 address dry-weather CSOs, permit effluent violations, bypasses of untreated wastewater at the treatment plant and sewage pump stations, and other issues.

The ACOP-NE-06-1N002, dated March 22, 2006, required the City to develop a Comprehensive Plant Evaluation ("CPE"), and to develop and implement an Emergency Response Plan ("ERP") for the treatment plant, pump stations, and wastewater collection system.

Another Order, ACOP-NE-06-1N0008, dated February 9, 2007, superseded the above consent order and required the City to develop and submit a revised ERP, and to submit and, upon

approval, implement a final CPE.

Finally, ACOP-NE-07-1N021, dated May 28, 2007, required the City to develop plans and specifications for the treatment plant improvements recommended by the CPE, construct these improvements in accordance with the schedule contained in the ACOP, and design and construct an improved regulator structure at CSO Number 002.

The City has missed a number of the scheduled milestones contained in these orders.

Compliance Schedules

The 2005 MCD contains a compliance schedule requiring the completion of certain CSO abatement projects by specified dates, including completion of the Washington Street Drain by September 2007, and completion of the Upper and Lower 002 areas by June 2009. Construction of the Washington Street Drain was substantially completed on time, but its use was delayed due to a number of sanitary sewage sources tied into upstream storm drains. This resulted in delays in the 002 separation work. In particular, it remains for the City to accurately characterize all of the conditions that cause overflows, and to implement sufficient controls to prevent overflows during dry weather.

Finally, the 2005 MCD also required completion of sewer separation in the 005 area by June 2011, and in the 006 area by June 2012, with all CSO-related projects completed no later than the end of 2014. The City has proposed revisiting the 005 and 006 separation projects, which would delay their completion, but has committed to meeting the 2014 deadline for eliminating all CSOs.

D. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal Regulations

Under Section 301(b)(1)(B) of the CWA, 33 U.S.C. § 1311(b)(1)(B), POTWs are required to achieve effluent limitations based upon "secondary treatment" by July 1, 1977, unless granted a waiver pursuant to Section 301(h), 33 U.S.C. § 1311(h). Secondary treatment requirements are set forth at 40 C.F.R. Part 133.

In addition, under Section 301(b)(1)(C) of the CWA, 33 U.S.C. § 1311(b)(1)(C), a POTW must also comply with any more stringent requirement necessary to satisfy, among other things, state water quality standards applicable to the water body receiving the discharge. State water quality standards under the CWA consist of three elements: (1) the "designated uses" of the water body, such as for public water supply, recreation, propagation of fish, or aquaculture; (2) numeric and narrative "criteria" which specify, respectively, either the amount of particular pollutants authorized to occur in the water body or conditions that are allowed to occur in the water body; and (3) an antidegradation policy designed to protect existing uses and high quality waters. *See* 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. §§ 130.3, 130.10(d)(4), 131.6, 131.10, 131.11 and 131.12.

Under 40 C.F.R. §122.44(d)(1), discharges authorized by NPDES permits must satisfy limits needed to achieve water quality standards established under Section 303 of the CWA, including state narrative criteria for water quality. *See also* 40 C.F.R. § 122.4(d). Additionally, under 40 C.F.R. § 122.44(d)(1)(i), "[l]imitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." In determining whether a discharge causes, has the reasonable potential to cause, or contributes, to an in-stream excursion above a narrative or numeric criterion, EPA must account for existing controls on point and non-point sources of pollution and, where appropriate, consider the dilution of the effluent in the receiving water. *Id.* § 122.44(d)(1)(ii).

In addition, the CWA's "anti-backsliding" provisions, *see* 33 U.S.C. §1342(o) and 40 C.F.R. § 122.44(l), generally preclude an NPDES permit from being renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit. The statute and regulations do, however, specify certain exceptions to the general anti-backsliding prohibition. *See* 33 U.S.C. § 1342(o)(2), 40 C.F.R. § 122.44(l)((2)(i).

2. Requirements of Massachusetts Water Quality Standards and Other State Laws

Treatment Plant Outfall

The WPCF's outfall is located in Massachusetts Bay, which the Commonwealth has designated as a Class SA water, with a qualifier[2] of "shellfishing." 314 CMR § 4.06, Table 23. The MSWQS specify that SA waters are:

> designated as an excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. In certain waters, excellent habitat for fish, other aquatic life and wildlife may include, but is not limited to, seagrass. Where designated in the tables to 314 CMR 4.00 for shellfishing, these waters shall be suitable for shellfish harvesting without depuration (Approved and Conditionally Approved Shellfish Areas). These waters shall have excellent aesthetic value.

314 CMR 4.05(4)(a). The MSWQS also specify a variety of criteria applicable to SA waters, such as standards for dissolved oxygen, bacteria and other constituents or conditions. *See id. See also* 314 CMR 4.05(5).

Not only does the outfall of the WPCF discharge to SA waters, but the waters receiving the discharge also lie within the boundaries of the North Shore Ocean Sanctuary , as established by the Massachusetts Ocean Sanctuaries Act ("MOSA"). M.G.L. c. 132A § 12A, et seq. (2009).

[2] Under the MSWQS, a qualifier "indicates special considerations and uses applicable to the segment that may affect the application of criteria or antidegradation provisions of 314 CMR 4.00." 314 CMR § 4.06(1)(d).

MOSA generally prohibits discharges of municipal wastes to ocean sanctuaries. *Id*. § 15(4). This prohibition does not, however, apply to the WPCF because the statute allows discharges to the North Shore Ocean Sanctuary from municipal wastewater treatment facilities whose construction commenced, or for which a construction grant was awarded, prior to 1978, and which also meet certain other conditions. *Id.* § 16.

Combined Sewer Overflows

Gloucester's CSOs discharge to various locations in Gloucester Harbor, which the Commonwealth has designated as a Class SB water body, with qualifiers of "shellfishing" and "CSO." 314 CMR 4.06, Table 23. The MSWQS provide that Class SB waters:

> . . . are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. In certain waters, habitat for fish, other aquatic life and wildlife may include, but is not limited to, seagrass. Where designated in the tables to 314 CMR 4.00 for shellfishing, these waters shall be suitable for shellfish harvesting with depuration (Restricted and Conditionally Restricted Shellfish Areas). These waters shall have consistently good aesthetic value.

314 CMR 4.05(4)(b). As with SA waters, there are a variety of numeric and narrative water quality criteria that apply to SB waters. These criteria are set forth in 314 CMR 4.05(4)(b) and (5). Waters with the CSO qualifier "are identified as impacted by the discharge of combined sewer overflows; however, a long term control plan has not been approved or fully implemented for the CSO discharges." 314 CMR 4.06(1)(d)(10). This means that there are remaining impacts from CSOs that are not yet resolved.

3. Water Quality Attainment

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. In furtherance of this goal, the CWA requires states to develop information on the quality of their water resources and report this information to EPA, the U.S. Congress, and the public. Section 303(d) of the statute requires states, territories, and authorized tribes to identify waters within their boundaries for which the CWA's technology-based and other controls are not stringent enough to implement the applicable water quality standards. 33 U.S.C. § 1313(d). For such waters, the state shall establish the total maximum daily load (TMDL) of particular pollutants necessary to implement applicable water quality standards. 33 U.S.C. § 1313(d)(1)(A), (C).

CWA Sections 305(b) and 314 require states, territories, and authorized tribes to provide biennial reports to EPA on the condition of waters within their boundaries. 33 U.S.C. §§ 1315(b), 1324. Since 2001, EPA has recommended that states, territories, and authorized tribes submit an "integrated report" that satisfies the requirements of Sections 305(b) and Section 303(d). [2002 Integrated Water Quality Monitoring and Assessment Report Guidance (Nov. 19, 2001).] States choosing this option may list each water body or segment in one of the following five categories:

Category 1: All designated uses are supported, no use is threatened;
Category 2: Available data and/or information indicate that some, but not all of the designated uses are supported;
Category 3: There is insufficient available data and/or information to make a use support determination;
Category 4: Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed;
Category 5: Available data and/or information indicate that at least one designated use is not being supported or is threatened, and a TMDL is needed.

[Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections 303(d), 305(b), and 314 of the Clean Water Act at 47 (July 29, 2005).]

The Massachusetts Year 2008 Integrated List of Waters, Part 2, lists Gloucester Harbor (Segment MA93-18) as a Category 5 water (waters requiring a TMDL). The pollutants requiring a TMDL are: Combined Biota/Habitat Bioassessments, Dissolved oxygen saturation, and Fecal Coliform.

GLOUCESTER HARBOR (SEGMENT MA93-18) Use Summary[3]

Designated Uses		Status
Aquatic Life		IMPAIRED 0.25 mi^2 Inner Harbor Causes: Degraded biota/habitat conditions, anoxic sediments (low DO) Sources: Changes in ordinary stratification and bottom water hypoxia/anoxia, changes in tidal circulation/flushing, combined sewer overflows, discharges from municipal separate storm sewer systems (MS4), and dredging for navigational channels SUPPORT 2.07 mi^2 Outer Harbor
Fish Consumption		NOT ASSESSED
Shellfish Harvesting		IMPAIRED Causes: Elevated fecal coliform bacteria Sources: Combined sewer overflows, discharges from municipal separate storm sewer systems (MS4)
Primary Contact		NOT ASSESSED 0.25 mi^2 Inner Harbor* SUPPORT 2.07 mi^2 Outer Harbor*
Secondary Contact		NOT ASSESSED 0.25 mi^2 Inner Harbor* SUPPORT 2.07 mi^2 Outer Harbor
Aesthetics		NOT ASSESSED 0.25 mi^2 Inner Harbor* SUPPORT 2.07 mi^2 Outer Harbor

[3] North Shore Coastal Watersheds, 2002 Water Quality Assessment report Prepared by: Massachusetts Department of Environmental Protection, Division of Watershed Management, Report Number: 93-AC-2, March 2007

The inner area of Gloucester Harbor is not assessed for the *Recreational* and *Aesthetics* uses. The outer Gloucester Harbor area is assessed as support for the *Primary Contact Recreational Use* since the four beaches were open for the majority of the three bathing seasons between 2002 and 2004. However, this use is identified with an Alert Status since one of the four beaches was posted for 20 days in 2004. This lengthy beach closure, combined with the presence of CSO and stormwater discharges into the harbor, are of concern.

The point of discharge for outfall 001 in Massachusetts Bay is outside the sphere of influence of other dischargers and significant non-point sources of pollution. EPA conducted a literature search of available water quality information for the segment of Mass. Bay in the area of the outfall, other than that required by the current permit. The biomonitoring conducted on behalf of Gloucester as required by the current permit is the most relevant data available. The EPA Region I Administrator's tentative decision to deny continuance of the waiver from secondary treatment, details non-attainment of water quality criteria for whole effluent toxicity, oil and grease, total petroleum hydrocarbons, and bacteria.

4. Effluent Limitations Derivation

Flow - The flow limit in the currently effective permit is 5.15 mgd, calculated as a 12-month rolling average. Although the City had reported in previous permit applications that the design flow of the facility was 7.24 MGD, the lower flow was maintained in the permit pursuant to CWA 301(h)(8) and 40 CFR Part 125.67, which prohibit new or substantially increased discharges of pollutants above those specified in the permit.

If, as proposed, the 301(h) waiver application is denied, then the permittee will need to make major changes to the WPCF to achieve secondary treatment. The new construction would afford the permittee an opportunity to increase the permitted flow from 5.15 mgd to match the primary design flow of 7.24. *See* 40 CFR §122.45(b)(i). The permitted flow limit has therefore been increased to 7.24 mgd, the design flow of the existing facility according to the Permit Application Form 2A, Part A, 4.6.

The draft permit includes a condition that the flow limit for the discharge will remain at 5.15 MGD until such time as a flow increase to 7.24 MGD is: 1) deemed appropriate by a state antidegradation review, 314 CMR 4.04, 2) is supported by a comprehensive wastewater management plan (CWMP), 301 CMR 11.00, 3) is supported by a Massachusetts Environmental Policy Act (MEPA) review, M.G.L. c. 30 § 61, *et seq*, and 4) the City has obtained a Massachusetts Ocean Sanctuaries Act variance authorizing the increased discharge, M.G.L. c. 132A § 12A, *et seq*. 5) and the City has completed construction of the secondary facilities.

As explained in Section VII (Antidegradation) of this Fact Sheet, even with an increase in the facility's flow, the change from primary to secondary treatment will result in an overall decrease of pollutants discharged, therefore satisfying antidegradation requirements.

Flow is to be measured continuously. The permittee shall report the annual average monthly flow using the 12-month rolling average method (*See* Permit Footnote 2). The average monthly and maximum daily flows are also required to be reported.

Available Dilution

The Gloucester outfall is equipped with a diffuser to enhance dilution of the effluent. The diffuser is made up of 10 vertical risers evenly spaced over the last 61 meters (200 ft) of the outfall pipe. Prior to installation of the diffuser, the City's consultant, Tetra Tech, Inc., produced a draft report entitled "Evaluation of the City of Gloucester Initial Dilutions for Proposed 1995 Flows and Effluent Characteristics and Modified Outfall Design", (November 1989). The report discussed dilution modeling performed using UMERGE and ULINE. No models runs were made at the actual design flow of the treatment facility (7.24 mgd) However, a flow of 7.24 falls between the wet and dry weather flows of 6.3 mgd and 10 mgd, which predicted dilution ratios of 65:1 and 59:1 respectively. For this Fact Sheet a dilution ratio of 64:1 has been used, which is the interpolated value between the two flow scenarios.

Oil and Grease and Total Petroleum Hydrocarbons (TPH)

Background

The term "oil and grease" refers to a group of pollutants consisting of extractable materials made up of relatively non-volatile hydrocarbons, vegetable oils, animal fats, waxes, soaps, greases, and related materials. Oil and grease may produce a visible sheen on water at a concentration of 15 mg/l.[4] At higher concentrations, oil and grease also can suffocate fish larvae and coat the gills of fish. In addition, petroleum compounds found in oil and grease can exhibit toxicity at concentrations as low as 1 ug/l. At concentrations as low as 1-10 ug/l, petroleum may cause tainting of oysters and other shellfish. "Total petroleum hydrocarbons" (TPH), is a term used to describe a large family of several hundred chemical compounds that originally come from crude oil.

History

Prior to 1991, Gloucester discharged to Gloucester Harbor, which is a Class SB water. 314 CMR 4.06, Table 23. The average monthly oil and grease limit of 15 mg/l in the 1985 permit was, therefore, based on the narrative criterion for Class SB waters, which provides that "[t]hese waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life." 314 CMR 4.05(b)(7). In 1991, the WPCF's outfall was extended to its current location in Massachusetts Bay, thereby making the Class SA standard for oil and grease applicable to the discharge. The MSWQS provide that Class SA waters, ". . .shall be free from oil and grease and petrochemicals." 314 CMR § 4.05(4)(a)(7).

When the WPCF's permit was renewed in 2001, monitoring data indicated that, "most of the oil

[4] Quality Criteria for Water, 1986, EPA 440/5-86-001

& grease in the discharge is in the form of food based oils and grease and a small portion is attributable to total petroleum hydrocarbons (TPH).” Response to Public Comments for Final NPDES Permit for WPCF at (Page) 4, comment No. 8 (Aug. 2001). Based on this information, the limit for oil and grease in the permit was increased to an average monthly concentration of 25 mg/l (inappropriately for Class SA waters), and an average monthly limit on TPH of 5.0 mg/L was added to the permit. *Id.*

More recent monitoring data for oil and grease and TPH show that the WPCF’s discharge has consistently met the 25 mg/l limit monthly average oil and grease limit, but has violated the 5 mg/l TPH limit nine times out of the last 48 sampling events (see following table with violations in bold). This data, produced using new test methods, indicates that the original assumption behind the 25 mg/l permit limit for oil and grease was incorrect and that the WPCF’s effluent contains more petroleum than was in evidence when the oil and grease limit was increased to 25 mg/l.[5]

Discharge Monitoring Report Data					
Date	TPH (mg/l)	O & G (mg/l)	Date	TPH (mg/l)	O & G (mg/l)
1/31/2006	**7.5***	**10.0**	1/31/2008	0.5	**9.0**
2/28/2006	**9.8**	**14.1**	2/29/2008	0.0	**11.**
3/31/2006	**6.5**	**23.0**	3/31/2008	5.0	**8.0**
4/30/2006	**6.4**	**17.0**	4/30/2008	1.4	**8.0**
5/31/2006	0.8	**11.0**	5/31/2008	1.6	**10.0**
6/30/2006	**5.2**	**11.0**	6/30/2008	0.9	**10.0**
7/31/2006	0.8	**18.0**	7/31/2008	1.4	**10.9**
8/31/2006	3.5	**24.0**	8/31/2008	2.6	**9.7**
9/30/2006	5.0	**21.7**	9/30/2008	2.0	**9.2**
10/31/2006	4.8	**21.6**	10/31/2008	0.7	**8.4**
11/30/2006	**7.3**	**10.0**	11/30/2008	2.3	**9.4**
12/31/2006	4.9	**14.0**	12/31/2008	1.2	**8.6**
1/31/2007	3.8	**12.0**	1/31/2009	1.8	**14.**
2/28/2007	**6.5**	**24.8**	2/28/2009	**6.8**	**14.5**
3/31/2007	**9.1**	**13.**	3/31/2009	3.6	**16.5**
4/30/2007	1.1	**12.0**	4/30/2009	1.0	**8.6**
5/31/2007	0.0	**10.0**	5/31/2009	1.6	**7.5**
6/30/2007	1.4	**9.0**	6/30/2009	2.3	**7.4**
7/31/2007	0.7	**8.0**	7/31/2009	2.6	**10.8**
8/31/2007	5.0	**16.0**	8/31/2009	1.4	**7.3**

[5] The discrepancy between the 2000 monitoring data and the subsequent Discharge Monitoring Report data may be due in part to a change in test methods. Prior to 2001, the permittee employed EPA test methods 413.2 and 418.1, both of which employ the ozone-depleting substance CFC-113 as the extraction solvent. However, in 1999 EPA approved an alternative method for oil and grease analysis, EPA Method 1664A, to reduce dependency on CFC-113 (Method 1664A uses n-hexane as an extraction solvent). 64 FR 26315 (May 14, 1999). The 2001 Permit, therefore required use of Method 1664 for the oil and grease analysis. 2001 Permit, footnote 5. Method 1664 is more efficient for measuring low volatility petroleum oil than EPA method 413.2, so the apparent increase in TPH may be at least partially due to the change in test methods.

9/30/2007	1.2	**9.8**	9/30/2009	2.4	**12.4**
10/31/2007	3.9	**11.2**	10/31/2009	2.6	**17.4**
11/30/2007	1.1	**11.7**	11/30/2009	1.0	**19.8**
12/31/2007	2.1	**10.0**	12/31/2009	3.8	**20.2**

*TPH and oil and grease concentration data in bold exceeds the draft compliance ML of 5.0 mg/l.

Limit Derivation

As noted above, the MSWQS require that Class SA waters, ". . . be free from oil and grease and petrochemicals." 314 CMR § 4.05(4)(a)(7). EPA interprets this narrative criterion to require that there shall be no measurable oil and grease present in the receiving waters.

The Discharge Monitoring Report data shown in the table above demonstrate that the treatment plant discharge contains measurable quantities of oil and grease and, therefore, has the reasonable potential to exceed the "free from oil and grease and petrochemicals" criterion. 40 C.F.R. § 122.44(d)(1)(i)&(ii).

In order to ensure compliance with this criterion, the draft permit requires that the permittee have no detectable discharge of oil and grease or TPH. Compliance shall be measured at the minimum level (of detection) for the EPA approved test methods. *See* EPA Technical Support Document For Water Quality-Based Toxics Control, EPA/505/2-90-001, (March 1991) at 111 ("For most NPDES permitting situations EPA recommends that the compliance level be defined in the permit as the minimum level (ML))" The ML is the lowest point on the curve used to calibrate the test equipment for the pollutant of concern. *Id.* The oil and grease and TPH ML is 5 mg/l using EPA Method 1664A. 64 Fed. Reg. 26315, 26322 *(*May 14, 1999).

Both oil and grease and TPH shall be tested using EPA Method 1664A (Standard Method 5520 B). If EPA approves methods under 40 CFR Part 136 for either, oil and grease or TPH that have a ML lower than 5 mg/l, the permittee is required to use the improved method.

OUTFALL 001 - CONVENTIONAL POLLUTANTS

Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS) - POTWs that are not granted variances pursuant to 301(h) of the CWA are subject to the secondary treatment requirements set forth at 40 CFR 133. For both BOD_5 and TSS, the minimum level of effluent quality that must be attained by secondary treatment is defined as an average monthly concentration of 30 mg/l, an average weekly concentration of 45 mg/l, and a 30-day average percent removal of not less than 85%. 40 CFR § 133.102. The draft permit contains concentration limits consistent with these values. In addition, the draft permit also contains average monthly and average weekly BOD_5 and TSS mass limits (lbs per day), as required by CFR 122.45(f). These mass limits are based on the 7.24 mgd design flow, and were calculated using the following equation:

L = C x PF x 8.34:

L = Maximum allowable load in lbs/day.

C = Maximum allowable effluent concentration for reporting period in mg/l. Reporting periods are average monthly and weekly and daily maximum.
PF = Permitted flow of facility in mgd.
8.34 = Factor to convert effluent concentration in mg/l and design flow in mgd to lbs/day.
(Concentration limit) [45] X 8.34 (Constant) X 7.24 (Permitted flow) = 2717 lbs/day

(Concentration limit) [30] X 8.34 (Constant) X 7.24 (Permitted flow) = 1811 lbs/day

Although the draft permit authorizes an increase in the discharge flow limit, the significant reduction in the concentration limits for BOD_5 and TSS due to the denial of the 301(h) waiver will result in an overall reduction in the discharge of these pollutants. As shown in the table below, the authorized monthly average mass discharge of BOD_5 and TSS will be reduced by 83 percent and 70 percent, respectively.

Parameter	Primary Treatment at 5.15 mgd		Secondary Treatment at 7.24 mgd		Concentration Reduction	Mass Reduction
	Average Monthly (mg/l)	Average Monthly (lbs/day)	Average Monthly (mg/l)	Average Monthly (lbs/day)	(Percent)	(Percent)
BOD_5	245	10,520	30	1811	88	83
TSS	140	6,010	30	1811	79	70

pH - The draft permit includes a minimum pH limit of 6.5 and a maximum limit of 8.5 standards units. These limits are based on the water quality criteria for Class SA waters set forth in the MSWQS (314 CMR 4.05(4)(a)(3)) which state that:

> *pH shall be in the range of 6.5 through 8.5 standard units and not more than 0.2 standard units outside of the natural background range. There shall be no change from natural background conditions that would impair any use assigned to this Class.*

These pH requirements are more stringent than those required on a technology basis under 40 C.F.R. 133.102(c).

Fecal Coliform Bacteria - The MSWQS (314 CMR § 4.05(4)(a)(4)) require that in SA waters designated for shellfishing:

> . . . fecal coliform shall not exceed a geometric mean Most Probable Number (MPN) of 14 organisms per 100 ml, nor shall more than 10% of the samples exceed a MPN of 28 per 100 ml, or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the *Guide for the Control of Molluscan Shellfish.*

Historically, MassDEP has required that bacteria limits be applied “end-of-pipe” (*i.e.,* at the

point of discharge) with no allowance for dilution. In addition, the Massachusetts Surface Water Quality Standards Implementation Policy for Mixing Zones (1993) prohibits the use of mixing zones in shellfish harvest waters, "unless it is affirmatively demonstrated that the mixing zone does not encompass important shellfish harvest areas and will not adversely diminish the established population of shellfish in the segment." Such a demonstration has not been made here.

Further support for exercising caution when considering the possibility of a mixing zone for bacteria is found in a November 12, 2008, memorandum prepared by EPA's Office of Science and Technology regarding initial zones of dilution for bacteria in rivers and streams designated for primary contact recreation. The memorandum concluded that "…we cannot envision a circumstance where discharges that elevate bacteria levels beyond criteria can be viewed as protective of the primary recreation use in fresh flowing waters like rivers and streams."[6] While this conclusion was with regard to mixing zones in fresh water, the principles on which it was based – that people recreating in, or downstream of, a zone of initial dilution in which criteria for bacteria are exceeded will be exposed to greater risk of acute gastrointestinal illness—is also applicable to marine waters.

Therefore, in order to ensure compliance with water quality standards, the proposed limits in the draft permit are 14 colony forming units (CFU)/100 ml for the average monthly (geometric mean) limit and 28 CFU/100 ml for the maximum daily limit.

The permit allows the use of approved analytical methods that measure either CFU (membrane filter methods) or most probable number MPN (most probable number methods).[7] Sampling is required three times per week.

Enterococci Bacteria - In 2006, MassDEP revised the bacteria criteria for coastal and inland waters designated for primary contact recreation from a fecal coliform-based standard to an enteroccoci-based standard. The current MSWQS for Class SA Waters provide that:

> at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010, no single enterococci sample taken during the bathing season shall exceed 104 colonies per 100 ml, and the geometric mean of the five most recent samples taken within the same bathing season shall not exceed a geometric mean of 35 enterococci colonies per 100 ml.

[6] Ephraim S. King, Director, Office of Science and Technology, U.S. EPA Memo to Walter Spratlin, Director, Water, Wetlands and Pesticides, U.S. EPA, RE: Initial Zones of Dilution for Bacteria in Rivers and Streams Designated for Primary Contact Recreation, November 12, 2008, p 2.

[7] Under the CFU method, coliform colonies are grown on filter paper that is used to strain effluent. The method provides a direct visual measure of coliform counts. Under the MPN method, gasses expelled by coliform colonies are collected in fermentation tubes. The number of tubes testing positively (gas is collected) or negatively (no gas is collected) is interpreted statistically to yield the most probable number.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1

In Re:	
CITY OF GLOUCESTER, MASSACHUSETTS, PUBLICLY OWNED TREATMENT WORKS, NPDES PERMIT No. MA0100625 APPLICATION FOR MODIFICATION OF SECONDARY TREATMENT REQUIREMENTS UNDER SECTION 301(h) OF THE FEDERAL CLEAN WATER ACT, 33 U.S.C. § 1311(h)	TENTATIVE DECISION OF THE REGIONAL ADMINISTRATOR UNDER 40 C.F.R. PART 125, SUBPART G

On May 26, 2006, the City of Gloucester, Massachusetts (Gloucester) applied to the Region 1 Office of the United States Environmental Protection Agency (Region 1) for:

(a) renewal of its National Pollutant Discharge Elimination System (NPDES) permit (Permit No. MA0100625), issued under the federal Clean Water Act, 33 U.S.C. §§ 1251, *et seq.* (Act), by Region 1 to Gloucester's Water Pollution Control Facility (WPCF), a publicly owned treatment works; and

(b) renewal of the modification of the Act's secondary treatment requirements previously granted the WPCF by Region 1 under section 301(h) of the Act, 33 U.S.C. § 1311(h).

This modification of the Act's secondary treatment requirements, *see* 33 U.S.C. § 1311(b)(1)(C), is reflected in the Gloucester WPCF's current permit.

Having considered Gloucester's application, it is my tentative decision under 40 C.F.R. Part 125, Subpart G, to deny Gloucester's request that Region 1 renew the permit limits modified under section 301(h) of the Act. *See* 40 C.F.R. § 125.59(h). The basis of this tentative denial is detailed in the attached evaluation. In light of this tentative decision, Region 1 has prepared a draft NPDES permit that sets secondary treatment-based effluent limits for the Gloucester WPCF.

Region 1 is now publicly noticing, and seeking public comment on, this tentative decision and draft permit. After considering any public comments received, and any other relevant information, Region 1 will make a final decision on the modification request and permit and issue a final permit under the procedures of 40 C.F.R. Part 124. *See* 40 C.F.R. §§ 125.59(c)(4) and 125.59(i)(4). Any appeal of Region 1's final decision to grant or deny a section 301(h) modification to the Gloucester WPCF shall be governed by the procedures in 40 C.F.R. Part 124. *See* 40 C.F.R. § 125.59(i)(5).

Date: 10/5/2010

H. Curtis Spalding
Regional Administrator
Environmental Protection Agency – Region I

ENVIRONMENTAL PROTECTION AGENCY
REGION 1

TENTATIVE DECISION DOCUMENT

EVALUATION OF THE APPLICATION FOR RENEWAL OF THE MODIFICATION OF SECONDARY TREATMENT REQUIREMENTS UNDER SECTION 301(h) OF THE CLEAN WATER ACT

FOR

CITY OF GLOUCESTER, MASSACHUSETTS
GLOUCESTER WASTEWATER POLLUTION CONTROL FACILITY

DATE

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

BIP .....Balanced Indigenous Population
BOD.....Biological Oxygen Demand
CWA .....Clean Water Act
CZM.....Massachusetts Office of Coastal Zone Management
DMR .....Discharge Monitoring Report
DO.....Dissolved Oxygen
EPA.....Environmental Protection Agency
GPD.....gallons per day
MassDEP.....Massachusetts Department of Environmental Protection
MGD .....million gallons per day
MOSA.....Massachusetts Ocean Sanctuaries Act
MSWQS.....Massachusetts Surface Water Quality Standards
NPDES.....National Pollution Discharge Elimination System
TPH.....Total Petroleum Hydrocarbons
TSD.....Amended 301(h) Technical Support Document (1994)
TSS.....Total Suspended Solids
TU .....Toxic Unit(s)
WET.....Whole Effluent Toxicity
WPCF.....Gloucester Water Pollution Control Facility
WQA.....Water Quality Act
WQS.....Water Quality Standards
ZID.....Zone of Initial Dilution
CZM..... Massachusetts Office of Coastal Zone Management

I. INTRODUCTION

The City of Gloucester ("Gloucester," "City," or "the applicant") has applied to the United States Environmental Protection Agency, Region 1 ("EPA Region 1" or "the Region") for a renewed modification[1] of secondary treatment requirements under section 301(h) of the Clean Water Act ("CWA" or "the Act"), 33 U.S.C. § 1311(h). The applicant is seeking a § 301(h) variance to discharge wastewater receiving less-than-secondary treatment from the Gloucester Water Pollution Control Facility ("WPCF" or "the facility") to Massachusetts Bay.

Based on its review of Gloucester's variance application and other relevant information, EPA Region 1 is proposing to deny the City's application. The instant document presents the Region's "tentative denial" of Gloucester's request and details the Region's assessment of whether the applicant's proposed discharge would comply with the criteria set forth in section 301(h) of the CWA and EPA's implementing regulations codified at 40 CFR Part 125, Subpart G.

II. DECISION CRITERIA

CWA section 301(b)(1)(B), 33 U.S.C. § 1311(b)(1)(B), requires publicly owned treatment works (POTWs) to have met effluent limitations based upon secondary treatment by July 1, 1977. Secondary treatment is defined by regulation in terms of effluent quality for three parameters: total suspended solids (TSS), biochemical oxygen demand (BOD) and pH. *See* 40 C.F.R. § 133.102.

As part of the 1977 Amendments to the CWA, Congress added section 301(h), 33 U.S.C. § 1311(h) (hereinafter "301(h)"), which authorizes the Administrator,[2] upon application by a POTW and with State concurrence, to issue a National Pollution Discharge Elimination System (NPDES) permit that modifies the secondary treatment requirements of section 301(b)(1)(B), provided certain criteria are met. P.L. 95-217. Section 301(h) was later amended by the Municipal Wastewater Treatment Construction Grants Amendments of 1981, P.L. 97-117, and section 303 of the Water Quality Act (WQA) of 1987, P.L. 100-4. In 1994, EPA finalized revisions to its 301(h) regulations and accompanying Technical Support Document (TSD) to implement the WQA. 59 Fed. Reg. 40642 (Aug. 9, 1994) (codified at 40 CFR Part 125, Subpart G).

Section 301(h) of the CWA specifies, among other things, nine criteria that an applicant must satisfy to qualify for a variance from secondary treatment requirements. EPA's regulations under section 301(h) address the nine statutory factors and, in some cases, elaborate upon them. *See generally* 40 CFR Part 125, Subpart G. A decision by the Regional Administrator to grant or deny a waiver must be based on a demonstration by the applicant that it has met each of the applicable requirements of 40 CFR §§ 125.59 through 125.68. 40 CFR § 125.59(i)(1).

[1] Modifications of secondary treatment requirements pursuant to section 301(h) are commonly referred to as "variances" or "waivers." These terms are used interchangeably in this tentative decision.

[2] The authority to grant 301(h) waivers has since been delegated to the Regional Administrators. 1200 TN 126 (Aug. 1, 1985).

Consistent with the statute, the regulations also provide that any NPDES permit modified pursuant to section 301(h) must comply with State and local laws, and with other Federal laws and Executive Orders, including the Coastal Zone Management Act of 1972, as amended, the Endangered Species Act of 1973, as amended, and Title III of the Marine Protection, Research and Sanctuaries Act, as amended. 40 CFR § 125.59(b)(3).

III. SUMMARY OF FINDINGS

EPA Region 1 has evaluated the data provided by the applicant and other relevant information to determine whether Gloucester's proposed discharge would comply with each of the nine statutory/regulatory criteria. On the basis of this evaluation, the Region concludes that the applicant has demonstrated that it would meet some but not all of the criteria. Specifically, the Region concludes that the applicant has failed to demonstrate that:

1. The proposed discharge would not negatively impact recreational activities, or interfere with the protection and propagation of a balanced, indigenous population (BIP) of fish, shellfish, and wildlife. Section 301(h)(2); 40 CFR 125.62(b), (c), (d).

2. At the time the 301(h) modification becomes effective, the applicant's outfall and diffuser will be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater such that the discharge would not exceed at and beyond the zone of initial dilution *all* applicable water quality standards. Section 301(h)(9); 40 CFR 125.62(a)(1)(i), 122.4(d).

IV. DESCRIPTION OF TREATMENT FACILITY

A. PERMIT HISTORY

On June 26, 1985, EPA Region 1 issued the Gloucester WPCF a final NPDES permit with primary treatment-based effluent limits based on EPA Region 1's approval of Gloucester's application for a variance from secondary treatment requirements under section 301(h). The permit became effective on July 26, 1985. On August 28, 2001, EPA Region 1 reissued the permit to Gloucester, retaining primary treatment-based limits based on Region 1's approval of Gloucester's application for renewal of the variance under section 301(h). This permit became effective on October 28, 2001, and expired on October 28, 2006, but has been administratively continued under the provisions of 40 CFR §122.6 because on May 26, 2006, Gloucester timely submitted its application for renewal of the WPCF's permit and the section 301(h) variance ("application"). Thus, the permit issued to Gloucester in 2001 currently remains in effect.

B. TREATMENT SYSTEM

As of 2005, the WPCF served an estimated population of 42,450 people. The WPCF also serves four significant industrial users. The WPCF takes in an average of 11.3 million of gallons per year of septage or 31,030 gallons per day (GPD) as a 365-day average. *See* Application attachments 1.2 and 1.3. The plant has a rolling monthly average flow permit limit of 5.15 MGD. The current reported average monthly flow is 5.08 MGD. The plant is designed to treat up to an average flow of 7.24 MGD with a peak hydraulic loading of 15.0 MGD.

The application describes the treatment facility as follows:

> Wastewater is conveyed through an interceptor sewer crossing under the Annisquam River through a double-barreled siphon, then to a 36-inch gravity sewer in Essex Avenue. Raw sewage and sludge dewatering recycle are routed through a manhole outside the grit chamber equipped with a recently installed temporary flow meter. A 36-inch sewer connects the manhole to two aerated grit tanks.
>
> Trucked waste from the following sources is received at the plant: commercial and residential holding tank wastes from Gloucester and Essex; septage from Gloucester and Essex; Gloucester STEP system septage; and industrial sludges. The Gloucester and Essex holding tank wastes are discharged directly into the aerated grit tanks. Trucked sludges and septage are discharged to alternate locations . . . Thickener overflow returns to the flow stream after the aerated grit tanks while the belt filter press (BFP) filtrate is discharged ahead of the aerated grit tanks. The aerated grit tank effluent, once combined with sludge thickening recycle and plant drainage at a second manhole, flows into the raw sewage pumping wet well at the Headworks Building. One of two screw pumps lift the combined flow to communitor channels where two comminutors shred rags and debris contained in the flow stream.
>
> Flow is conveyed by gravity to the center feed well of two primary clarifiers. In 1993 chemically enhanced primary treatment (CEPT) using ferric chloride and polymer was implemented to improve oil and grease, BOD and TSS removal. Clarifier effluent is metered using a Parshall flume just prior to the chlorine contact tanks and is chlorinated as it enters two tanks. The contact tank effluent is de-chlorinated and routed to the effluent diversion structure where the effluent 24-hour composite sampler is located. The original design concept was that plant effluent would flow through the diversion structure by gravity and into the outfall during low tides and would be diverted to the effluent pumping station for pumping during high tides. Currently, plant effluent flows over a weir in the diversion structure to the effluent pumping station at all times. The effluent pumps transport the final effluent through the extended 36-inch outfall and end diffuser in 90 feet of water.

Application at 3.

C. IMPROVED/ALTERED DISCHARGE

The application states that it "is based on an improved discharge" pursuant to 40 CFR 125.58(i). *Id*. The applicant has provided the following description of recent improvements to the facility:

2004 – Completion of replacement of the plant's two Influent Screw Pumps. The project consisted of two 15 MGD screw pumps, steel troughs, bearing assemblies, gear reducers, belts sheaves and couplings.

New influent sluice gates were also installed. The screw pumps and influent wet well were refitted with diamond plate covers in anticipation of the odor control project.

2004 – Replacement of one comminutor – one of the plant's two comminutors was replaced in kind.

2005 – Construction began on an Odor Control Project. [The p]roject included covering of major tanks, installation of a large blower that exhausted the odorous air through a newly constructed Biofilter. The clarifiers, gravity thickeners, aerated grit chambers, comminutor channels and distribution box to chlorine contact chambers were coated with epoxy coatings and covered. Replacement of the second comminutor and associated controls were completed during this project. Installation of new slide gates in the comminutor channel was completed.

2005 – Upgrade of chlorination facility and addition of dechlorination. The new chlorination project included replacement of the sodium hypochlorite chemical feed equipment, installation of a sodium bisulfite chemical feed system, four new induction mixers and installation of residual analyzers for hypochlorite and bisulfite. The system has been on line for several months. Ongoing improvements are being added to improve performance and reliability of the system.

2006 – Replacement of both primary clarifier mechanisms. Prior to covering the tanks, both drive units and rake mechanisms were replaced.

E-mail from Christine Millhouse, City of Gloucester, to Doug Corb, EPA Region 1 (Feb. 13, 2007).

Nevertheless, the application does not provide the analyses required for applications based on improved or altered discharges pursuant to 40 CFR § 125.62(e). *See* section VII. C.4 below. In addition, despite the improvements to the facility noted by the City above, the WPCF has continued to violate its permit limits for fecal coliform. *See* section VII. C.1.c *below*

V. DESCRIPTION OF RECEIVING WATER

The outfall from the WPCF is located in 90 feet (27 meters) of water outside of Gloucester Harbor in the ocean waters of Massachusetts Bay. The outfall discharges through a multi-port diffuser to a location approximately 5,250 feet offshore of Dog Bar Breakwater (Eastern Point) at a depth of 90 feet below mean low water. The area receiving the discharge is Massachusetts Bay is classified by the Massachusetts Department of Environmental Protection (MassDEP) as a Class SA water. 314 CMR 4.06, Table 23.

Under the Massachusetts Surface Water Quality Standards (MSWQS), Class SA waters "are designated as an excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation." 314 CMR 4.05(4)(a).

Field studies conducted by Gloucester in the vicinity the outfall in 1979 indicate that the dominant tidal currents:

> … are diurnal tides of about 10 feet. The tide floods west to northwest and ebbs east to southeast. Pulses of current speed correspond to each flood and ebb episode, with peak speeds of 10 - 20 cm/sec near the surface and 5 to 15 cm/sec near the bottom (Figure 3). Frequencies of current directions indicate that near the surface, flow directions are more variable and concentrated in the west to northwest and to a lesser extent in the east. Bottom currents are most frequently northwest and southeast. . .

Application at 11-12.

The application also describes the following fisheries located in areas potentially affected by the discharge:

> There is recreational and commercial fishing for lobsters both inside Gloucester Harbor and out around the site of the Gloucester outfall. Commercial fishing for finfish is prohibited within three miles of shore. Recreational fishing, mostly seasonal based on weather conditions, occurs both inside and outside the harbor. This is concentrated in the spring through fall and directed at species such as cod, winter, flounder, mackerel, pollock, smelt and striped bass. There is an active commercial and recreational lobster fishery.

Id.

VI. PHYSICAL CHARACTERISTICS OF DISCHARGE

In order for a modification of secondary treatment requirements to be granted, ". . . the applicant's outfall and diffuser must be located and designed to provide adequate initial dilution, dispersion, and transport of wastewater such that the discharge does not exceed at and beyond the zone of initial dilution (ZID). . . [any] applicable water quality standards." 40 C.F.R. § 125.62(a)(1)(i). *See also* 33 U.S.C. 1311(h)(9).

For any given discharge, there are two key physical characteristics that determine whether this requirement can be met: (1) the size of the ZID, and (2) the degree of initial dilution provided by the receiving waters within the ZID.

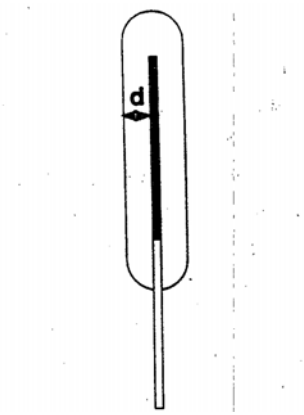

Figure 1: ZID

ZONE OF INITIAL DILUTION (ZID)

EPA regulations define the zone of dilution ("ZID") as "the zone of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards." 40 CFR § 125.58(dd). The MSWQS allow for "a limited area or volume of a waterbody as a mixing zone for the initial dilution of a discharge." 314 CMR 4.03(2). Under the MSWQS, waters within a designated mixing zone are allowed not to meet otherwise applicable water quality criteria provided certain conditions are met. *Id.* Among other things, a mixing zone may not "interfere with the existing or designated uses of surface waters." *Id.* 4.03(2)

Despite the reference in the MSQWS to "a mixing zone for the initial dilution of a discharge," the Massachusetts Surface Water Quality Standards Implementation Policy for Mixing Zones ("MassDEP Mixing Zone Policy") actually allows for mixing zones to extend beyond the ZID to include that portion of the waterbody where complete mixing occurs (i.e., where the concentrations of pollutants within a waterbody reach a uniform concentration), under certain conditions and subject to a variety of restrictions. *MassDEP Mixing Zone Policy*, Part V (Jan. 8, 1993). Thus, as a general matter, the MSWQS do not create a more strict limitation on the size of the ZID than that contained in the 301(h) regulations themselves.

EPA's *Amended Section 301(h) Technical Support Document* ("TSD") explains that, "[i]n general, the ZID can be considered to include that bottom area and the water column above that area circumscribed by distance d from any point on the diffuser, where d is equal to the water depth. . . . The water depth used should be the maximum water depth along the diffuser axes with respect to mean lower low water (or mean low water) . . . ." TSD at 56 (1994). Thus, for a linear diffuser, the bottom area of the ZID is oblong-shaped, as shown in Figure 1.

Based on the design specifications for the outfall and diffuser of the WPCF and the formula provided by the TSD, EPA estimates the bottom area and surface area for the WPCF's ZID to be approximately 55.1 meters by 115.2 meters. This falls within the range of the ZID dimensions provided by Gloucester in its application, namely 28.4 $\pm$ 33 meters by 88.4 $\pm$ 33 meters. Application at 31.

Table 1: Gloucester, MA WPCF Outfall Design Specifications[3]

Outfall	Diameter (m)	0.91
	Length (m)	4532
Diffuser	Angle of orientation of ports (from horizontal)	11.25 degrees
	Port diameter (m)	1.52
	Distance below MLW (m)	27.1
	Number of Ports	10
	Port spacing (m)	6.096
	Design flow per port (m^3 /sec)	0.0657

A. INITIAL DILUTION

The level of initial dilution achieved by a particular outfall and diffuser is determined by the characteristics of the effluent discharge, the receiving water, the diffuser design and the depth of the discharge. TSD at 52. Pursuant to EPA regulations, the evaluation of whether a discharge meets water quality standards must be "based upon conditions reflecting periods of maximum stratification and during other periods when discharge characteristics, water quality, biological seasons, or oceanographic conditions indicate more critical situations may exist." 40 C.F.R. § 125.62(a)(1)(iv). In other words, this evaluation must be based on conditions when the discharge receives the lowest possible level of initial dilution to occur at the site, commonly referred to as "critical initial dilution," TSD at 54. Therefore, a mathematical model is used to compute the critical initial dilution using inputs such as the predicted peak 2- to 3-hour effluent flow for the new end-of-permit year (i.e. 2015), data from a temperature and salinity depth profile of the receiving water, and current speed no higher than the lowest 10th percentile of speeds that occur. *Id.*

Initial dilution values for the WPCF outfall were calculated by Tetra Tech in 1989 using the EPA-approved models UMERGE and ULINE. These calculations were based on a projected peak dry weather flow of 6.3 mgd and a peak wet weather flow of 10.0 mgd and yielded critical dilutions of 65:1 for dry weather and 59:1 for wet weather.

VII. APPLICATION OF STATUTORY AND REGULATORY CRITERIA

A. COMPLIANCE WITH PRIMARY TREATMENT REQUIREMENTS

In order to receive a 301(h) waiver, the Gloucester WPCF must demonstrate that "at the time its modification becomes effective, it will be discharging effluent that has received at least primary or equivalent treatment." 40 C.F.R. § 125.60(a). *See also* 33 U.S.C. 1311(h)(9). "Primary or equivalent treatment" is defined as "treatment by screening, sedimentation, and skimming adequate to remove at least 30 percent of the biochemical oxygen demanding material and of the suspended solids in the treatment works influent, and disinfection, where appropriate." 40 C.F.R. § 125.58(r). *See also* 33 U.S.C. 1311(h)(9).

[3] Application, Table 5 at 10.

In accordance with this provision, the WPCF's current permit requires it to maintain a minimum of 30 percent removal of both total suspended solids (TSS) and biochemical oxygen demand (BOD) on a semi-annual basis. Since 2006, the WPCF has consistently complied with these requirements. *See* Table 2.

Given this history of compliance with primary treatment requirements, and in the absence of any information indicating that the removal percentages would change under a renewed modification, EPA concludes that Gloucester has demonstrated that, if its modification was to be renewed, it would be discharging effluent that had received at least primary or equivalent treatment.

Table 2: BOD and TSS Semi-Annual Removal Percentages (2006 -2008)

	BOD	TSS
Date	**% Removal**	**% Removal**
Jun-06	45.	67.
Dec-06	43.	67.
Jun-07	53.	67.
Dec-07	49.	74.
Jun-08	48.	67.
Dec-08	54.	77.

B. COMPLIANCE WITH WATER QUALITY STANDARDS APPLICABLE TO THE POLLUTANT(S) FOR WHICH A SECTION 301(H) MODIFIED PERMIT IS REQUESTED

Under section 301(h)(1) and 40 C.F.R. § 125.61, there must be a water quality standard(s) applicable to the pollutant(s) for which a section 301(h) modified permit is requested, including standards for biochemical oxygen demand or dissolved oxygen, 40 C.F.R. § 125.61(a)(1), standards for suspended solids, turbidity, light transmission, light scattering or maintenance of the euphotic zone, 40 C.F.R. § 125.61(a)(2), and standards for pH. 40 C.F.R. § 125.61(a)(3). *See also* 33 U.S.C. § 1311(h)(1). In addition, the applicant is required to:

> (1) Demonstrate that the modified discharge will comply with the above water quality standard(s); and
> (2) Provide a determination signed by the State or interstate agency(s) authorized to provide certification under §§124.53 and 124.54 that the proposed modified discharge will comply with applicable provisions of State law including water quality standards. This determination shall include a discussion of the basis for the conclusion reached.

40 C.F.R. § 125.61(b). Each of these requirements is addressed in turn.

1. Water Quality Standards Applicable to Pollutant(s) for which a Section 301(h) Modified Permit is Requested

The applicant has requested modified requirements for BOD and suspended solids. There is no Massachusetts water quality standard for BOD *per se*, but there is a standard for dissolved oxygen, which is directly affected by BOD and will be considered in this context. *See* 40 C.F.R. § 125.61(a)(1) (applicable water quality standards include those for dissolved oxygen). Moreover, while the MSWQS do not specify a numeric criterion for TSS, they do impose a narrative criterion for suspended solids, as well as for floating and settleable solids. For SA waters, the MSWQS specify the following:

> 1. Dissolved Oxygen. Shall not be less than 6.0 mg/l. Where natural background conditions are lower, DO shall not be less than natural background. Natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained.
>
> * * *
>
> 2. Solids. These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

314 CMR 4.05(4)(a)(1) and (5).

2. Demonstration of Compliance with State Water Quality Standards for BOD and Suspended Solids

Ambient monitoring data provided by Gloucester in its 301(h) Monitoring Annual Reports indicate that all of its sampling locations have consistently satisfied minimum dissolved oxygen and TSS standards.

3. State Determination of Compliance with State Law

If this tentative decision had recommended approval of the 301(h) variance, a determination of compliance with water quality standards by the Commonwealth of Massachusetts would have been needed, in accordance with 40 C.F.R. § 125.61(b)(2). No State determination is necessary at this time, however, because EPA has tentatively decided not to grant the variance under section 301(h) and, instead, to issue a permit with secondary treatment-based effluent limits.

C. Attainment or Maintenance of Water Quality Which Assures Protection of Public Water Supplies; Assures the Protection and Propagation of a Balanced Indigenous Population of Shellfish, Fish, and Wildlife; and Allows Recreational Activities

EPA's section 301(h) regulations address four different types of water quality impacts:

a. Whether the physical characteristics of the discharge would enable water quality standards (and in certain cases EPA water quality criteria) to be attained;
b. the impact of the discharge on public water supplies;
c. the biological impact of the discharge; and

d. the impact of the discharge on recreational activities.

40 C.F.R. § 125.62(a)-(d). *See also* 33 U.S.C. § 1311(h)(2) & (9). In addition, EPA's regulations require an applicant proposing an improved or altered discharge to submit additional analysis of the expected effects of the improvements or alterations. 40 C.F.R. § 125.62(e).

The following sections address each of these components in turn.

1. Attainment of Water Quality Standards

As noted in section VI. above, in order to receive a 301(h) waiver, the WPCF's outfall and diffuser must be located and designed to provide adequate initial dilution, dispersion, and transport (*i.e.*, the "physical characteristics") of the wastewater discharge so that all applicable State water quality standards will be met at and beyond the boundary of the ZID. 40 C.F.R. § 125.62(a)(i).[4] In addition, 40 C.F.R. § 125.59(b)(1) prohibits issuance of a permit with modified limits under section 301(h) if the limits would not assure compliance with all applicable requirements of Part 122, one of which is that a permit must ensure compliance with all water quality standards, 40 CFR §§ 122.4(d) and 122.44(d).

As noted above, Massachusetts Bay is designated as a Class SA water under the MSWQS. Therefore, water quality standards for Class SA waters, as codified at 314 CMR § 4.05(4) & (5), are applicable to Gloucester's application. In order to receive renewal of its 301(h) waiver, the discharge from the WPCF must not exceed any of these standards at or beyond the ZID.

At the time of the last renewal of Gloucester's 301(h) waiver in 2001, EPA determined, based on ambient monitoring data, monthly Discharge Monitoring Reports (DMRs) and initial dilution modeling, that the outfall was designed and located to provide adequate dilution, dispersion and transport of wastewater such that MSWQS for Class SA waters would be met at and beyond the ZID. EPA Region 1, Tentative Decision Document: Analysis of the Application for a Section 301(h) Secondary Treatment Waiver for the City of Gloucester, Massachusetts (Feb. 2001). [hereinafter EPA 2001 Tentative Decision] at 11. Since that time, however, Gloucester has submitted additional data in the form of DMRs and annual biological monitoring reports (including ambient monitoring data). In addition, the MSWQS were most recently revised on December 28, 2006, including significant revisions to the standards for bacteria in SA waters. (EPA approved the new bacteria standards and certain other parts of the state's revisions on March 27, 2007 and September 19, 2007.) It is, therefore, necessary for EPA to revisit the determination it made in 2001.

[4] In addition to meeting all state water quality standards, the discharge must meet (at and beyond the ZID) "[a]ll applicable EPA water quality criteria for pollutants for which there is no applicable EPA-approved water quality standard that directly corresponds to the EPA water quality criterion for the pollutant." 40 C.F.R. § 125.62(a)(i). *See also* 33 U.S.C. § 1311(h)(9). In the instant case, there are no EPA water quality criteria that fall into this category.

In reviewing Gloucester's application, EPA Region 1 reviewed the relevant data and all applicable water quality standards and determined that the WPCF's discharge was potentially causing exceedances of water quality standards for toxicity, bacteria, and oil and grease.

a. Whole Effluent Toxicity Limits

The MSWQS set a narrative criterion for toxicity requiring that "[a]ll surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." 314 CMR § 4.05(5)(e). EPA regulations require states that adopt narrative criteria for toxic pollutants to protect designated uses to provide information, as a part of the standards or in other documents, identifying the method by which the state intends to regulate point source discharges of toxic pollutants on water quality-limited segments based on such narrative criteria. 40 C.F.R. § 131.11(a)(2). In accordance with this requirement, MassDEP has issued the "Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters" (Feb. 23, 1990) ("MassDEP Toxics Policy"), to explain the method by which the narrative toxic criterion is to be applied. This Policy explains that:

> Toxic effects to aquatic life can be either short-term or long-term. Short-term, or acute effects are evinced in a few days. Long-term, or chronic effects, are more subtle and may involve the impairment of an organism's competitive ability, survival behavior or reproductive potential.
>
> * * *
>
> In terms of biotoxicity tests the Division interprets its narrative criterion for the protection of aquatic life to mean that the acceptable receiving water concentration whole effluent toxicity is the highest measured continuous concentration of an effluent that causes no observed acute or chronic effect on a representative standard test organism.
>
> * * *
>
> As a general rule the Division prefers to use acute toxicity tests in the permit process. The normal end point measured by the acute test is the LC_{50} or the concentration that is lethal to 50% of the test organisms. An LC_{50} value, measured in percent, represents the degree of toxicity on an inverse logarithmic scale. A more convenient unit of expression is the toxic unit (T.U.). A toxic unit is defined as 100 divided by the LC_{50}:
>
> $$T.U. = \frac{100}{LC_{50}}$$
>
> Therefore an LC_{50} of 100% equals 1 T.U.

MassDEP Toxics Policy § V.A.

Under the MassDEP Toxics Policy, effluent limits are set based on available dilution. *Id.* § V.B. The Policy explains that:

> The standards allow mixing zones to exceed criteria so long as there is safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations. It is assumed that chronic toxicity is not a concern in mixing zones because swimming and drifting organisms will not be in the zone long enough for chronic exposure. Acute toxicity is a concern but is also dependent on time-exposure relationships. In the absence of detailed site-specific time-exposure histories for all important species, it is necessary to set a conservative (non-time dependent) acute limit.
>
> The recommended criterion to prevent acutely toxic effects is 0.3 T.U. This is based on an adjustment factor of one-third used to extrapolate the LC_{50} to an LC_1 (concentration at which 1% of the test organisms die). In order to assure that this limit is met within a short distance of the effluent pipe the Division has established an end-of-pipe limit of 1.0 T.U. for dilution factors less than or equal to 100 and 2.0 T.U. for dilution factors greater than 100.

Id.

As noted in section VI. A above, the wet-weather and dry-weather critical initial dilution values for the Gloucester WPCF are less than 100. Therefore, an end-of-pipe WET limit of 1 TU is required by the Toxics Policy. This limit was included in the WPCF's 2001 Permit as a daily LC_{50} limit of 100%. The permit also required quarterly two species whole effluent toxicity (WET) testing with a LC_{50} limit of 100%.

The WPCF conducted 46 WET tests (23 for each test organism) during the period of December 1, 2003 through December 31, 2009. The effluent exceeded the end-of-pipe WET limit of 1 TU in 20 out of 23 tests for Inland Silverside, and 17 out of 23 tests for Mysid Shrimp. On average, the facility's WET levels were approximately 3.5 TU for Inland Silverside and 1.9 TU for Mysid Shrimp during this time. *See* Table 3.

Table 3: WET Test Data (Dec. 1, 2003 - Dec. 31, 2009)

WET Test Date	Inland Silverside LC_{50} %	Toxic Units	Mysid Shrimp LC_{50} %	Toxic Units
12/31/03	28.7	3.5	100	1.0
03/31/04	9.2	10.9	27.7	3.6
06/30/04	22.5	4.4	39.2	2.6
09/30/04	59.5	1.7	100	1.0
03/31/05	34.3	2.9	33	3.0
06/30/05	25.4	3.9	21	4.8
09/30/05	8.8	11.4	27.2	3.7
12/31/05	32.4	3.1	68.2	1.5
03/31/06	24	4.2	73.2	1.4
06/30/06	100	1.0	100	1.0
09/30/06	37.9	2.6	61.6	1.6
12/31/06	34.7	2.9	100	1.0
03/31/07	67.1	1.5	56.4	1.8
06/30/07	40.6	2.5	48.7	2.1
12/31/07	35.3	2.8	45.6	2.2
03/31/08	100	1.0	100	1.0
06/30/08	12.5	8.0	38.3	2.6
09/30/08	38.6	2.6	67.2	1.5
12/31/08	100	1.0	78.1	1.3
03/31/09	45.8	2.2	58.	1.7
06/30/09	34.7	2.9	83.5	1.2
09/30/09	69.5	1.4	85.	1.2
12/31/09	74.5	1.3	100	1.0

In short, the WPCF's effluent has frequently exceeded the existing permit's state water quality standards-based effluent limit for preventing acutely toxic effects.[5]

[5] The Mixing Zone Policy provides an alternative method for demonstrating compliance with the acute criterion for toxics within a "short distance" of the outfall on a site-specific basis, based on EPA's Technical Support Document for Water Quality-based Toxics Control (March 1991). Mixing Zone Policy Part IV(b). The Policy notes that "[i]n any such site-specific demonstration the Division considers 2.0 [TU] the technology-based upper limit for WET. In order to exceed this limit the proponent must further demonstrate the technology to meet 2.0 [TU] in the effluent is not reasonably available or feasible." *Id* Thus, to demonstrate compliance with the acute criterion on a site-specific basis, a permittee must demonstrate that its effluent meets the 2.0 TU limit or that the technology to meet this limit is not reasonably available or feasible. This alternative, site-specific method was not applied to the existing Gloucester permit, but even if a limit of 2.0 TU was to be allowed under MA DEP's alternative method, the data in Table 3 indicates that the WPCF's outfall would still fail to provide adequate initial dilution to ensure water quality standards are met at or beyond the ZID, as required by 40 CFR § 125.62(a)(1)(i). Moreover, a limit greater than 2.0 TU would not be justified because secondary treatment is both reasonably available and feasible, and would be expected to reduce the level of toxics in the WPCF's effluent sufficiently to meet a limit of 2.0 TU or lower.

Based on this information, and in the absence of any data or analysis indicating that this pattern of exceedances would change if the WPCF's waiver were renewed, EPA Region 1 concludes that the applicant has failed to show that, at the time the renewed modification would become effective, its discharge would meet the state standards for toxicity at and beyond the ZID.

b. Oil, Grease and Total Petroleum Hydrocarbon Limits

The MSWQS provide that Class SA waters, ". . .shall be free from oil and grease and petrochemicals." 314 CMR § 4.05(4)(a)(7). Consistent with the language of the standard, MassDEP and EPA interpret this standard to mean that there shall be no detectable oil and grease in discharges to Class SA waters.[6]

Prior to 1991, Gloucester discharged to Gloucester Harbor, which is a Class SB water. 314 CMR 4.06, Table 23; Fact Sheet for Draft NPDES Permit for WPCF at 6 (Feb. 2001) (hereinafter "2001 Fact Sheet"). The average monthly oil and grease limit of 15 mg/l in the 1985 permit was therefore based on the narrative criterion for Class SB waters, which provides that "[t]hese waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life." 314 CMR 4.05(b)(7).

In 1991, the WPCF's outfall was extended to its current location in Massachusetts Bay, 2001 Fact Sheet at 6, thereby making the Class SA standard of oil and grease applicable to the WPCF's discharge. When the WPCF's permit was renewed in 2001, monitoring data indicated that, "most of the oil & grease in the discharge is in the form of food based oils and grease and a small portion is attributable to total petroleum hydrocarbons (TPH)." Response to Public Comments for Final NPDES Permit for WPCF at 4 (Aug. 2001)(*hereinafter* "2001 RTC"). The limit for oil and grease in the permit and was increased, inappropriately in consideration of the receiving water narrative criteria, to an average monthly concentration of 25 mg/l, and an average monthly limit on TPH of 5.0 mg/L was added to the permit. *Id.*

More recent monitoring data show that the WPCF's discharge violated the 5 mg/l TPH limit nine times out of the last thirty-nine sampling events. *See* Table 4. In addition, although the WPCF has consistently met the 25 mg/l monthly average oil and grease limit, *id.*, meeting this limit does not ensure that the discharge will not cause a violation of the applicable "free from oil and grease" water quality criterion. The permit limit for both oil and grease and TPH will be 0 mg/l based on the "free from" criterion, with a compliance limit of 5 mg/l based on the minimum level (ML).[7]

[6] 04/01/2010 E-Mail from Kimberly Groff, MassDEP Water Quality Standards, to Michele Barden, EPA, RE: SA Oil and Grease criteria

[7] Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence.

Based on this data, EPA Region 1 concludes that the applicant has failed to show that, at the time the renewed variance would become effective, its discharge would meet the standards for oil and grease and TPH at and beyond the ZID.

Table 4: WPCF TPH and O&G Discharge Monitoring Data (Jan. 2006-Aug. 2008)

Date	TPH	O & G	Date	TPH	O & G
1/31/2006	7.5	10	9/30/2007	1.2	9.8
2/28/2006	9.8	14.1	10/31/2007	3.9	11.2
3/31/2006	6.5	23	11/30/2007	1.1	11.7
4/30/2006	6.4	17	12/31/2007	2.1	10.
5/31/2006	0.8	11	1/31/2008	.5	9.
6/30/2006	5.2	11	2/29/2008	0.	11.
7/31/2006	.8	18.	3/31/2008	5.	8.
8/31/2006	3.5	24.	4/30/2008	1.4	8.
9/30/2006	5.	21.7	5/31/2008	1.6	10.
10/31/2006	4.8	21.6	6/30/2008	.9	10.
11/30/2006	7.3	10.	7/31/2008	1.4	10.9
12/31/2006	4.9	14.	8/31/2008	2.6	9.7
1/31/2007	3.8	12.	9/30/2008	2.	9.2
2/28/2007	6.5	24.8	10/31/2008	.7	8.4
3/31/2007	9.1	13.	11/30/2008	2.3	9.4
4/30/2007	1.1	12.	12/31/2008	1.2	8.6
5/31/2007	0.	10.	1/31/2009	1.8	14.
6/30/2007	1.4	9.	2/28/2009	6.8	14.5
7/31/2007	.7	8.	3/31/2009	3.6	16.5
8/31/2007	5.	16.			

c. Primary Contact Bacterial Limits

Prior to 2006, the MSWQS provided that in Class SA waters, not designated for shellfishing, fecal coliform bacteria:

> Shall not exceed a geometric mean of 200 organisms per 100 ml in any representative set of samples, nor shall more than 10% of the samples exceed 400 organisms per 100 ml.

314 CMR 4.05(4)(a)(4) (2000). Permit limits based on these state water quality criteria were incorporated into Gloucester's 2001 permit as an average monthly limit of 200 colony forming units ("cfu") per 100 ml and a daily maximum of 400 cfu/100 ml.[8]

[8] Massachusetts has traditionally not allowed dischargers to meet bacteria criteria through dilution. This is consistent with EPA policy regarding the inappropriateness of using mixing zones to achieve bacteria criteria. *See* Memorandum from Ephraim S. King, Director of Office of Science and Technology to William Spratlin, Director, Water Wetlands and Pesticides (Nov. 12, 2008)(stating that "mixing zones that allow for elevated levels of bacteria in rivers and streams designated for primary contact recreation are inconsistent with the designated use and should not be permitted. . .").

Discharge monitoring data collected under Gloucester's current permit show that the WPCF has frequently violated its permit limits for fecal coliform. *See* Table 5. Between June 1, 2006, and February 28, 2009, the WPCF violated the maximum daily fecal coliform limits 11 times or one third of the time. The most extreme exceedance was a 399,900% violation of the maximum daily limit. During that same period the geometric average monthly limit was violated twice.

Table 5: WPCF Fecal Coliform Discharge Monitoring Data (June 2006 – Feb. 2009)

Month	Geometric Mean (cfu /100mL)	% Exceed.	Daily Max. (cfu /100mL)	% Exceed.
Jun-06	145		7600	1800
Jul-06	59		3900	875
Aug-06	366	83	440000	109900
Sep-06	197		95000	23650
Oct-06	654	227	1600000	399900
Nov-06	16		350	
Dec-06	7		210	
Jan-07	4		550	38
Feb-07	2		20	
Mar-07	2		30	
Apr-07	1		10	
May-07	2		80	
Jun-07	25		290	
Jul-07	13		570	43
Aug-07	65		61000	15150
Sep-07	8		250	
Oct-07	18		39200	9700
Nov-07	4		780	95
Dec-07	8		84	
Jan-08	2		10	
Feb-08	7		40	
Mar-08	5		173	
Apr-08	2		30	
May-08	7		80	
Jun-08	9		60	
Jul-08	64		38000	9400
Aug-08	11		240	
Sep-08	3		2800	600
Oct-08	2.		70.	
Nov-08	2.		210.	
Dec-08	2.		10.	
Jan-09	3.		20.	
Feb-09	2.		20.	

In 2006, MassDEP revised the bacteria criteria for coastal and inland waters designated for primary contact recreation from a fecal coliform-based standard to an enteroccoci-based standard. The current MSWQS provide that:

> at bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.010, no single enterococci sample taken during the bathing season shall exceed 104 colonies per 100 ml, and the geometric mean of the five most recent samples taken within the same bathing season shall not exceed a geometric mean of 35 enterococci colonies per 100 ml. In non bathing beach waters and bathing beach waters during the non bathing season, no single enterococci sample shall exceed 104 colonies per 100 ml and the geometric mean of all samples taken within the most recent six months typically based on a minimum of five samples shall not exceed 35 enterococci colonies per 100 ml.

314 CMR 4.05(4)(a)(4) (2009). Massachusetts Department of Public Health regulations provide that "Bathing Beach means the land where access to the bathing water is provided" and "Bathing Water means fresh or salt water adjacent to any public bathing beach or semi- public bathing beach at the location where it is used for bathing and swimming purposes." 105 CMR 445.010.

The WPCF outfall is not adjacent to a bathing beach, and is therefore subject to the "non bathing beach limits" for enterococci. Nevertheless, primary contact recreation, in addition to being a designated used for Class SA waters, is also an existing use in this area of Massachusetts Bay. The Nina T and the Poling are two shipwrecks that are popular scuba diving sites and are within a thousand meters of the outfall.

Gloucester has not submitted any data concerning enterococci levels in the WPCF's effluent. As a result, the applicant has not demonstrated that, at the time the renewed modification would become effective, its discharge would meet the primary contact standard for bacteria in Class SA waters at and beyond the ZID.

Not only did Gloucester fail to submit any enterococci data for its discharge, but EPA neither has nor is aware of any such data from another source. Therefore, EPA considered whether the existing data concerning fecal coliform levels in the WPCF discharge would support any conclusions about entercocci levels. In this regard, EPA reviewed concurrent sampling of fecal coliform and enterococci bacteria in primary-treated effluent from the Portsmouth, NH, WPCF and this data indicates that it is more difficult to meet enterococci limits with primary treatment than it is to meet fecal coliform limits. In addition, a series of recent studies comparing ambient levels of various bacteria in marine waters in Southern California[9] found fecal coliform and enterococci to be strongly correlated under storm conditions, less well correlated during winter conditions, and poorly correlated during the summer conditions (dry weather). R.T. Noble et al., *Comparison of Total Coliform, Fecal Coliform, and Enterococcus Bacterial Indicator Response for Ocean Recreational Water Quality Testing*, 37 Water Research 1637, 1639 (2003).

[9] The studies were conducted at over 200 sites along the coastline of the Southern California Bight including open beach areas, rocky shoreline, and areas near fresh water outlets that drain land-based runoff

Under all conditions, however, enterococci was the indicator that exceeded the applicable single sample standard[10] most frequently. *Id.* Thus, although fecal coliform and enterococci were not found to be well correlated under all conditions, the enterococci standard was more frequently exceeded than the fecal coliform standard. This result tends to suggest that the new single sample standard for enterococci in the MSWQS for SA waters is likely to be even more difficult to meet than the old fecal coliform standard. Thus, there is no evidence that the WPCF would be better able to meet the enterococci-based water quality requirements limits than it has been for the fecal coliform-based limits.

Therefore, EPA Region 1 concludes that the applicant has failed to show that, at the time the renewed modification would become effective, its discharge would meet the primary contact standard for bacteria in Class SA waters at and beyond the ZID.

d. Shellfishing Bacteria Limits

The WPCF's outfall is located in Massachusetts Bay, which MassDEP has designated as a class SA water, with a specific qualifier of "shellfishing." 314 CMR § 4.06, Table 23. Under the MSWQS, a qualifier "indicates special considerations on uses applicable to the segment that may affect the application of criteria. . . ." 314 CMR § 4.06(1)(d). The MSWQS provide that SA waters designated in the MSWQS tables for shellfishing are to maintain water quality "suitable for shellfish harvesting without depuration (Approved and Conditionally Approved Shellfish Areas)." 314 CMR 4.05(4)(a). Moreover, waters designated with the qualifier for shellfishing:

> . . . are subject to more stringent regulation in accordance with the rules and regulations of the Massachusetts Division of Marine Fisheries pursuant to M.G.L. c. 130, § 75. These include applicable criteria of the National Shellfishing Sanitation Program. Approval for use of areas designated for shellfishing is issued by the Massachusetts Division of Marine Fisheries.

314 CMR § 4.06(1)(d)(5).

The area of Massachusetts Bay where the outfall is located is currently closed to shellfishing. *See* Maps N14, N15, N16 and MB 14, available on the Massachusetts Division of Marine Fisheries website, http://www.mass.gov/dfwele/dmf/programsandprojects/dsga.htm#shelsani.

[10] The single sample standard used for fecal coliforms in the study was >400 cfu or MPN/100 ml, which is equivalent to the single standard sample in Gloucester's existing permit. The single sample standard used for enterococci was >104CFU or MPN/100ml, which is equivalent to the current single sample standard for Class SA waters in the MSWQS.

Closure of the area to shellfishing does not, however, remove the shellfishing designation under the MSWQS.[11] Thus, the shellfishing-based standard for bacteria in Class SA waters must be met at and beyond the edge of the ZID.

The MSWQS sets the following numeric bacteria criterion for shellfishing in SA waters:

> Waters designated for shellfishing: fecal coliform shall not exceed a geometric mean Most Probable Number (MPN) of 14 organisms per 100 ml, nor shall more than 10% of the same exceed a MPN of 28 per 100 ml, or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the *Guide for the Control of Molluscan Shellfish*.

314 CMR § 4.05(4)(a)(4).

Annual 301(h) Monitoring Reports submitted by Gloucester indicate exceedances of the shellfishing-based water quality criteria for fecal coliform. In particular, 23 out of 192 samples (approximately 12%) taken at Station 3A, which is located at the edge of the ZID, exceeded 28 organisms per 100 ml. *See* 301(h) Monitoring Annual Reports.

Therefore, EPA Region 1 concludes that the applicant has failed to show that, at the time the renewed modification would become effective, its discharge would meet at and beyond the ZID the water quality standards for bacteria in Class SA waters designated for shellfishing.

2. Impact of the Discharge on Public Water Supplies

In order to receive a section 301(h) variance, Gloucester's discharge must allow for the attainment or maintenance of water quality which assures protection of public water supplies. 301(h)(2); 40 CFR § 125.62(b). There are no existing or planned public water supply intakes in the vicinity of the WPCF's offshore outfall. Application at 44. Therefore, Gloucester satisfies this criterion for obtaining a section 301(h) variance.

3. Impact of the Discharge on Shellfish, Fish, and Wildlife

In order to receive a section 301(h) variance, Gloucester's discharge "must allow for the attainment or maintenance of water quality which assures protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife." 301(h)(2) and 40 CFR § 125.62(c)(1). More specifically, such a balanced, indigenous population ("BIP") must exist:

[11] Prior to 2006, the MSWQS provided that, "[i]n approved areas [Class SA waters] shall be suitable for shellfish harvesting without depuration (Open Shellfish Areas)." 314 CMR 4.05(4)(a) (2000). This provision was amended in 2006 "to clarify that where a shellfishing use is designated for Class SA and Class SB waters, that goal remains in place regardless of whether the water is approved for use in accordance with the National Shellfishing Sanitation Program." Letter from Stephen S. Perkins, Director, Office of Ecosystem Protection, to Laurie Burt, Commissioner, MassDEP (Sept. 19, 2007) at 4. The current MSWQS provide, as quoted above, that "[w]here designated in the tables to 314 CMR 4.00 for shellfishing, [Class SA] waters shall be suitable for shellfish harvesting without depuration (Approved and Conditionally Approved Shellfish Areas)." 314 CMR 4.05(4)(a) (2009).

> (i) Immediately beyond the … [ZID]; and
> (ii) In all other areas beyond the … [ZID] where marine life is actually or potentially affected by the applicant's modified discharge.

40 CFR § 125.62(c)(2). BIP is defined by regulation as an ecological community which:

> (1) Exhibits characteristics similar to those of nearby, healthy communities existing under comparable but unpolluted environmental conditions; or
> (2) May reasonably be expected to become re-established in the polluted water body segment from adjacent waters if sources of pollution were removed.

40 CFR § 125.58(f). The terms shellfish, fish and wildlife include "any biological population or community that might be adversely affected by the applicant's modified discharge." 40 CFR § 125.58(y).

In assessing the impacts of the proposed discharge on aquatic life, EPA policy recommends the "independent application" of three types of data: chemical-specific water quality data, whole effluent toxicity data, and biological monitoring data:

> Since each method (chemical-specific, whole effluent, and bioassessment) has unique as well as overlapping attributes, sensitivities, and program applications, no single approach for detecting impact should be considered uniformly superior to any other approach. For example, the inability to detect receiving water impacts using a biosurvey alone is insufficient evidence to waive or relax a permit limit established using either of the other methods. The most protective results from each assessment conducted should be used in the effluent characterization process . . .

EPA, *Technical Support Document for Water Quality-based Toxics Control* (1991) at 22. In this case, EPA has reviewed the relevant chemical-specific data, whole effluent toxicity data, and biological monitoring data to assess the impact of the WPCF's discharge on shellfish, fish, and wildlife.

As part of its biological monitoring program under the existing section 301(h) variance-based permit, Gloucester has compared the benthic community found close to the discharge to the community at control sites. The applicant found the discharge and control sites to have very similar abundance, composition and diversity of species. *Id.* In addition, EPA has not found any reasonable potential for the WPCF's effluent to violate chemical-specific standards established to protect aquatic life.

Nonetheless, as discussed in section VII. C.1.a above, WET tests of the WPCF's effluent indicate that the effluent has frequently exceeded effluent limitations based on criteria in the MSWQS for preventing acutely toxic effects.

Based on this data, Region 1 concludes that the applicant has failed to demonstrate that a modified discharge would not interfere with the attainment or maintenance of that water quality which assures protection and propagation of a BIP.

Impact of the Discharge on Recreational Activities

Consistent with section 301(h)(2) of the CWA, EPA regulations provide that "[t]he applicant's modified discharge must allow for the attainment or maintenance of water quality which allows for recreational activities beyond the [ZID], including, without limitation, swimming, diving, boating, fishing and picnicking, and sports activities along shorelines and beaches." 40 CFR § 125.62(d)(1).

Although Gloucester's Application identifies swimming, fishing, and diving as "existing or potential recreational activities likely to be affected by the [WPCF's] modified discharge beyond the [ZID]," it does not identify *how* these activities are likely to be affected. Application at 56. Moreover, the Application also states that the discharge " . . .has no impact on recreational activities including swimming and fishing and diving." *Id.* However, as established in section VII. C.1.c above, the WPCF is very likely currently causing violations of the single sample, primary contact water quality criterion for Class SA waters under the MSWQS. Since the single sample value most closely represents the level of pathogenic bacteria to which swimmers and divers are actually exposed to on a given day, it reflects a threat to the health of persons engaged in water-contact recreation in these waters. Therefore, EPA concludes that the applicant has not demonstrated that its proposed discharge would allow for the attainment or maintenance of water quality which allows for recreational activities beyond the ZID.

4. Impact of Improved Discharge

As noted in section IV. C above, Gloucester's application is based on an improved or altered discharge, and must therefore include:

> (1) A demonstration that such improvements or alterations have been thoroughly planned and studied and can be completed or implemented expeditiously;
> (2) Detailed analyses projecting changes in average and maximum monthly flow rates and composition of the applicant's discharge which are expected to result from proposed improvements or alterations;
> (3) The assessments required by paragraphs (a) through (d) of this section based on its current discharge; and
> (4) A detailed analysis of how the applicant's planned improvements or alterations will comply with the requirements of paragraphs (a) through (d) of this section.

40 CFR § 125.62(e). Gloucester has stated that its proposed improved discharge will comply with the requirements of 40 CFR 125.62(a) through (d), but has not provided any supporting analysis for its conclusions, as required by 40 CFR § 125.62(e). Application at 54.

D. ESTABLISHMENT OF A MONITORING PROGRAM

Under 40 CFR § 125.63, which implements section 301(h)(3), the applicant must have a monitoring program designed to evaluate the impact of the modified discharge on the marine biota, demonstrate compliance with applicable water quality standards, and measure toxic substances in the discharge. Gloucester has proposed to continue its current monitoring program which consists of the following components:

1. Biological Monitoring

Five benthic stations (Figure 2) are sampled in late March and early September annually. One site (Station 3A) is located at the edge of the ZID, 30 meters from the diffuser. Replicate benthic infaunal samples (5) are collected and the samples are sieved at 0.5 mm, preserved and sorted in the laboratory. Animals are identified to the species level.

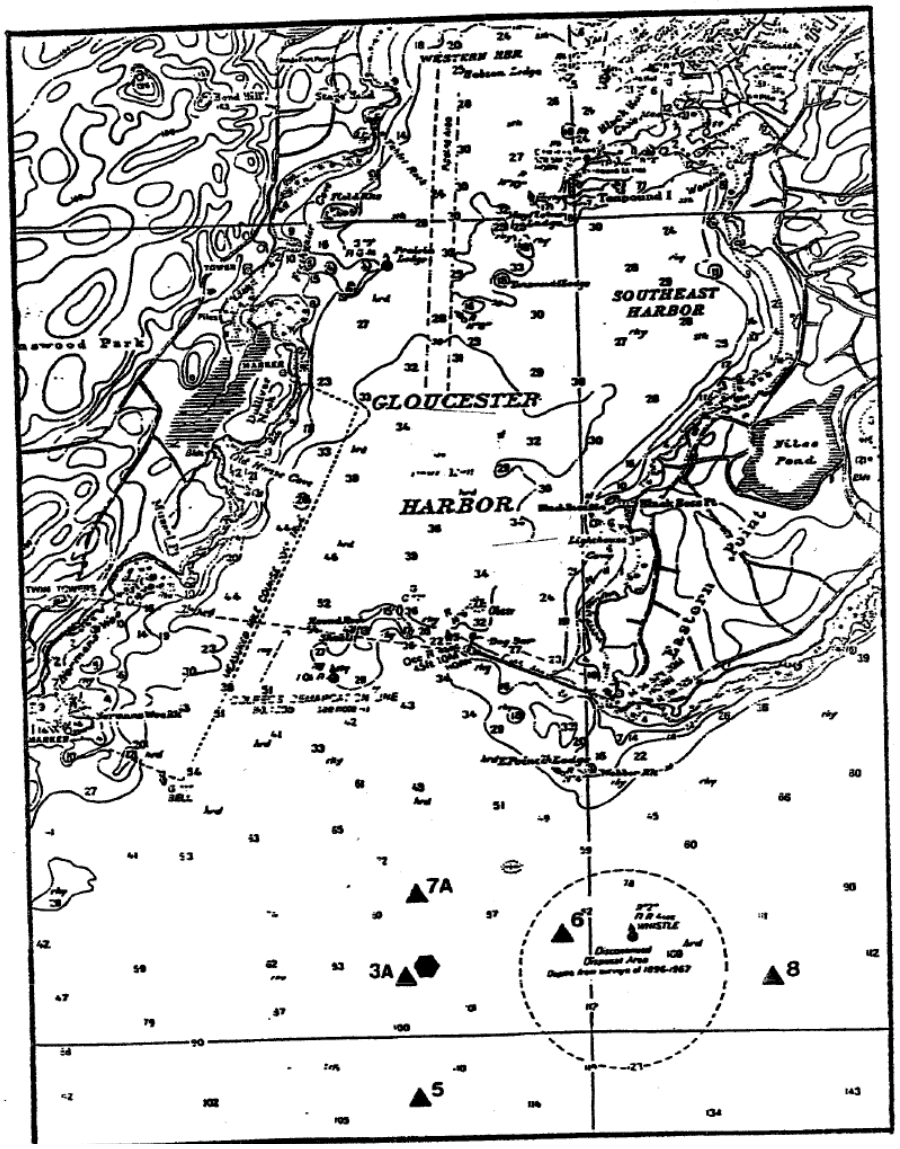

Figure 2: Biological Monitoring Stations

2. Water Quality Monitoring

Six stations are sampled 13 times a year (Figure 3). Parameters measured are temperature, salinity, pH, dissolved oxygen, fecal coliforms and chlorophyll.

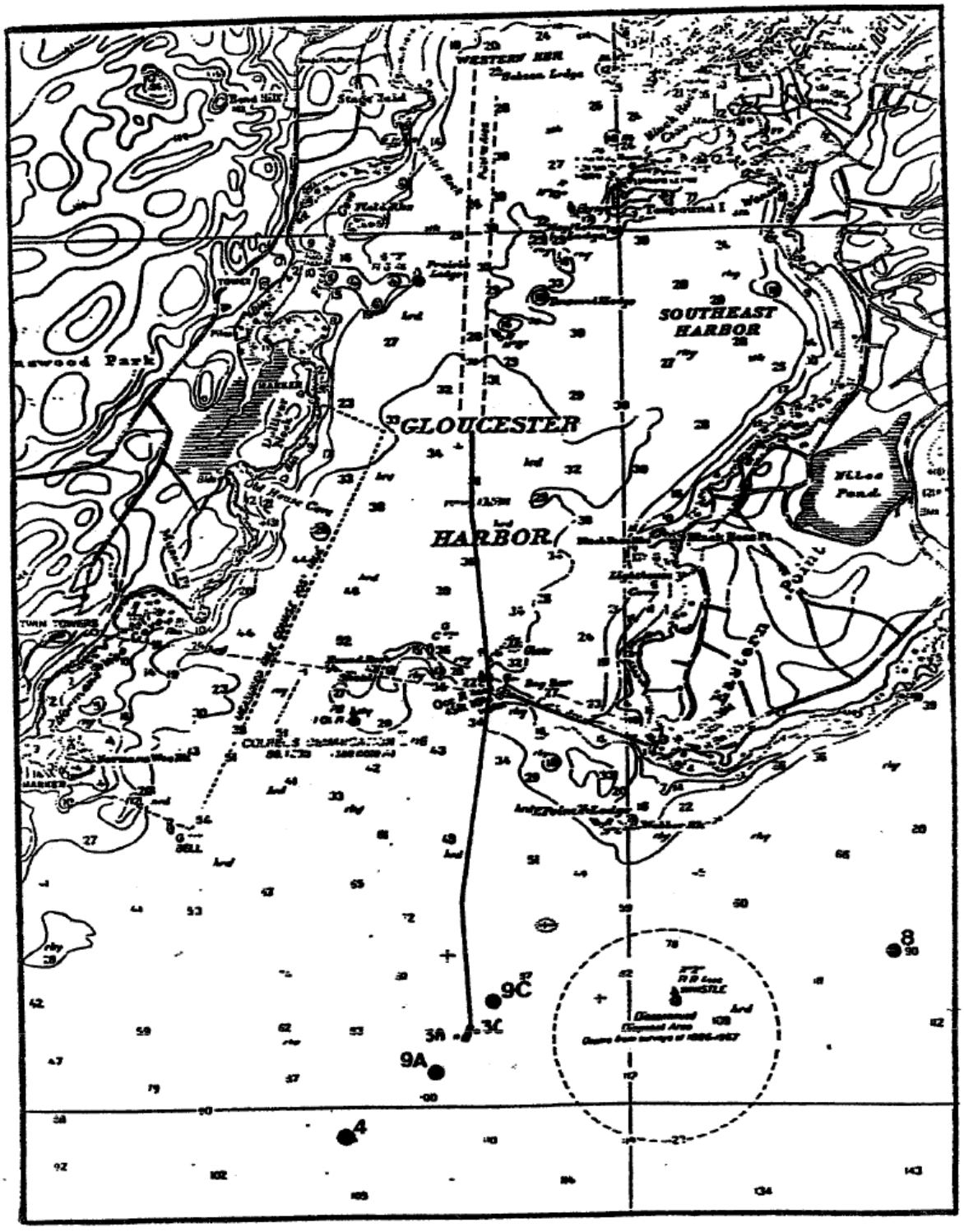

Figure 3: Water Quality Monitoring Stations

3. Effluent toxicity testing
A composite sample is collected from the treatment plant outflow channel during quarterly sampling events. The effuent is tested for toxicity using procedures documented in "Methods of Measuring the Acute Toxicity of Effuents to Freshwater and Marine Organisms" (1993; EPA 600/4-90/027F) as modified by EPA Region 1. The test organisms used are mysids (Mysidopsis bahia) and inland silversides (Menidia beryllna).

4. Effluent Toxicity Screen
Once a year in late summer a 24-hour composite sample is collected from the effluent channel at the treatment plant and screened for priority pollutants.

Application at 58.

EPA has determined that this monitoring program would be sufficient to meet the requirements of section 301(h)(3) of the CWA and 40 CFR § 125.63.

E. Impact of Modified Discharge on Other Point and Non-point Sources

Under 40 CFR § 125.64, which implements section 301(h)(4) of the CWA, the applicant's proposed modified discharge must not result in the imposition of additional pollution control requirements on any other point or nonpoint source. Given the remoteness of the WPCF's outfall (1 mile from the nearest land), EPA concludes that this criterion would be satisfied.

F. Toxics Control Program

40 CFR §§ 125.66 lays out pretreatment and toxics control requirements for 301(h) applicants. Because it has certified that "that there are no known or suspected water quality, sediment accumulation, or biological problems related to toxic pollutants or pesticides in its discharge," Gloucester has not established a schedule of activities designed to eliminate the entrance of toxic pollutants from nonindustrial sources into the treatment works. Application at 64.

As described in section VII. C.1.a above, the WPCF's effluent has frequently exceeded the state water quality standards-based, effluent limits set to prevent acutely toxic effects. Therefore, contrary to Gloucester's assertion, there do appear to be water quality problems related to toxic pollutants in the WPCF's discharge. Moreover, past efforts to eliminate toxicity from in the primary-treated effluent have not succeeded.

If EPA were to grant the 301(h) waiver, Gloucester would likely be required to implement a schedule of activities under 40 CFR §§ 125.66. However, EPA's tentative decision is to deny the waiver and require secondary treatment, which EPA believes, will alleviate the toxicity of the discharge.

G. INCREASE IN EFFLUENT VOLUME OR AMOUNT OF POLLUTANTS DISCHARGED.

Under 40 CFR § 125.67(a), which implements 301(h)(8), a 301(h) variance may not be granted if it would result in "substantially increased discharges of the pollutant to which the modification applies above the discharge specified in the section 301(h) modified permit." Gloucester's application estimates that annual average wastewater flows from the sewered population will increase by 10% over 20 years (2.5% every 5-year interval), and that TSS and BOD mass loadings from the sewered population flow will increase 20% over 20 years (5% every 5-year interval). Application at 7-8. EPA therefore concludes that a renewal of Gloucester's waiver would not result in substantially increased discharges of both BOD and TSS, the two pollutants to which the waiver applies, above the levels specified in the current permit.

VIII. COMPLIANCE WITH PROVISIONS OF OTHER STATE, LOCAL OR FEDERAL LAWS

EPA regulations provide that any section 301(h) variance-based NPDES permit must comply with State, local, and other Federal laws or Executive Orders, including the Coastal Zone Management Act of 1972, as amended, 16 U.S.C. 1451, *et seq*.; the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, *et seq*.; and Title III of the Marine Protection, Research and Sanctuaries Act, as amended, 16 U.S.C. 1431, *et seq.* 40 CFR § 125.59(b)(3).

A. COASTAL ZONE MANAGEMENT ACT

An NPDES permit may not be issued unless the permit applicant certifies that the proposed discharge will comply with the applicable State coastal zone management program(s) approved under the Coastal Zone Management Act, and the state concurs with, or waives the need for, such certification. 16 U.S.C. § 1456(c)(3)(A). *See also* 40 C.F.R. §§ 122.49(d) and 125.59(b)(3). While the applicant in this case suggests that it would have obtained state concurrence with a certification that the state's coastal zone management program would have been complied with even if the section 301(h) waiver was granted, EPA believes that is questionable. In any event, EPA is on other grounds tentatively denying the City's request to renew the 301(h) variance. Ultimately, the secondary treatment-based permit will also need to be certified to be in compliance with the state's coastal zone management program and obtain the concurrence of the state coastal zone management office. EPA believes that such concurrence can be obtained for a permit based on secondary treatment.

B. MASSACHUSETTS OCEANS SANCTUARIES ACT

The outfall of the WPCF is located within the boundaries of the North Shore Ocean Sanctuary, as established by the Massachusetts Ocean Sanctuaries Act ("MOSA"). 132A M.G.L. § 12A, et seq. (2009). MOSA places a general prohibition on the discharge of municipal wastes to ocean sanctuaries. *Id*. § 15(4). However, the WPCF is covered by MOSA's "grandfathering" provision which allows discharges to the North Shore Ocean Sanctuary from municipal waste treatment facilities where construction had commenced, or a construction grant had been awarded, prior to 1978 and certain other conditions were met. *Id.* § 16.

Under MOSA, any increase in the volume of a discharge from a wastewater treatment plant constitutes a "proposed discharge," *id.* § 12(B), and thus requires authorization by a "variance" from MassDEP.[12] *Id.* §§ 16-16F. Among the prerequisites for such a variance is that: "[t]he proposed discharge must be treated to a secondary level, and such other treatment to remove nutrients or other pollutants which is found to be necessary to avoid degradation of the ecology, appearance and marine resources of the designated sanctuary and to meet water quality standards." *Id.* § 16B(9).

In its application, the WPCF has projected a gradual increase in its annual average flow over the next fifteen years. *See*. Pursuant to the sections of MOSA cited above, the WPCF must install at least secondary treatment in order to obtain a variance that will allow it to increase its discharge.

C. ENDANGERED SPECIES ACT

Under the Endangered Species Act (ESA), federal government agencies generally may not take actions that are likely to jeopoardize the continued existence of endangered or threatened species or would adversely affect the critical habitat of such species. *See* 16 U.S.C. § 1536(a)(2); 40 C.F.R. § 122.49(c). This prohibition applies to EPA's issuance of NPDES permits, including permits with limits based on a variance under section 301(h) of the CWA.

There are a number of endangered or threatened species of whale and sea turtle that could be present in the area of the WPCF's discharge. As a result, EPA must consult with the National Oceanic and Atmospheric Administration (NOAA) to ensure compliance with the ESA. Given that EPA has tentatively decided to deny Gloucester's request to renew the existing section 301(h) variance, EPA has prepared a draft permit with secondary treatment based limits. Therefore, EPA's analysis and consultation is based on the effects of a discharge receiving secondary treatment. ESA issues are discussed in detail in the Fact Sheet issued with the draft permit and this document.

D. MARINE SANCTUARIES

Pursuant to section 304(d) of the Marine Protection, Research and Sanctuaries Act, 16 U.S.C. § 1434(d), and its implementing regulations, a 301(h)-modified NPDES permit may not be issued for a discharge into a designated marine sanctuary if the regulations applicable to the sanctuary prohibit such a discharge, unless the National Marine Fisheries Service does not object to the permit.,

According to the applicant:

[12] The authority to grant such variances previously resided in the Massachusetts Department of Environmental Management (DEM). 132A M.G.L. § 16A (2006). DEM promulgated regulations at 302 CMR 5.10 that establish procedures for granting a variance to increase the volume of an existing discharge from a publicly owned treatment works. However, under the 2008 Amendments to MOSA, authority to grant such variances has been transferred to MassDEP. St. 2008, c. 114, § 11; M.G.L. c. 132A § 16A (2009).

> The outfall is not located in any federally designated marine or estuary sanctuary. The Stellwagen Bank Sanctuary is located more than 10 miles offshore and due to the small volume of discharge and the direction of currents, is not affected by the effluent.

Application at 28.

Based on this information, EPA concludes that the proposed modified discharge would be in compliance with the Marine Protection, Research and Sanctuaries Act.

E. 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 NOAA's National Marine Fisheries Services (NOAA Fisheries) if an action or proposed action that EPA funds, permits, or undertakes, may adversely impact any essential fish habitat (EFH). The statute 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 (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.

Because EPA's tentative decision is to deny Gloucester's request for renewal of the section 301(h) waiver, it is not necessary for EPA to consult with NOAA regarding the potential for adverse effects on EFH to result from EPA issuance of an NPDES permit to Gloucester with primary treatment limits based on a section 301(h) waiver. EPA does, however, plan to consult with NOAA regarding the potential for effects on EFH from the discharge as it would be regulated by the secondary treatment limits and other requirements proposed in the draft permit. EPA has addressed the EFH issues related to the draft permit in the Fact Sheet issued in conjunction with the permit.

IX. REFERENCES AND ATTACHMENTS

EPA Region 1, Tentative Decision Document: Analysis of the Application for a Section 301(h) Secondary Treatment Waiver for the City of Gloucester, Massachusetts (Feb. 2001).

EPA Office of Water, Amended Section 301(h) Technical Support Document, EPA 842-B-94-007. U.S. Environmental Protection Agency, (1994).

EPA Region 1, Fact Sheet: Draft National Pollutant Discharge Elimination System (NPDES) Permit to Discharge to Waters of the United States (Aug. 21, 2001).

Gloucester WPCF 301(h) Waiver Renewal Application (2006).

MassDEP. Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters (Feb. 23, 1990).

MassDEP. Massachusetts Surface Water Quality Standards Implementation Policy for Mixing Zones (Jan. 8, 1993).

A. D. Michael, Gloucester 301(h) Monitoring Program: Annual Reports (2003-2006).

Christine Millhouse, 2007, e-mail to Doug Corb, EPA Region 1 (Feb. 13, 2007).

Stephen S. Perkins, Director, Office of Ecosystem Protection, Letter to Laurie Burt, Commissioner, MassDEP (Sept. 19, 2007).

Tetra Tech, Technical Review of the Gloucester Wastewater Treatment Plant Section 301(h) Reapplication for Modification of Secondary Treatment Requirements for Discharge into Marine Waters (1990).

Tetra Tech, Evaluation of the City of Gloucester Initial Dilutions for Proposed 1995 Flows and Effluent Characteristics, and Modified Outfall Design (1989).

> In non bathing beach waters and bathing beach waters during the non bathing season, no single enterococci sample shall exceed 104 colonies per 100 ml and the geometric mean of all samples taken within the most recent six months typically based on a minimum of five samples shall not exceed 35 enterococci colonies per 100 ml.

314 CMR 4.05(4)(a)(4). Massachusetts Department of Public Health regulations provide that "Bathing Beach means the land where access to the bathing water is provided" and "Bathing Water means fresh or salt water adjacent to any public bathing beach or semi- public bathing beach at the location where it is used for bathing and swimming purposes." 105 CMR 445.010.

The WPCF outfall lies offshore and is not considered adjacent to a bathing beach. Therefore, it is subject to the "non bathing beach limits" for enterococci.

MassDEP views the use of the 90% upper confidence level (lightly used full body contact recreation) of 276 cfu/100ml as appropriate for setting the maximum daily limit for enterococci in the draft permit.

Therefore, EPA has established monthly average (geometric mean) effluent limit of 35 cfu/100ml and daily maximum effluent limit of 276 cfu/100ml for enterococci in the draft permit in order to ensure that the discharge does not cause or contribute to exceedances of Massachusetts Surface Water Quality Standards found at 314 CMR 4.05 (4)(a)(4)(b).

The draft permit also includes a requirement that the enterococci samples shall be taken at the same time as the daily total residual chlorine sample is collected. Sampling is required three times per week.

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS

Total Residual Chlorine (TRC) - Chlorine and chlorine compounds produced by the chlorination of wastewater can be toxic to aquatic life. In the MSWQS, 314 CMR 4.05(5)(e), MassDEP has adopted the numeric aquatic life criteria for total residual chlorine (TRC) of 7.5 ug/l (chronic) and 13 ug/l (acute) that EPA recommends in *National Recommended Water Quality Criteria: 2002* ("2002 NRWQC") at 22, The following are calculations of water quality based chlorine limits:

> Acute Chlorine Salt Water Criteria = 13 ug/l
>
> Chronic Chlorine Salt Water Criteria = 7.5 ug/l
>
> (acute criteria * dilution factor) = Acute (Maximum Daily)
> 13 ug/l x 64 = 832 ug/l/1000 = **0.83 mg/l Maximum Daily**.
>
> (chronic criteria * dilution factor) = Chronic (Average Monthly)
> 7.5 ug/l x 64 = 480 ug/l /l X 1000 = **0.48 mg/l Average Monthly**

Prior to the treatment plant initiating dechlorination, the 14,869 foot outfall provided additional disinfection contact time. Because Gloucester samples for TRC prior to the effluent entering the outfall, the current permit allows the sample to be held for a period of time equivalent to the travel time in the outfall before it must be analyzed. The permittee calculated the time of travel of the effluent through the outfall at various flows. At the outfall maximum flow rate of 15 mgd, the time of travel is 80 minutes, therefore, the current permit allows for a maximum TRC sample holding time of 80 minutes.

The draft permit requires the permittee to reduce the holding time of TRC samples to 15 minutes. *See* 40 CFR §136.3 (Table II). Gloucester now uses sulfite to dechlorinate the effluent prior to it entering the outfall pipe. The reaction of the sulfite declorinating agent is almost instantaneous. If the sulfite dosing is correct, all chlorine will be neutralized and there will be little if any detectable TRC after 15 minutes. The additional holding time beyond 15 minutes is no longer necessary. The frequency of TRC sampling remains 3 times per day.

The permittee is required to have an alarm system to warn of a chlorination system malfunction. This is a best management practice (BMP), and is being required under authority of 40 CFR § 122.44(k)(4).

Priority Pollutant Scan - The current permit requires an annual priority pollutant scan for 126 parameters. A review of past scans demonstrates an absence of reasonable potential for the priority pollutants to cause or contribute to an exceedance of state water quality criteria. Based on an absence of "reasonable potential", the current annual priority pollutant scan requirement is not carried forward in the draft permit.

Biological and Receiving Water Quality Monitoring - POTWs with a waiver from secondary treatment requirements under CWA § 301(h) are required to conduct biological and receiving water quality monitoring under 40 CFR §125.63(b) and 40 CFR §125.63(c), respectively. Past biological and receiving water quality monitoring data does not indicate any significant changes to the biota outside the zone of initial dilution. With the required upgrade to secondary treatment, these monitoring requirements need not continue. As a result, the draft permit does not require ambient biological or water quality monitoring.

Whole Effluent Toxicity - National studies conducted by the EPA have demonstrated that industrial and domestic sources contribute toxic constituents, such as metals, chlorinated solvents, aromatic hydrocarbons, and others, to POTWs. The impacts of such complex mixtures are often difficult to assess. Therefore, the overall or combined toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity (WET) testing.

Furthermore, 40 CFR 122.44(d) requires WET limits in NPDES permits when the permittee has a "reasonable potential" to cause an excursion above the applicable water quality standard(s) for toxicity. In this case, the MSWQS contain a narrative toxicity criterion which states that "[a]ll surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife." 314 CMR 4.05(5)(e). WET testing can be used to determine compliance with this water quality criterion.

EPA's *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-

001, March 1991, recommends using an "integrated strategy" containing toxicity testing on both a pollutant-specific (chemical) basis and a whole effluent (biological) basis. EPA-New England adopted this "integrated strategy" on July 1, 1991.

These approaches are designed to protect aquatic life and human health. Pollutant-specific approaches such as those in the Gold Book and State regulations assess the effects of individual chemicals, whereas the WET testing approach evaluates the interactions between the various pollutants in a particular effluent, thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. In other words, WET testing can reveal the additive, antagonistic, and/or synergistic effects of combining various pollutants in an effluent. In addition, WET testing can reveal the presence of previously unidentified toxic pollutants. Pollutant-specific analysis does not provide these benefits. As a result, both approaches to toxicity testing are needed.

The WPCF's current permit requires quarterly two-species WET testing. The WPCF conducted 46 WET tests (23 for each test organism) during the period of December 1, 2003 through December 31, 2009. The effluent exceeded the end-of-pipe WET limit of 1 toxicity unit (TU) [8] in 20 out of 23 tests for Inland Silverside, and 17 out of 23 tests for Mysid Shrimp. On average, the facility's WET levels were 3.5 TU (26 % effluent) for Inland Silverside and 1.9 TU (53 percent effluent) for Mysid Shrimp during this time. These results show that the WPCF's current discharge has a reasonable potential to violate the State's narrative toxicity criterion.

The WET limit in the current permit and in the draft permit is based on MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters", February 23, 1990. This policy requires LC50 effluent limitations of 1 TU[9] for discharges with dilution factors between 20 and 100 and also requires a sampling frequency of 4 tests per year. Since the estimated dilution provided for the WPCF's discharge is 64:1, the draft permit includes an LC 50 limits of 100 percent and requires the permittee to conduct four acute WET tests per year. The tests use two aquatic species, mysid shrimp (Mysidopsis bahia or Americamysis bahia) and inland silverside (Menidia beryllina) in a definitive 48-hour test. The tests must be performed in accordance with the test procedures and protocols specified in **Permit Attachment A**. Results of these toxicity tests will demonstrate whether the discharge is complying with the toxicity-related provisions of the CWA and State Water Quality Standards.

The draft permit requires WET testing to be conducted four times a year, but after submitting a minimum of four consecutive, valid WET tests, all of which demonstrate compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to EPA and MassDEP seeking a reduction (though not the elimination) of WET testing. In response, EPA and MassDEP will review the test results and other pertinent information and then make a determination.

The permittee is required to continue testing at the frequency specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA indicating a change in the permit conditions. *See* Draft Permit Part I.A.1 footnote 9. This special

[8] A toxicity unit (TU) is calculated by dividing 100 by the LC50 expressed as percent effluent. Therefore, one TU is equal to an LC50 of 100 percent effluent.

condition does not negate the permittee's right to request a permit modification at any time prior to the permit expiration.

V. INDUSTRIAL PRETREATMENT PROGRAM

The permittee is required to administer a pretreatment program based on the requirements of 40 CFR §122.44(j), 40 CFR §403 and CWA Section 307. The Gloucester pretreatment program received EPA approval on December 10, 1983, and as a result, appropriate pretreatment program requirements were incorporated into the previous permit commensurate with that approval and Federal Pretreatment Regulations in effect when the permit was issued.

The draft permit also requires the permittee to provide to EPA in writing, **within 120 days of the permittee's effective date**, a technical report analyzing the adequacy of existing local limits and whether any additional local limits are needed.

In addition, the permittee is required to develop and submit to EPA a Maximum Allowable Industrial Headworks Loading (MAIHL) for Oil and Grease **within 120 days of the effective date of the permit.**

The City shall also operate a "fats, oil, and grease" (FOG) program as a portion of the pretreatment program. FOG programs educate private and commercial sewer users about practices to eliminate fats, oils and grease at the source, rather than introducing FOG to the collection system. Local ordinances may require the utilization of grease interception devices at all commercial food service operations. It is important that the levels of fats, oil and grease being conveyed to a sewage treatment plant be properly controlled. At the treatment works, grease can partially block the screens and may affect the scum draw-off systems. Moreover, in the secondary treatment phase, grease can accumulate into grease balls that appear in the secondary clarifier. If a large amount of grease is present in the final sludge, it could foul sludge pumps and pipe work, place a shock load on sludge digesting microorganisms, and reduce the overall efficiency of the digestion process resulting in lower quality effluent discharges from the treatment plant. The FOG program is required as a Best Management Practice (BMP) under 40 CFR § 122.44(k)(4).

The permittee must submit to EPA all required modifications in order to be consistent with the provisions of the October 14, 2005 promulgation of the Streamlining Rule

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

VI. CONDITIONS ADDRESSING THE SEWER SYSTEM

As described above, an extensive sewer system collects sewage from Gloucester and parts of Essex and Rockport and conveys it for treatment to the WPCF. As also described above, the sewer system largely consists of "separate sewers," but also includes some "combined sewers."

Separate sewer systems are intended only to carry wastewater (sanitary and commercial/industrial) and are kept separate from the sewers carrying stormwater, whereas sewers in a combined system carry both wastewater and stormwater.

One problem posed by combined sewer systems is that when it rains, they must suddenly carry larger (and sometimes much larger) flows made up of mixed stormwater and wastewater. Combined systems are typically designed with overflow points (i.e., "combined sewer overflows" or CSOs) to discharge the mixed stormwater/wastewater when the flow in the system exceeds its hydraulic capacity. In this regard, combined systems are intended to have overflow discharges during wet weather. Combined systems may also in some cases experience dry weather overflows. Dry weather overflows are not, in theory, intended. In either case, whether a dry weather or a wet weather CSO discharge, some portion of the wastewater does not receive treatment at the sewage treatment plant.

Such discharges of stormwater/wastewater to waterways can harm the environment and public health and lead to related problems, such as shellfish bed closures and beach closures. As indicated above, the Gloucester sewer system has five designated CSOs.

Sanitary systems should theoretically avoid the problem of overflows because they are typically designed to carry the full volume of wastewater (and only wastewater) produced by the system to the treatment plant. That said, sanitary systems can also have overflows ("sanitary system overflows" or SSOs) under certain circumstances. As with CSOs, the wastewater in an SSO discharge is not treated at the sewage treatment plant and can harm the environment and public health.

For both combined and sanitary sewer systems, if water is allowed to enter the system that the system was not designed to handle, the increased volume of water could cause CSOs or SSOs. Alternatively, it could cause backups in the sewer systems. Moreover, even if the larger volumes of water in the system are all conveyed to the sewage treatment plant, the excess influent could undermine the effectiveness of the treatment plant and cause violations of effluent limits.

The draft permit contains a number of conditions pertaining to the sewer system generally, and to CSOs and SSOs, in particular. In general, these conditions are intended to protect the environment and public health by minimizing wastewater discharges as a result of CSOs and SSOs and, as a result, maximizing the proportion of the system's wastewater that is conveyed to the WPCF for treatment and discharge. These sewer system-related conditions are discussed in the next section.

Sewer System Operation and Maintenance

EPA regulations set forth a standard condition for "Proper Operation and Maintenance" that is included in all NPDES permits. *See* 40 CFR § 122.41(e). This condition is specified in Part II.B.1 (General Conditions) of the draft permit and it requires the proper operation and maintenance of all wastewater treatment systems and related facilities installed or used to achieve permit conditions.

EPA regulations also specify a standard condition to be included in all NPDES permits that specifically imposes on permittees a "duty to mitigate." *See* 40 CFR § 122.41(d). This condition is specified in Part II.B.3 of the draft permit and it requires permittees to take all reasonable steps – which in some cases may include operations and maintenance work - to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment.

More specifically, the draft permit includes requirements for the permittee to properly operate and maintain its collection system, including control of infiltration and inflow[10] (I/I) in its separate sewer system. These requirements are intended to minimize the occurrence of permit violations with a reasonable likelihood of adversely affecting human health or the environment.

I/I in a collection system can pose a significant environmental problem because it may displace wastewater flow and thereby cause, or contribute to causing, CSOs and SSOs. Moreover, I/I could reduce the capacity and efficiency of the treatment works and cause bypasses of secondary treatment. Therefore, reducing I/I should help to minimize any CSOs and SSOs and maximize the flow receiving proper treatment at the treatment plant.

There is presently estimated to be approximately 2,780,000 gpd of (I/I) in the sewer system.[11] This I/I is largely attributable to the combined portion of the collection system.

Gloucester's draft permit requires, through appropriate agreements that the towns of Essex and Rockport develop and implement infiltration and inflow control plans sufficient to ensure that high flows in separate sewers do not cause or contribute to a violation of the Gloucester effluent limitations, or cause overflows from Gloucester's collection system.

MassDEP has stated that the inclusion in NPDES permits of I/I control conditions is a standard State Certification requirement under Section 401 of the CWA and 40 CFR § 124.55(b).

Combined Sewer Requirements

[10] "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 stormwater systems.

[11] Page 7, May 26, 2006 Permit Application

As discussed previously, CSOs are overflows from a combined sewer system that are discharged into receiving waters before reaching the headworks of a POTW. CSOs typically occur during precipitation events when the flow in the combined sewer system exceeds interceptor or regulator capacity. CSOs are distinguished from bypasses, which are "intentional diversions of waste streams from any portion of a treatment facility" (40 CFR 122.41(m)). Flows in combined sewers can be classified as dry weather flow or wet weather flow. Dry weather flow is made up of domestic, commercial, and industrial wastewater and groundwater infiltration with no contribution from stormwater runoff or stormwater-induced infiltration, whereas wet weather flow includes wastewater from all these sources and stormwater flow, including snowmelt.

CSOs are subject to the non-POTW technology-based effluent standard specified at Section 301(b)(1)(A) of the Clean Water Act, rather than the POTW technology-based requirements found in Section 301(b)(1)(B). *See* Combined Sewer Overflow (CSO) Control Policy, 59 FR 18688, 18689 (Apr. 19, 1994)("CSO Policy"). In accordance with Section 301(b)(1)(C) of the CWA, CSOs are also subject to any more stringent requirements necessary to comply with water quality standards. *Id.*

EPA's CSO Policy includes the following goals:

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

59 FR at 18689. To achieve these goals, the CSO Policy recommends that technology-based limitations be developed using best professional judgment (BPJ) and further recommends that permit limitations consist of at least the following nine minimum requirements:

1. Properly operate, and implement a regular maintenance program for, the sewer system and the CSOs;
2. Maximize use of the collection system for storage of combined flows;
3. Review and, as needed, modify pretreatment requirements to assure CSO impacts are minimized;
4. Maximize the flow conveyed to the POTW for treatment;
5. Prohibit CSOs during dry weather;
6. Control solid and floatable material in CSOs;
7. Implement a pollution prevention program;
8. Notify the public of CSO occurrences and their impacts; and
9. Implement a monitoring program to effectively characterize CSO impacts and the efficacy of CSO control.

The CSO Policy also recommends that combined sewer systems develop and implement long-term CSO control plans that will ultimately produce compliance with CWA requirements.

In 2001, Congress added Section 402(q) to the CWA to specifically address CSOs by stating that "Each permit, order, or decree issued pursuant to this Act after the date of enactment of this subsection for a discharge from a municipal combined storm and sanitary sewer shall conform to the Combined Sewer Overflow Control Policy signed by the Administrator on April 11, 1994."

The technology-based CSO conditions in the draft permit, which require, among other things, that the permittee continue to implement the Nine Minimum Controls and to comply with water quality standards, are consistent with the National CSO Control Policy, as well as with the 2005 MCD. Specific permit requirements related to the nine minimum controls are that Gloucester submit to EPA and MassDEP an updated High Flow Management Plan within **one year of the effective date of the permit**, a prohibition of dry weather discharges from CSOs.

The draft permit requires the permittee to submit an annual report, **by March 1,** summarizing its implementation of the nine minimum controls during the previous calendar year. This report shall include:

- A summary of any dry weather overflows that occurred during the year, including the location, date, estimated duration and estimated flow volume, and a description of measures taken to stop and eliminate the dry weather overflows.

- A summary of CSO activations that occurred at each CSO during the year, including the date, estimated duration and estimated flow volume.

- A certification that the previous year's inspections have been conducted and records maintained.

As also mentioned above, the I/I reduction requirements in the permit for separate systems should also help to minimize CSO discharges.

The draft permit also establishes narrative water quality-based limitations for CSOs, requiring that CSO discharges shall not cause or contribute to exceedances of water quality standards.

As detailed above, since 1992, EPA and/or MassDEP have entered into a number of enforcement settlement agreements with the City of Gloucester that called for the City to take steps to plan for and undertake CSO abatement projects. In September of 1996, the permittee submitted documentation for the Nine Minimum Controls. In addition, as discussed above, the permittee is also currently subject to a September 2005, Modified Consent Decree (2005 MCD) that requires the City to implement a number of CSO abatement measures., The abetment measures consists of sewer separation projects, which will significantly reduce flows to the treatment plant during wet weather.

Separate Sewer Requirements

As described above, part of the sewer system that conveys wastewater to the WPCF is made up of separate sewers. This includes parts of Gloucester's sewer system as well as the portions of the Essex and Rockport sewer systems that contribute wastewater to the WPCF.

As explained above, one potential cause of SSOs is I/I to a separate sewer system. The I/I control provisions of the permit discussed above are intended to, among other things, help minimize or eliminate all SSOs. Furthermore, the draft permit expressly does not authorize any SSO discharges.

VII. UNAUTHORIZED DISCHARGES and BYPASSES

The draft permit prohibits unauthorized discharges and bypasses (i.e. intentional diversion of waste streams from any portion of the treatment facility) and requires that any such discharges be reported to EPA and MassDEP within 24 hours.

VIII. SLUDGE INFORMATION AND REQUIREMENTS

The Gloucester WPCF produces approximately 3032 dry metric tons of sewage sludge each year. The facility's sludge treatment processes include two gravity thickeners and a belt filter press. Sludge currently processed by the treatment plant includes: primary sludge from the treatment plant's primary clarifiers and sludge trucked to the plant, including STEP (septic tank effluent pump) septage, general septage and industrial sludge. The treatment plant also has a septage wet well for receiving and storing trucked sludges, and a sludge storage tank for storing thickened sludge prior to dewatering. Dewatered sludge is currently trucked off-site to New England Organics in Unity, Maine, where it is blended with sawdust, pasteurized and prepared as compost.

Pursuant to section 405(d) of the CWA, EPA developed technical regulations governing the use and disposal of sewage sludge. These regulations are found at 40 CFR Part 503 (the Part 503 Regulations) and apply to any facility engaged in the treatment of domestic sewage. The Part 503 Regulations contain some provisions that apply generally, and others that apply only to particular methods of sewage sludge management or disposal.

> The sludge management requirements of the Part 503 regulations are directly enforceable, but NPDES permits issued to POTWs must also include conditions that implement the Part 503 Regulations. *See* 33 U.S.C. §§ 1345(e) and (f)(1); 40 C.F.R. § 503.3. Accordingly, the sludge conditions in the draft permit are intended to ensure that sewage sludge use and disposal practices meet the Part 503 Regulations. In addition, EPA Region I has prepared a 72-page document entitled "EPA Region I NPDES Permit Sludge Compliance Guidance, November 1999" for use by the permittee in determining the appropriate sludge conditions for the 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

If the permittee later changes its method(s) of sludge management method changes, the permittee must notify EPA and MassDEP. The permit will continue to require compliance with the Part 503 Regulations but some of the specific provisions of those regulations that apply would change based on the change in sludge management method.

In addition, as stated in the permit, the permittee must comply with all applicable requirements of both federal and state law governing sewage sludge management, use and disposal, and where both federal and state law and/or regulations apply but impose different requirements, the permittee must comply with the most stringent of the applicable requirements. *See* 33 U.S.C. §§ 1345(d)(5), 1370; 40 C.F.R. § 503.5(b)

IX. ESSENTIAL FISH HABITAT

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §1801 et seq. (1998), EPA is required to consult with the National Fisheries Services (NOAA Fisheries) if an action or proposed action funded, permitted, or undertaken by EPA may adversely impact any essential fish habitat (EFH). 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. 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.

Essential fish habitat is only designated for 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.

The following is a list of managed species believed to be present during one or more life stages within the areas encompassing the WPCF's discharge outfall and its CSOs. No "habitat areas of particular concern", as defined under §600.815(a)(9) of the Magnuson-Stevens Act, have been designated for these areas.

Summary of Essential Fish Habitat (EFH) Designation

10' x 10' Square Coordinates:

Boundary	North	East	South	West
Coordinate	42° 40.0' N	70° 40.0' W	42° 30.0' N	70° 50.0' W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the square within the Atlantic Ocean within Massachusetts Bay around western Cape Ann affecting the following: Manchester, MA., Manchester Bay, Bakers Island, Great Misery Island, Annisquam, MA. and Annisquam River, Essex, MA., Essex Bay and Essex River, West Gloucester Harbor, western Gloucester, MA., Cross Island, southern Hog Island, and Kettle Island. Features also affected include: eastern Salem Sound, Manchester Harbor, Gales Pt., Beverly Farms, MA., Childrens I., Childrens I. Channel, Salem Channel, Newcomb Ledge, Halfway Rock, Cole Ridge, Middle Ground, Kettle Ledge, Burnham Rocks, Saturday Night Ledge, Great Egg Rock, Eagle Head, Town Head, Coolidge Pt., Magnolia, MA., and Normas Woe Cove.

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

The effluent limitations and other permit requirements identified in this fact sheet are designed to be protective of all aquatic species, including those with designated EFH. EPA has determined that a formal EFH consultation with NOAA Fisheries is not required because the proposed discharges will not adversely affect EFH. Furthermore, issuance of the permit proposed by EPA will impose substantially more stringent effluent limits than are in the current permit and will reduce the discharge of contaminants to the waters of Massachusetts Bay from the WPCF.

Furthermore, compliance with the permit's requirements will result in reduced CSO and SSO discharges. Thus, the permit will lead to water quality improvements in the designated EFH areas affected by the operations of the permittee's sewer system and treatment plant.

Finally, EPA will submit the draft permit to NOAA Fisheries for review and comment so that it will be informed of EPA's EFH determination and can comment to EPA on the subject as it deems appropriate.

X. ENDANGERED SPECIES ACT (ESA)

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 issuance of a new NPDES permit to the City of Gloucester. The new permit is intended to replace the existing NPDES permit in governing wastewater discharges from the City's WPCF and various CSOs, as discussed above. The WPCF was in the past granted a waiver from the CWA's secondary treatment requirements. As a result, the waiver is reflected in the existing NPDES permit conditions and the WPCF currently only employs preliminary treatment, chemically enhanced primary treatment and disinfection.

The WPCF discharges treated effluent into Massachusetts Bay through a 14,869-foot ocean outfall made up of a 36-inch diameter pipe with a multi-port diffuser. The discharge point is approximately 5,250 feet offshore of Dog Bar Breakwater (Eastern Point) at a depth of 90 feet below mean low water. Based on the facility's maximum design flow, this results in an estimated worst case effective discharge dilution, of approximately 64 parts ambient seawater to 1 part effluent. The actual dilution will often be greater because the WPCF's discharge flow volume is often less than the design flow. The permittee also owns and operates 5 CSOs that discharge in and around Gloucester Harbor and are regulated by the permit.

In applying for renewal of its NPDES permit, Gloucester asked that EPA renew the City's waiver from secondary treatment requirements pursuant to section 301(h) of the CWA. EPA currently intends, however, to deny this request and, instead, to issue a permit with limits based on secondary treatment.

The proposed new permit limits are detailed in the draft permit and are discussed in this Fact Sheet. These limits are also substantially more stringent than the limits in the current permit. EPA's proposed denial of the City's request for a renewal of the § 301(h) variance is discussed in more detail in the accompanying "Tentative 301(h) Denial Decision" document.

In addition to imposing secondary treatment requirements, the new permit also proposes, among other things, to limit discharge flow, to require WET testing, to impose limits on discharge levels of total residual chlorine, toxicity, pH, Oil and Grease, total petroleum hydrocarbons, fecal coliform bacteria, enterococci, and other pollutants, and to prohibit dry weather CSO and SSO discharges and limit wet weather CSO discharges. The permit will also require substantial discharge monitoring and reporting.

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 either the WPCF discharge outfall or the CSOs.

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."[12] 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 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.

[12] 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 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).

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 new Gloucester 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 Gloucester discharges, 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 either the area of the WPCF outfall or the area of the permittee's CSOs.[13]
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 any of the discharges to be authorized by the proposed permit. Third, any shortnose sturgeon that did occur in the area of the discharges 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, whereas the WPCF's 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 City's pollutant discharges. Fifth, the WPCF's outfall discharges at a depth of 90 feet and uses a multi-port diffuser, achieving a high dilution factor of 64:1. Indeed, this is a worst case value based on the WPCF's design flow (as opposed to actual flow, which is less), so dilutions will typically be even higher. All of these factors should contribute to precluding any marine organisms, including any shortnose sturgeon, from coming into contact with a concentrated discharge plume.

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[13] In its Biological Opinion concerning licensing of the Neptune offshore Liquefied Natural Gas import terminal, which lies about 12 miles southeast of Gloucester, 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 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.

Finally, the draft permit not only proposes protective new effluent limits based on secondary treatment, but it also proposes to include many other protective requirements. These include the following: limits mandating low discharge flow volumes; conditions requiring WET testing and imposing limits on discharge toxicity, TRC, Oil & Grease, TPHs, fecal coliform bacteria, and enterococci; prohibitions against SSOs and dry weather CSOs; conditions requiring minimization of wet weather pollutant discharges from CSOs, and implementation of programs to minimize the introduction of fats, oils and grease into the collection system. Therefore, under the new permit, the quality of discharges from the POTW will be substantially improved, the occurrence of SSO and CSO discharges should be reduced, and the quality of any CSO discharges that do occur should be improved.

Mammals – Whales - A number of whale species listed as endangered are or may be present in marine waters offshore of Gloucester. *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 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,[14] 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).

Looking closer to shore, it is unlikely that any of the above-discussed whale species would be present in Gloucester Harbor and, therefore, these species will be unaffected by the City's CSOs. *See* NOAA's December 2004 Gloucester CSO Letter ("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 Gloucester Harbor."). Furthermore, with regard to the waters off of Dog Bar Breakwater (Eastern Point) in the vicinity of the POTW discharge, it is unlikely that Sei, Sperm, Blue or Fin whales would be present in these waters because of their preference for deeper and/or more northerly waters.

[14] 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.

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 WPCF 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 CSOs, (b) Fin, Sei, Sperm and Blue whales are also unlikely to occur in the vicinity of the POTW discharge, (c) individual North Atlantic Right and Humpback whales may come into the vicinity of the POTW discharge, but these species are only present in Massachusetts Bay on a seasonal basis and would be unlikely to enter waters near the POTW discharge on other than a temporary basis, most likely while transiting the area, and (d) 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 not only proposes protective new effluent limits based on secondary treatment, but it also proposes to include many other protective requirements, such as the following: strict limits on discharge flow volume, conditions requiring WET testing and limits on discharge toxicity, TRC, Oil & Grease, TPHs, fecal coliform bacteria, and enterococci; prohibitions against SSOs and dry weather CSOs; and conditions requiring minimization of wet weather CSO discharges. Moreover, new treatment facilities designed to meet secondary treatment limits should operate with greater reliability than the existing primary treatment facilities and help to reduce CSO discharges. In addition, neither whales nor their prey will come into contact with a concentrated discharge plume because the POTW outfall discharges at a depth of 90 feet using a multi-port diffuser to achieve a high dilution factor of 64:1. Indeed, as explained above, this dilution will typically be even higher than this worst case value.

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).[15] *See* NOAA Website at - http://www.nmfs.noaa.gov/pr/species/turtles/; and at 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.

[15] 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.

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 maybe 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 WPCF'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" – a depth range encompassing the depth of the Gloucester WPCF outfall – but they can inhabit areas "from the beach to waters beyond the continental shelf." *Id.*[16] 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/.

[16] 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,

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 Gloucester 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 discharges covered by the permit, because they would typically be expected to be found in waters well offshore of those areas. *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 discharges covered by the proposed permit.

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 discharges covered by the proposed permit.

Finding - EPA's preliminary determination is that the proposed new NPDES permit for Gloucester is unlikely to adversely affect any 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 POTW and CSO discharges. Furthermore, none of the above-discussed species of sea turtle are expected to occur in Gloucester Harbor. *See* NOAA's December 2004 Gloucester CSO Letter ("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 Gloucester Harbor.").

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, the new treatment facilities and other controls required to meet the proposed permit's stringent requirements, coupled with the City's relatively small discharge volume and the substantial dilution afforded the discharge as a result of the location of the WPCF's outfall and its use of a diffuser, should preclude adverse effects upon sea turtles, their food sources, or their habitat.[17]

As discussed above, the draft permit not only proposes protective new effluent limits based on secondary treatment, but it also proposes to include many other protective requirements, such as the following: strict limits on discharge flow volume, conditions requiring WET testing and limits on discharge toxicity, TRC, Oil & Grease, TPHs, fecal coliform bacteria, and enterococci; prohibitions against SSOs and dry weather CSOs; and conditions requiring minimization of wet weather CSO discharges. Furthermore, the permit prohibits the discharge of floatables from the POTW and requires that any such discharges from CSOs be minimized. This should prevent the discharge of the type of plastics (and possibly other material) that sea turtles ingest at times, seemingly mistaking the materials for their foods. *See* 2007 NOAA BO for Neptune at 126. Moreover, new treatment facilities designed to meet secondary treatment limits should both operate with greater reliability than the existing primary treatment facilities and help to reduce CSO discharges.

Second, given that the POTW outfall discharges at a depth of 90 feet using a multi-port diffuser to achieve a high dilution factor of 64:1 (and typically even more), neither sea turtles nor their food sources would come into contact with a concentrated discharge plume. Indeed, except for leatherbacks, which are unlikely to be in the area, the turtles in question here are primarily benthic feeders and monitoring data for the current discharge has shown no significant effects on the benthic community. This reflects the fact that the discharge is positively buoyant and has little or no contact with the bottom.

[17] 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).

Third, while individuals of the various species could be seasonally present in the areas around the POTW and CSO discharges, 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 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 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 off of Cape Ann. 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.

XI. ANTIDEGRADATION

In accordance with regulations found at 40 CFR Section 131.12, MassDEP has developed and adopted a statewide antidegradation policy to maintain and protect existing ambient water quality. The Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. No lowering of water quality is allowed, except in accordance with the antidegradation policy. All existing uses of the Massachusetts Bay and Gloucester Harbor must be protected.

The antidegradation requirements of the Massachusetts Surface Water Quality Standards will be satisfied here, because the proposed permit will result in improved water quality in the area of the POTW and CSO discharges. The treatment upgrade to secondary will result in a net decrease in all currently permitted pollutants loads even as the annual average flow limit increases from 5.15 mgd to 7.24 mgd. The BOD_5 average monthly loading limit will decrease by 83%, from 10,520 lb/day to 1,811 lbs/day. TSS average monthly loading limit will decrease by 70%, from 6,010 lb/day to 1,811 lbs/day. EPA anticipates that the effluent total residual chlorine load will be significantly lower as a result of a much lower chlorine demand resulting from the reduction of both suspended solids (TSS) and organic load (BOD_5). In other words, with lower TSS and BOD_5 levels, less chlorine will be needed to disinfect the effluent. The permittee will have far greater control over TRC when secondary treatment is in place. The more efficient use of chlorine will allow reduced use of dechlorinating chemicals as well. Oil and grease, as well as total petroleum hydrocarbons, are also expected to be reduced to below detectable concentrations by the additional treatment. Water quality will be improved as a result of compliance with permit conditions prohibiting SSOs and dry weather CSOs, and other conditions designed to minimize both the pollutants in any wet weather CSO discharges and the frequency with which such discharges occur.

XII. MONITORING AND REPORTING

The permittee is obliged to monitor and report sampling results to EPA and the MassDEP within the time specified in the permit. The effluent monitoring requirements have been established to yield data representative of the discharge by the authority under Sections 308(a) and 402(a)(2) of the CWA in accordance with 40 CFR §§ 122.44 and 122.48.

XIII. COASTAL ZONE MANAGEMENT (CZM) CONSISTENCY REVIEW

EPA regulations explain that:

> 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).

40 CFR §122.49 (d). The discharge at issue here is within the defined CZM boundaries. The permittee has submitted a letter to the Massachusetts Coastal Zone Management Program stating that its activities comply with the enforceable policies of the approved Massachusetts coastal management program and will be conducted in a manner consistent with such policies. The state will review the draft permit and a final permit will only be issued after CZM concurs with the permittee's certification.

XIV. STATE PERMIT CONDITIONS

The NPDES Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the MassDEP Commissioner.

XV. GENERAL CONDITIONS

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

XVI. STATE CERTIFICATION REQUIREMENTS

EPA may not issue a permit unless the State Water Pollution Control Agency 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.

XVII. COMMENT PERIOD, HEARING REQUESTS, AND PROCEDURES FOR FINAL DECISIONS

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Doug Corb, U.S. EPA, Office of Ecosystem Protection, Municipal Permits Branch, 5 Post Office Square, Suite 100 – Mail Code OEP06-1, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the MassDEP. Such requests shall state the nature of the issues proposed to be raised in the hearing.

A public hearing may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA 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 any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

XVIII. 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:

Doug Corb
Office of Ecosystem Protection
U.S. Environmental Protection Agency
5 Post Office Square Suite 100
Mail Code OEP06-1
Boston, MA 02109-3912
Telephone: (617) 918-1565
Fax: (617) 918-0565
corb.doug@epa.gov

Kathleen Keohane
Massachusetts Department of
Environmental Protection
Division of Watershed Management
627 Main Street, 2nd floor
Worcester, MA 01608
Telephone: (508) 767-2856
Fax: (508) 791-4131
Kathleen.Keohane@state.ma.us

Date: September 1, 2010

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

* Please address all comments to Doug Corb and Kathleen Keohane at the addresses above

Attachment A

MA0100625 GLOUCESTER W P C F

Month	BOD5	BOD5	BOD5	TSS	TSS	TSS	BOD5 % Removal	TSS % Removal
	10520 lb/d	245 mg/L	367 mg/L	6010 lb/d	140 mg/L	210 mg/L	30 %	30 %
MP Date	MO AVG	MO AVG	DAILY MX	MO AVG	MO AVG	DAILY MX	MO AV MN	MO AV MN
7/31/2006	6230.	152.	230.	89.	61.	140.		
8/31/2006	9316.	271.	1500.	3863.	113.	150.		
9/30/2006	7233.	211.	290.	3277.	95.	130.		
10/31/2006	6128.	193.	310.	2646.	83.	140.		
11/30/2006	5589.	103.	190.	3242.	64.	89.		
12/31/2006	5014.	149.	270.	2451.	70.	99.	43.	67.
1/31/2007	4938.	140.	220.	3003.	85.	110.		
2/28/2007	4012.	129.	240.	3046.	95.	130.		
3/31/2007	5113.	129.	200.	3197.	80.	120.		
4/30/2007	6293.	111.	260.	4167.	73.	100.		
5/31/2007	7156.	178.	300.	3172.	80.	110.		
6/30/2007	7085.	194.	340.	3326.	87.	110.	53.	67.
7/31/2007	5682.	202.	310.	2513.	86.	120.		
8/31/2007	4510.	168.	250.	2199.	82.	120.		
9/30/2007	5738.	210.	360.	2464.	94.	140.		
10/31/2007	6490.	160.	280.	1974.	80.	94.		
11/30/2007	4270.	171.	360.	2455.	98.	280.		
12/31/2007	4541.	142.	210.	2026.	62.	140.	49.	74.
1/31/2008	4340.	107.	190.	2862.	69.	95.		
2/29/2008	5557.	91.	190.	4244.	67.	99.		
3/31/2008	5319.	102.	200.	2941.	57.	75.		
4/30/2008	4484.	134.	280.	2684.	77.	98.		
5/31/2008	5402.	171.	350.	2669.	83.	110.		
6/30/2008	5117.	195.	260.	2397.	91.	120.	48.	67.
7/31/2008	7266.	243.	370.	2934.	98.	120.		
8/31/2008	6700.	228.	340.	2749.	92.	130.		
9/30/2008	8203.	299.	490.	3002.	108.	150.		
10/31/2008	4666.	139.	280.	2750.	83.	120.		
11/30/2008	4664.	162.	230.	3010.	101.	210.	53.	72.
12/31/2008	5223.	118.	190.	2926.	64.	89.	54.	77.
1/31/2009	4826.	137.	230.	3328.	93.	210.	52.	76.
2/28/2009	5524.	140.	210.	3351.	86.	100.	52.	74.
3/31/2009	5110.	136.	260.	2976.	74.	100.	52.	73.
4/30/2009	4136.	112.	190.	2613.	70.	99.	53.	72.
5/31/2009	5205.	174.	280.	2500.	82.	110.	49.	68.
6/30/2009	5136.	171.	240.	2844.	95.	180.	50.	71.
7/31/2009	8025.	194.	310.	4115.	100.	160.	28.	68.
8/31/2009	6427.	207.	290.	3463.	112.	180.	45.	64.
9/30/2009	5980.	211.	310.	2821.	101.	160.	44.	67.
10/31/2009	5.511	152.	240.	4199.	112.	200.	45.	65.
11/30/2009	5506.	171.	280.	4290.	133.	210.	46.	66.
12/31/2009	4639.	106.	150.	4408.	96.	120.	46.	63.
1/31/2010	5304.	142.	200.	3387.	84.	100.		
2/28/2010	4882.	137.	366.	2731.	77.	91.		
3/31/2010	4638.	74.	140.	4390.	61.	81.	44.	60.
4/30/2010	4990.	128.	290.	2235.	57.	71.	43.	54.
5/31/2010	4418.	139.	220.	2588.	82.	110.	42.	52.

MA0100625 GLOUCESTER W P C F

Month	TRC	TRC	Fecal Coliform	Fecal Coliform	Plant Flow	pH	pH
	.49 mg/L	.77 mg/L	200 #/100mL	400 #/100mL	5.15 Mgal/d	6 SU	8.5 SU
MP Date	MO AVG	DAILY MX	MO GEO	DAILY MX	12MO AVG	MINIMUM	MAXIMUM
7/31/2006	.06	.26	59.	3900.	4.97	6.2	6.6
8/31/2006	.08	.67	366.	440000.	5.03	6.	7.2
9/30/2006	.06	.58	197.	95000.	5.11	6.1	6.7
10/31/2006	.05	.52	654.	1600000.	4.97	6.1	6.8
11/30/2006	.07	.57	16.	350.	5.02	6.2	6.7
12/31/2006	.04	.41	7.	210.	5.	6.1	6.6
1/31/2007	.04	.42	4.	550.	4.96	6.1	6.8
2/28/2007	.03	.2	2.	20.	4.89	6.1	6.6
3/31/2007	.02	.2	2.	30.	5.11	6.1	6.8
4/30/2007	.04	.49	1.	10.	5.44	6.	6.8
5/31/2007	.06	.5	2.	80.	4.93	6.3	6.9
6/30/2007	.01	.1	25.	290.	4.81	6.2	6.7
7/31/2007	.03	.28	13.	570.	4.68	6.	6.6
8/31/2007	.04	.35	65.	61000.	4.6	6.1	7.1
9/30/2007	.03	.27	8.	250.	4.52	6.1	6.5
10/31/2007	.02	.6	18.	39200.	4.44	6.	6.9
11/30/2007	.02	.34	4.	780.	4.17	6.1	6.9
12/31/2007	.06	.36	8.	84.	4.17	6.1	6.8
1/31/2008	.07	.45	2.	10.	4.24	6.1	6.6
2/29/2008	.05	.32	7.	40.	4.51	6.1	6.6
3/31/2008	.08	.33	5.	173.	4.56	6.2	6.7
4/30/2008	.09	.63	2.	30.	4.33	6.2	6.7
5/31/2008	.04	.32	7.	80.	4.25	6.	6.7
6/30/2008	.05	.4	9.	60.	4.14	6.1	6.7
7/31/2008	.04	.42	64.	38000.	4.15	6.1	6.7
8/31/2008	.02	.26	11.	240.	4.19	6.	6.6
9/30/2008	.03	.25	3.	2800.	4.29	6.7	7.1
10/31/2008	.03	.26	2.	70.	4.36	6.4	7.1
11/30/2008	.06	.52	2.	210.	4.3	6.4	7.4
12/31/2008	.06	.4	2.	10.	4.33	6.	6.6
1/31/2009	.05	.32	3.	20.	4.41	6.2	6.8
2/28/2009	.1	.53	2.	20.	4.32	6.	6.5
3/31/2009	.03	.29	1.	10.	4.28	6.	6.9
4/30/2009	.01	.19	2.	10.	4.27	6.1	6.5
5/31/2009	.02	.25	1.	10.	4.26	6.	6.5
6/30/2009	.09	.69	3.	160.	4.15	5.7	6.6
7/31/2009	.07	.51	4.	190.	4.27	6.2	7.3
8/31/2009	.05	.3	3.	230.	4.33	6.1	6.7
9/30/2009	.11	.66	8.	30000.	4.28	6.2	7.1
10/31/2009	.2	.7	4.	70.	4.33	6.	6.7
11/30/2009	.14	.7	2.	40.	4.37	6.6	7.
12/31/2009	.06	.43	5.	560.	4.34	6.2	6.5
1/31/2010	.05	.48	1.	10.	4.37	6.4	6.8
2/28/2010	.05	.56	4.	50.	4.33	6.8	7.1
3/31/2010	.11	.45	3.	70.	4.59	6.3	6.8
4/30/2010	.12	.47	3.	430.	4.64	6.6	7.
5/31/2010	.15	.54	3.	60.	4.65	6.5	6.8

MA0100625 GLOUCESTER W P C F

	O & G	TPH		Minnow LC50	Shrimp LC50
	25 mg/L	5 mg/L		100 %	100 %
MP Date	MO AVG	MO AVG	MP Date	DAILY MN	DAILY MN
7/31/2006	18.	.8	9/30/2006	37.9	61.6
8/31/2006	24.	3.5	12/31/2006	34.7	100.
9/30/2006	21.7	5.	3/31/2007	67.1	56.4
10/31/2006	21.6	4.8	6/30/2007	40.6	48.7
11/30/2006	10.	7.3	9/30/2007	32.1	100.
12/31/2006	14.	4.9	12/31/2007	35.3	45.6
1/31/2007	12.	3.8	3/31/2008	100.	100.
2/28/2007	24.8	6.5	6/30/2008	12.5	38.3
3/31/2007	13.	9.1	9/30/2008	38.6	67.2
4/30/2007	12.	1.1	12/31/2008	100.	78.1
5/31/2007	10.	.	3/31/2009	45.8	58.
6/30/2007	9.	1.4	6/30/2009	34.7	83.5
7/31/2007	8.	.7	9/30/2009	69.5	85.
8/31/2007	16.	5.	12/31/2009	74.5	100.
9/30/2007	9.8	1.2			
10/31/2007	11.2	3.9			
11/30/2007	11.7	1.1			
12/31/2007	10.	2.1			
1/31/2008	9.	.5			
2/29/2008	11.	.			
3/31/2008	8.	5.			
4/30/2008	8.	1.4			
5/31/2008	10.	1.6			
6/30/2008	10.	.9			
7/31/2008	10.9	1.4			
8/31/2008	9.7	2.6			
9/30/2008	9.2	2.			
10/31/2008	8.4	.7			
11/30/2008	9.4	2.3			
12/31/2008	8.6	1.2			
1/31/2009	14.	1.8			
2/28/2009	14.5	6.8			
3/31/2009	16.5	3.6			
4/30/2009	8.6	1.			
5/31/2009	7.5	1.6			
6/30/2009	7.4	2.3			
7/31/2009	10.8	2.6			
8/31/2009	7.3	1.4			
9/30/2009	12.4	2.4			
10/31/2009	17.4	2.6			
11/30/2009	19.8	1.			
12/31/2009	20.2	3.8			
1/31/2010	15.4	1.5			
2/28/2010	21.	1.2			
3/31/2010	15.8	1.4			
4/30/2010	8.5	2.6			
5/31/2010	16.2	1.4			

BROWN AND CALDWELL
48 Leona Drive, Suite C
Middleborough, Massachusetts, 02346
Tel. (508) 923-0879 Fax. (508) 923-0894

Note: USGS Quad Maps obtained from MassGIS scanned 5-CDset, dated July 1996. All other data from MassGIS Data Viewer software, updated September 2002.

ATTACHMENT B1
SITE LOCATION MAP

Wastewater Treatment Facility
Gloucester, Massachusetts

Prepared for:
City of Gloucester

N W E S

0 1,000 2,000 Ft

Date: 5/18/2006

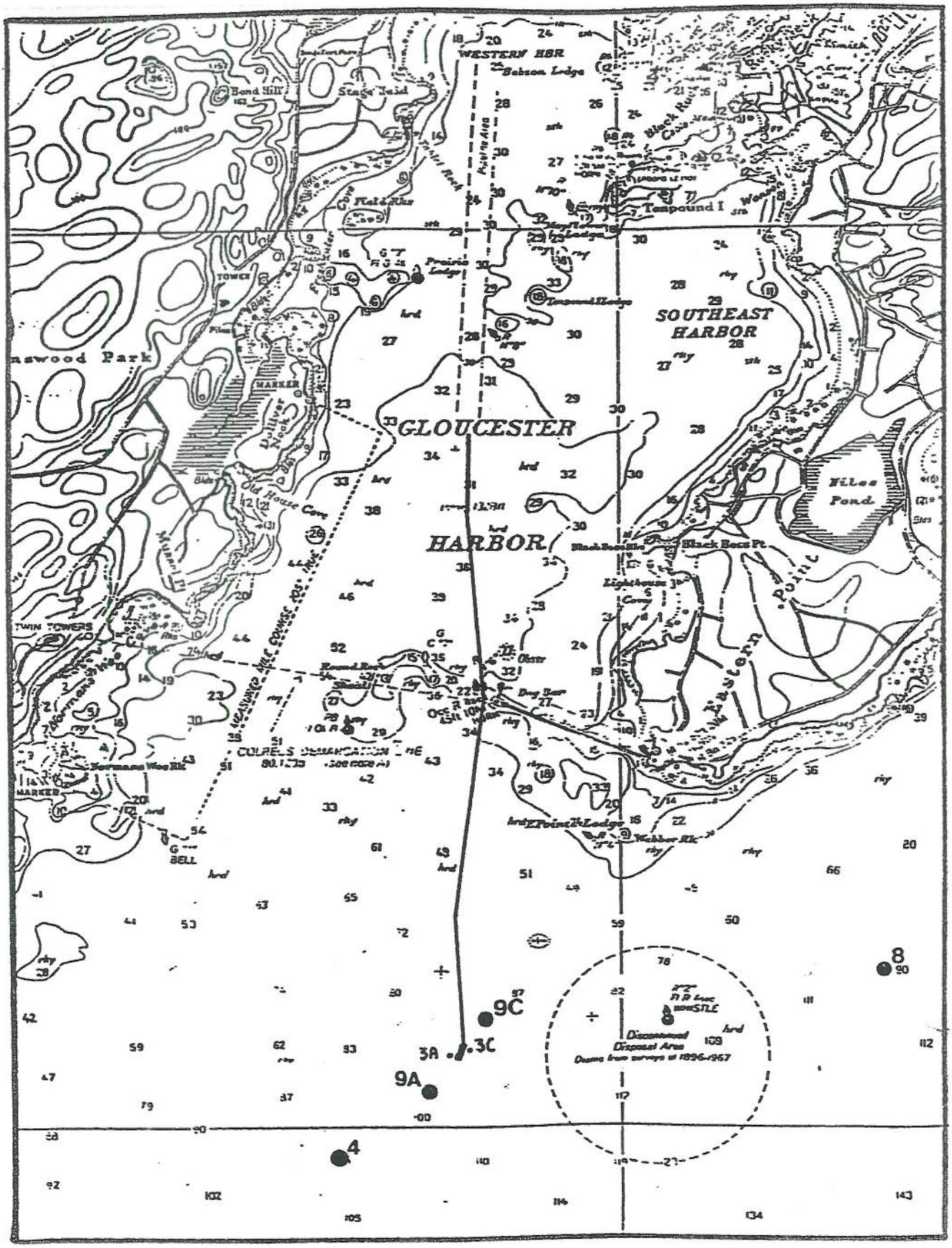
Project: 130304

Scale: 1" = 2000'

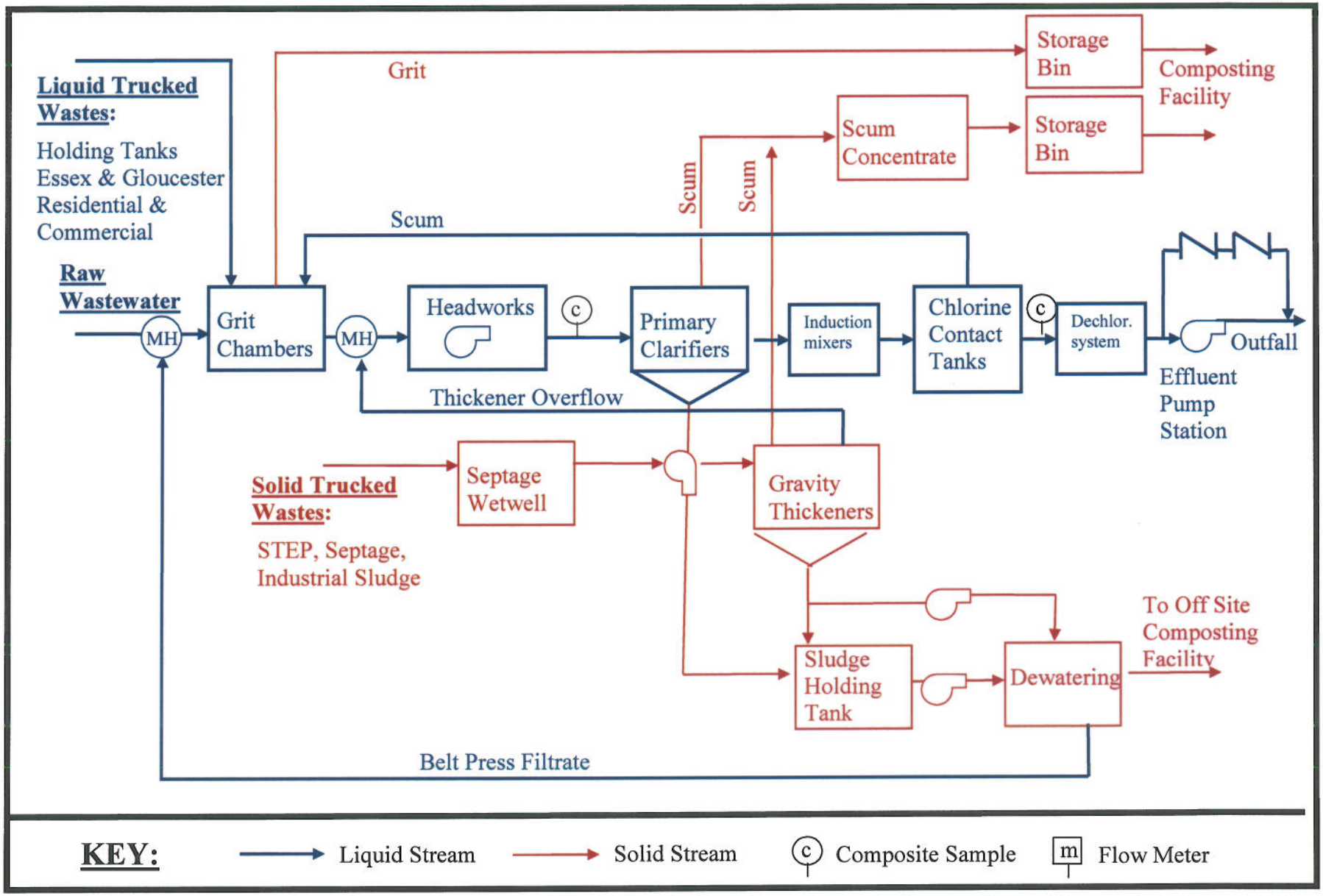
File: Site Locus-1-MILE

ATTACHMENT B2

Geographic location of WPCF discharge outfall and water quality monitoring stations.



Attachment C



Attachment D
Gloucester Water Pollution Control Facility
Summary of Required Report Submittals

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.

Required Report	**Date Due**	**Submitted To: (see reverse 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)	1, 2, 3
Any interruption or malfunction of the chlorine dosing system	report with the monthly DMRs	1, 2
Whole Effluent Toxicity (WET)Test Report (Part I.A.1)	April 30th, July 31st, October 31st, January 30th	1, 2, 3
If the average annual flow in any calendar year exceeds 80 percent of the facility's design flow, the permittee shall submit a report.	By March 31 of the following calendar year	2, 3
Pretreatment Technical Evaluation	Within 120 days of permit effective date	1, 2, 3, 4
Maximum Allowable Industrial Headworks Loading (MAIHL) for Oil and Grease.	Within 120 days of permit effective date	1, 2, 3, 4
Pretreatment Annual Report (Part	March 1, each year	1, 2, 3, 4
Submit an updated High Flow Management Plan.	Within one year of the effective date of the permit	1, 2
Submit a certification which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained.	Annually, no later than January 15th	1, 2
Submit documentation on its implementation of the Nine Minimum Controls	Annually, no later than March 1	1, 2
Verify that identification signs are in place for all combined sewer outfall structures	Within 3 months of the effective date of this permit	1, 2
I/I Control Plan	Within 6 months of permit effective date	1, 2
I/I Annual Report	Anniversary of permit effective date	1, 2
Annual Sludge Report	February 19 each year	1, 2

1	U.S. Environmental Protection Agency Water Technical Unit (OES4-SMR) 5 Post Office Square - Suite 100 Boston, MA 02109-3912	2	Massachusetts Department of Environmental Protection Northeast Regional Office Bureau of Resource Protection 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	4	EPA New England Attn: Justin Pimpare (OEP-06-3) 5 Post Office Square - Suite 100 Boston, MA 02109-3912

From: Dave Deegan/R1/USEPA/US@EPA
To: Dave Deegan/R1/USEPA/US@EPA
Date: 11/05/2010 12:42 PM
Subject: EPA News: EPA Addresses Water Quality Issues in Gloucester

News Release

U.S. Environmental Protection Agency
New England Regional Office
November 5, 2010

Contact: Dave Deegan, (617) 918-1017

EPA Addresses Water Quality Issues in Gloucester

(Boston, Mass. – Nov. 5, 2010) – In order to advance healthy water quality in the coastal areas of Cape Ann near the City of Gloucester, EPA is proposing a draft decision to deny the extension of a waiver of Clean Water Act requirements that has allowed the City to discharge wastewater receiving only primary treatment from its wastewater treatment facility into Massachusetts Bay.

Gloucester has applied to EPA for reissuance of a waiver of Clean Water Act secondary treatment requirements, which would authorize continued discharge or primary effluent from the Gloucester Water Pollution Control Facility to Massachusetts Bay. Gloucester is the only major discharger in Massachusetts that currently holds such a waiver.

EPA is releasing for public review and comment its draft intention to deny this waiver request and issue a permit with secondary treatment-based limits. EPA will accept comments from the public on this proposal for 30 days, ending on Dec. 4, 2010.

“We have been working closely with the City of Gloucester to address water quality issues in the community, and the City has demonstrated its commitment to finding workable solutions,” said Curt Spalding, regional administrator of EPA’s New England office. “These are difficult issues that will require hard work over many years, and I am hopeful that we are on the right track to achieve a cleaner environment for Gloucester residents and for Massachusetts Bay.”

The current permit has been in effect since 2001. The upgrade from primary to secondary treatment at the Gloucester Water Pollution Control Facility will require

extensive planning and design, and will also require the commitment of significant financial resources. EPA and the Massachusetts Department of Environmental Protection (MassDEP) are moving forward with the new draft permit recognizing that EPA and MassDEP will need to work with the City to establish a reasonable compliance schedule for the treatment plant upgrade.

The Gloucester discharge is to Massachusetts Bay, within the North Shore Ocean Sanctuary, as established by the Massachusetts Ocean Sanctuaries Act. The Commonwealth has designated the water as “Class SA,” the highest of the three marine water quality classifications.

The reason for the waiver denial is a failure to meet the current permit limits, including “whole effluent toxicity” (a measure of the toxicity of the effluent on living organisms), oil and grease, and fecal coliform bacteria.

More information:

- Draft permit and Fact sheet
(http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html)

- General info on NPDES permits
(http://cfpub.epa.gov/npdes/home.cfm?program_id=45)

# # #

Follow EPA New England on Twitter: http://twitter.com/epanewengland

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMONWEALTH OF MASSACHUSETTS
1 WINTER STREET
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02109

JOINT **REOPENING OF THE PUBLIC COMMENT PERIOD** AND PUBLIC NOTICE OF A **PUBLIC HEARING** PERTAINING TO THE ISSUANCE OF A **TENTATIVE 301(H) WAIVER FROM SECONDAY TREATMENT DECISION (DENIAL) DOCUMENT, AND DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT** TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND UNDER SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATERS ACT, AS AMENDED.

DATE OF NOTICE: February 14, 2011

PERMIT NUMBER: MA0100625

PUBLIC NOTICE NUMBER: MA-011-11

NAME AND MAILING ADDRESS OF APPLICANT:

The City of Gloucester
City Hall
9 Dale Avenue
Gloucester, MA 01930

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Gloucester Water Pollution Control Facility
Essex Avenue (West of Western Avenue)
Gloucester, Massachusetts 01930

OUTFALL	RECEIVING WATERS	BASIN	CLASS
Outfall 001	Massachusetts Bay	USGS HUC Code – 01090001	Class SA
5 CSOs	Gloucester Harbor	North Coastal Basin – MA93-18	Class SB

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a draft permit for the above identified facility. EPA is public noticing a Tentative 301(h) Waiver Decision Document concurrently with the Draft NPDES Permit.

The Administrator for EPA Region I has made the tentative decision to deny the City's request for reissuance of the waiver from secondary treatment. The draft NPDES permit requires the WWTF to upgrade from primary treatment to secondary treatment.

The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq., the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00 and State Surface Water Quality Standards at 314 CMR 4.00. EPA has formally requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified. However, sludge conditions in the draft permit are not subject to State certification requirements.

INFORMATION ABOUT THE DRAFT PERMIT:

A fact sheet (describing the type of facility; type and quantities of wastes; a brief summary of the basis for the draft permit conditions; and significant factual, legal and policy questions considered in preparing this draft permit), the Secondary Waiver Tentative Decision Document, and the draft permit may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by writing or calling EPA's contact person named below:

Doug Corb
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1565
corb.doug@epa.gov

The administrative record containing all documents relating to this draft permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC HEARING:

The Regional Administrator has determined, pursuant to 40 C.F.R.§124.12, that a significant degree of public interest exists in this proposed permit and that a public hearing should be held to consider this draft permit and Secondary Waiver Tentative Decision Document.

A public hearing and meeting (information session) will be held on the following date and time:

DATE: Thursday March 24, 2011

MEETING TIME: 6:30pm. - 7:00pm.

HEARING TIME: 7:15pm

LOCATION: Gloucester City Hall
Kyrouz Auditorium, 2nd Floor
9 Dale Avenue
Gloucester, MA 01930

In accordance with 40 C.F.R. §124.12, the following is a summary of the procedures that shall be followed at the public hearing:

a. The Presiding Officer shall have the authority to open and conclude the hearing and to maintain order; and
b. Any person appearing at such a hearing may submit oral or written statements and data concerning the draft permit.

PUBLIC COMMENT PERIOD:

All persons, including applicants, who believe any condition of this draft permit and/or Secondary Waiver Tentative Decision Document, is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by midnight **March 31, 2011**, to the U.S. EPA, 5 Post Office Square, Boston, Massachusetts 02109-3912.

Please note that any comments submitted during the initial public notice period of November 5, 2010 through to February 2, 2011, are considered to be valid and part of the official record. There is no need to resubmit any comments during the extended period. In reaching a final decision on this draft permit, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

Following the close of the comment period, and after the public hearing, 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.

DAVID FERRIS, DIRECTOR
MASSACHUSETTS WASTEWATER MANAGEMENT PROGRAM
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STEPHEN S. PERKINS, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
ENVIRONMENTAL PROTECTION AGENCY – REGION 1

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMONWEALTH OF MASSACHUSETTS
1 WINTER STREET
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02109

JOINT EXTENSION OF THE PUBLIC COMMENT PERIOD ON THE ISSUANCE OF A TENTATIVE 301(H) WAIVER FROM SECONDAY TREATMENT DECISION (DENIAL) DOCUMENT, AND DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND UNDER SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATERS ACT, AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT.

DATE OF NOTICE: December 16, 2010

PERMIT NUMBER: MA0100625

PUBLIC NOTICE NUMBER: MA-009-11

NAME AND MAILING ADDRESS OF APPLICANT:

The City of Gloucester
City Hall
9 Dale Avenue
Gloucester, MA 01930

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Gloucester Water Pollution Control Facility
Essex Avenue (West of Western Avenue)
Gloucester, Massachusetts 01930

OUTFALL	RECEIVING WATERS	BASIN	CLASS
Outfall 001	Massachusetts Bay	USGS HUC Code – 01090001	Class SA
5 CSOs	Gloucester Harbor	North Coastal Basin – MA93-18	Class SB

REASON FOR EXTENDING THE PUBLIC NOTICE PERIOD:

This Public Notice is hereby extended (40 C.F.R. Section 124.10) to February 2, 2011, in response to a request submitted to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) by the City of Gloucester for additional time to review the draft permit and submit comments. Please note that any comments submitted during the initial public notice period of November 5, 2010 through January 18, 2011 are considered to be valid and part of the official record. There is no need to resubmit any comments during the extended period.

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a permit for the above identified facility. EPA is public noticing a Tentative 301(h) Waiver Decision Document concurrently with the Draft NPDES Permit. The Administrator for EPA Region I has made the tentative decision to deny the City's request for reissuance of the waiver from secondary treatment. The draft NPDES permit requires the WWTF to upgrade from primary treatment to secondary treatment.

The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq.,, the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00 and State Surface Water Quality Standards at 314 CMR 4.00. EPA has formally requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified. However, sludge conditions in the draft permit are not subject to State certification requirements.

INFORMATION ABOUT THE DRAFT PERMIT:

A fact sheet (describing the type of facility; type and quantities of wastes; a brief summary of the basis for the draft permit conditions; and significant factual, legal and policy questions considered in preparing this draft permit) and the draft permit may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by writing or calling EPA's contact person named below:

Doug Corb
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1565
corb.doug@epa.gov

The administrative record containing all documents relating to this draft permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by **February 2, 2011**, to the U.S. EPA, 5 Post Office Square, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this 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 this draft permit, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

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.

DAVID FERRIS, DIRECTOR
MASSACHUSETTS WASTEWATER
MANAGEMENT PROGRAM
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL PROTECTION

STEPHEN S. PERKINS, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
ENVIRONMENTAL PROTECTION
AGENCY – REGION 1

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMONWEALTH OF MASSACHUSETTS
1 WINTER STREET
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC NOTICE OF AN ISSUANCE OF A TENTATIVE 301(H) WAIVER FROM SECONDAY TREATMENT DECISION (DENIAL) DOCUMENT, AND DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND UNDER SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATERS ACT, AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT.

DATE OF NOTICE: November 5, 2010

PERMIT NUMBER: MA0100625

PUBLIC NOTICE NUMBER: MA-005-11

NAME AND MAILING ADDRESS OF APPLICANT:

The City of Gloucester
City Hall
9 Dale Avenue
Gloucester, MA 01930

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Gloucester Water Pollution Control Facility
Essex Avenue (West of Western Avenue)
Gloucester, Massachusetts 01930

OUTFALL	RECEIVING WATERS	BASIN	CLASS
Outfall 001	Massachusetts Bay	USGS HUC Code – 01090001	Class SA
5 CSOs	Gloucester Harbor	North Coastal Basin – MA93-18	Class SB

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a permit for the above identified facility. EPA is public noticing a Tentative 301(h) Waiver Decision Document concurrently with the Draft NPDES Permit. The Administrator for EPA Region I has made the tentative decision to deny the City's request for reissuance of the waiver from secondary treatment. The draft NPDES permit requires the WWTF to upgrade from primary treatment to secondary treatment.

The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq.,, the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00 and State Surface Water Quality Standards at 314 CMR 4.00. EPA has formally requested that the State certify this draft permit modification pursuant to Section 401 of the Clean Water Act and expects that the draft permit modification will be certified. However, sludge conditions in the draft permit are not subject to State certification requirements.

INFORMATION ABOUT THE DRAFT PERMIT MODIFICATION:

A fact sheet (describing the type of facility; type and quantities of wastes; a brief summary of the basis for the draft permit modification conditions; and significant factual, legal and policy questions considered in preparing this draft permit modification) and the draft permit modification may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by writing or calling EPA's contact person named below:

Doug Corb
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1565
corb.doug@epa.gov

The administrative record containing all documents relating to this draft permit modification is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit modification is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by December 4, 2010, to the U.S. EPA, 5 Post Office Square, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this 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 this draft permit modification, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

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.

DAVID FERRIS, DIRECTOR
MASSACHUSETTS WASTEWATER MANAGEMENT PROGRAM
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

STEPHEN S. PERKINS, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
ENVIRONMENTAL PROTECTION AGENCY – REGION 1