AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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

Town of Plymouth
Department of Public Works
11 Lincoln Street
Plymouth, Massachusetts 02360

is authorized to discharge from the facility located at

Plymouth Wastewater Treatment Plant
131 Camelot Street
Plymouth, Massachusetts 02360

to receiving water named

Plymouth Harbor (MA94-16)

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

This permit will become effective on the first day of the calendar month immediately following sixty days after signature.*

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

This permit supersedes the permit issued on November 29, 2004

This permit consists of **Part I** (17 pages including effluent limitations and monitoring requirements); **Attachment A** (USEPA Region 1 Marine Chronic Toxicity Test Procedure and Protocol (November 2013, 12 pages); **Attachment B** (USEPA Region 1 Reassessment of Technically Based Industrial Discharge Limits, 9 pages); **Attachment C** (USEPA Region 1 NPDES Permit Requirement for Industrial Pretreatment Annual Report, 2 pages) and **Part II** (25 pages including NPDES Part II Standard Conditions).

Signed this day of

Ken Moraff, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

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

* Pursuant to 40 CFR 124.15(b)(3), if no comments requesting a change to the draft permit are received, the permit will become effective upon the date of signature.

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PART I

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

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS[3]	
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE
FLOW[2]	*********	*********	1.75 mgd	*********	Report mgd	CONTINUOUS	RECORDER
FLOW[2]	*********	*********	Report mgd	*********	*********	CONTINUOUS	RECORDER
BOD_5 [4]	438 lb/day	657 lb/day	30 mg/l	45 mg/l	Report mg/l	3/WEEK	24-HOUR COMPOSITE[5]
TSS [4]	438 lb/day	657 lb/day	30 mg/l	45 mg/l	Report mg/l	3/WEEK	24-HOUR COMPOSITE[5]
SETTLEABLE SOLIDS	*********	*********	0.1 ml/l	*********	0.3 ml/L	1/DAY	GRAB
pH RANGE[1]	6.0 - 8.5 S.U. (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
TOTAL RESIDUAL CHLORINE[1,7]	*********	**********	75 ug/l	*********	130 ug/l	2/DAY	GRAB
FECAL COLIFORM[1,6]			14 cfu/100 ml		28 cfu/100 ml	2/WEEK	GRAB
ENTEROCOCCI[1,6]	*********	**********	35 cfu/100 ml	*********	104 cfu/100 ml	2/WEEK	GRAB
TOTAL COPPER[8]	*********	*********	37 ug/l	*********	58 ug/l	1/MONTH	24-HOUR COMPOSITE[5]
DISSOLVED OXYGEN[3]	NOT LESS THAN 6.0 mg/l (SEE PERMIT PARAGRAPH I.A.1.i)					1/DAY	GRAB

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

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS [3]	
PARAMETER	AVERAGE MONTHLY	AVERAGE WEEKLY	AVERAGE MONTHLY	AVERAGE WEEKLY	MAXIMUM DAILY	MEASUREMENT FREQUENCY	SAMPLE TYPE
AMMONIA-NITROGEN (June 1 - October 31)	Report lbs/day	********	Report mg/l	********	Report mg/l	3/WEEK	24-HOUR COMPOSITE[5]
AMMONIA-NITROGEN (November 1 - May 31)	Report lbs/day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE[5]
TOTAL NITROGEN[9]	Report lbs/day	*********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL KJELDAHL NITROGEN	Report lbs/day	*********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL NITRATE	Report lbs/day	*********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL NITRITE	Report lbs/day	*********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [10, 11, 12, 13]	CHRONIC C-NOEC ≥ 10%					4/YEAR	24-HOUR COMPOSITE[5]
Ammonia Nitrogen as N[13]	*********	*********	*********	*********	Report mg/l	4/YEAR	24-HR COMP[5]
Total Recoverable Cadmium[13]	*********	*********	*********	*********	Report mg/l	4/YEAR	24-HR COMP[5]
Total Recoverable Copper[13]	*********	*********	*********	*********	Report mg/l	4/YEAR	24-HR COMP[5]
Total Recoverable Nickel[13]	*********	*********	*********	*********	Report mg/l	4/YEAR	24-HR COMP[5]
Total Recoverable Lead[13]	*********	*********	*********	*********	Report mg/l	4/YEAR	24-HR COMP[5]
Total Recoverable Zinc[13]	*********	*********	*********	*********	Report mg/l	4/YEAR	24-HR COMP[5]

Sampling Location: see footnote 3.

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Footnotes:

1. Required for State Certification.

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

3. Effluent samples shall be of the treated effluent that is discharged to Plymouth Harbor. Grab and composite samples shall be taken at the effluent storage tank after dechlorination. The dissolved oxygen samples shall be at a location that provides data which represents the level of dissolved oxygen in the final effluent. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.

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

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

4. Sampling required for influent and effluent.

5. 24-hour composite samples will consist of at least eight (8) 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. The monthly average fecal coliform limit apply when the permit becomes effective. The maximum daily fecal coliform limit of 43 cfu/ml apply for the first year the permit is in effect. The daily maximum limit of 28 cfu/ml apply one year from the effective date of the permit and shall remain in effect for the duration of the permit.

   Monitoring and reporting of e*nterococci* shall begin upon the effective date of the permit, and permit limits shall be in effect one year after the effective date of the permit.

   The monthly average limits for fecal coliform and e*nterococci* are expressed as a geometric mean.

   The bacteria and total residual chlorine limits are in effect the entire year. Monitoring for bacteria and total residual chlorine shall be conducted concurrently.

   Bacteria tests must be conducted using 40 CFR Part 136 methods. Both Most Probable Number methods and Membrane Filtration methods are acceptable. Measurement units corresponding to the method used (MPN or CFU) shall be reported on the discharge monitoring report.

7. Total residual chlorine monitoring is required whenever chlorine is added to the treatment process (i.e. TRC sampling is not required if chlorine is not added for disinfection or other purpose). The limitations are in effect year-round.

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

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. The minimum level (ML) for copper is defined as 3 ug/l. This value is the minimum level for copper using the Furnace Atomic Absorption analytical method (EPA Method 220.2). This method or other EPA-approved method with an equivalent or lower ML shall be used for effluent limitations less than 3 ug/l. Compliance/non-compliance will be determined based on the ML. Sampling results of 3 ug/l or less shall be reported as zero on the Discharge Monitoring Report.

9. See Part I.F. Nitrogen Optimization for requirements to evaluate and implement the optimization of nitrogen removal.

   Total Kjeldahl Nitrogen, ammonia nitrogen, nitrite nitrogen, and nitrate nitrogen samples shall be collected concurrently. The results of these analyses shall be used to calculate both the concentration and mass loadings of total nitrogen (total nitrogen = Total Kjeldahl Nitrogen + nitrate + nitrite nitrogen).

   The total nitrogen loading values reported each month shall be calculated as follows: Calculate daily loads of total nitrogen (lbs/day) for each day that nitrogen sampling takes place. Loading (lbs/day) = total nitrogen concentration (mg/l) * daily flow (millions of gallons (MG)) * 8.34. The average monthly loading shall be the average of the daily loading results.

10. The permittee shall conduct chronic toxicity tests *four* times per year. The permittee shall test the inland silverside, Menidia beryllina, and a fertilization test using the sea urchin (Arbacia punctulata). Toxicity test samples shall be collected during the same week each time in the months of January, April, July and October and at the same location. The test results shall be submitted by the last day of the month following the completion of the test. The results are due February 28, May 10, August 31 and November 30, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

Test Month Same week and time of each month (i.e. 1st, 2nd, etc.)	**Submit Results By:**	**Test Species**	**Chronic Limit C-NOEC**
January April July October	February 28 May 31 August 31 November 30	Menidia beryllina (silverside) and Arbacia punctulata (sea urchin) See Attachment A	≥ 10%

11. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction, based on a statistically significant difference from dilution control, at a specific time of observation as determined from hypothesis testing. As described in the EPA WET Method Manual EPA 821-R-02-013, Section 10.2.6.2, all test results are to be reviewed and reported in accordance with EPA guidance on the evaluation of the concentration-response relationship. The "10% or greater" limit is defined as a sample which is composed of 10% (or greater) effluent, the remainder being dilution water.

12. 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 USEPA Region 1 Marine Chronic 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-Region 1 directly using the approach outlined in **Attachment A**.

13. For each whole effluent toxicity test, the permittee shall report on the appropriate discharge monitoring report (DMR) the concentrations of the hardness, ammonia nitrogen as nitrogen, total recoverable cadmium, copper, lead, nickel, and zinc found in the 100 percent effluent sample. All these aforementioned chemical parameters shall be determined to at least the minimum quantification level shown in **Attachment A**. Also the permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

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 6.0 or greater than 8.5 at any time.

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

d. The effluent shall not contain a visible oil sheen, foam, or floating solids at any time.

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

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

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

h. If the average annual flow in any calendar year exceeds 1.40 MGD which is 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.

i. The dissolved oxygen of the effluent shall not be less than 6 mg/l at any time. The permittee shall report the minimum dissolved oxygen value for each month on the discharge monitoring report.

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

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

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

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

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

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

3. Prohibitions Concerning Interference and Pass Through:

   a. Pollutants introduced into POTW's by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

4. Toxics Control

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

   b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

5. Numerical Effluent Limitations for Toxicants .

   EPA or 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.

B. UNAUTHORIZED DISCHARGES

This permit authorizes discharges only from the outfall(s) listed in Part I.A.1 in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported 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 DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at http://www.mass.gov/eea/agencies/massdep/service/approvals/sanitary-sewer-overflow-bypass-backup-notification.html.

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions. The permittee is required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

   The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. Provisions to meet this requirement shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

2. Preventive Maintenance Program

The permittee shall maintain an ongoing preventive 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. Plans and programs to meet this requirement shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

3. Infiltration/Inflow

The permittee shall control infiltration and inflow (I/I) into the sewer system as necessary to prevent high flow related unauthorized discharges from their collection systems and high flow related violations of the wastewater treatment plant's effluent limitations. Plans and programs to control I/I shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

4. Collection System Mapping

Within 30 months of the effective date of this permit, the permittee shall prepare a map of the sewer collection system it owns (see page 1 of this permit for the effective date). The map shall be on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up to date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

a. All sanitary sewer lines and related manholes;
b. All combined sewer lines, related manholes, and catch basins;
c. All combined sewer regulators and any known or suspected connections between the sanitary sewer and storm drain systems (e.g. combination manholes);
d. All outfalls, including the treatment plant outfall(s), CSOs, and any known or suspected SSOs, including stormwater outfalls that are connected to combination manholes;
e. All pump stations and force mains;
f. The wastewater treatment facility(ies);
g. All surface waters (labeled);
h. Other major appurtenances such as inverted siphons and air release valves;
i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
j. The scale and a north arrow; and
k. The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow.

5. Collection System Operation and Maintenance Plan

The permittee shall develop and implement a Collection System Operation and Maintenance Plan.

a. **Within six (6) months of the effective date of the permit**, the permittee shall submit to EPA and MassDEP

(1) A description of the collection system management goals, staffing, information management, and legal authorities;

(2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities; and

(3) A schedule for the development and implementation of the full Collection System O & M Plan including the elements in paragraphs b.1. through b.8. below.

b. The full Collection System O & M Plan shall be completed, implemented and submitted to EPA and MassDEP **within twenty-four (24) months from the effective date of this permit**. The Plan shall include:

(1) The required submittal from paragraph 5.a. above, updated to reflect current information;

(2) A preventive maintenance and monitoring program for the collection system;

(3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;

(4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;

(5) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;

(6) A description of the permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and

(7) An educational public outreach program for all aspects of I/I control, particularly private inflow.

(8) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

The permittee shall submit a summary report of activities related to the implementation of its Collection System O & M Plan during the previous calendar year. The report shall be submitted to EPA and MassDEP annually **by March 31**. The summary report shall, at a minimum, include:

a. A description of the staffing levels maintained during the year;

b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;

c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;

d. A map with areas identified for investigation/action in the coming year;

e. If treatment plant flow has reached 80% of its design flow [1.40 MGD] based on the annual average flow during the reporting year, or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year; and

f. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit.

7. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the permittee shall provide an alternative power source(s) sufficient to operate the portion of the publicly owned treatment works[1] it owns and operates.

D. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 CFR Part 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to 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 C.F.R. 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

1 As defined at 40 CFR §122.2, which references the definition at 40 CFR §403.3

requirements.[2]

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods) and pathogen reduction and vector attraction reduction (land application and surface disposal) at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year.

less than 290	1/ year
290 to less than 1,500	1 /quarter
1,500 to less than 15,000	6 /year
15,000 +	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:

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

E. INDUSTRIAL USERS AND PRETREATMENT PROGRAM

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 and effluent of pollutants, water quality concerns, sludge quality, sludge processing

2 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

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 (see **Attachment B, Reassessment of Technically Based Industrial Discharge Limits)** 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 revisions in accordance with EPA's Local Limit Development Guidance (July 2004).

2. 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 90 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.

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

3. The permittee shall provide the EPA and MassDEP with an annual report describing the permittee's pretreatment program activities for the twelve (12) 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 C, NPDES Permit Requirement for Industrial Pretreatment Annual Report** of this permit and shall be submitted no later than **June 1** of each year.

4. 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).

5. 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.

6. The permittee must modify its pretreatment program, if necessary, to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the permittee must address in its written submission the following areas: (1) enforcement response plan; (2) revised

sewer use ordinances; and (3) slug control evaluations. The permittee will implement these proposed changes pending EPA Region I's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.1.

F. NITROGEN OPTIMIZATION

Conduct ambient monitoring once per month for the period of June – September. The monitoring shall be conducted each year that the permit is in effect, i.e., until the permit is reissued, in accordance with the following requirements:

a. Monitor Stations S7 and S10 in Plymouth Harbor.
b. Monitoring shall be conducted at approximately the same day of each month, e.g., first Wednesday of each month.
c. Monitoring shall consist of grab samples taken at mid-ebb tide at a depth of ½ meter below the surface.
d. Monitoring shall include appropriate quality assurance and quality control measures, including chain of custody forms.
e. Analyses, using EPA approved methods, shall be conducted for nitrite, nitrate, TKN, and chlorophyll a.
f. The nitrogen species shall be reported as mg/l-N. The Practical Quantification Level for TKN shall be 0.1 mg/l-N or less and the Practical Quantification Level for nitrate and nitrite shall be 0.01 mg/l-N or less.
g. Reporting of results shall include the date, time, salinity, temperature, and location of the sample along with the results. Reporting shall also include precipitation values from the nearest monitoring station for the 48 hours preceding each sampling event.

Within **one year of the effective date of the permit**, the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen, and submit a report to EPA and MassDEP documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, improved instrumentation, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. The permittee shall implement the recommended operational changes in order to maintain the existing mass discharge loading of total nitrogen. The annual average total nitrogen load from this facility is estimated to be 43.426 lbs/day, based on data reported from 2004 through 2005. The permittee shall also submit an annual report to EPA and the MassDEP, by **February 1st** each year, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous year.

G. MONITORING AND REPORTING

The monitoring program in the permit specifies sampling and analysis, which will provide continuous information on compliance and the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures found in 40 CFR Part 136 are required unless other procedures are explicitly required in the permit. The Permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit.

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 DMRs Using NetDMR

The permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP no later than the 15th day of the month electronically using NetDMR. When the permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or MassDEP.

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. Permittees shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. (See Part I.G.6. for more information on state reporting.) Because the 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 NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this permit.

3. Submittal of Pre-treatment Related Reports

All reports and information required of the permittee in the Industrial Users and Pretreatment Program section of this permit shall be submitted to the Office of Ecosystem Protection's Pretreatment Coordinator in Region 1 EPA's Office of Ecosystem Protection (OEP). These requests, reports and notices include:

A. Annual Pretreatment Reports,
B. Pretreatment Reports Reassessment of Technically Based Industrial Discharge Limits Form,
C. Revisions to Industrial Discharge Limits,
D. Report describing Pretreatment Program activities, and
E. Proposed changes to a Pretreatment Program

This information shall be submitted to EPA/OEP as a hard copy at the following address:

U.S. Environmental Protection Agency
Office of Ecosystem Protection
Regional Pretreatment Coordinator
5 Post Office Square - Suite 100 (OEP06-03)
Boston, MA 02109-3912

4. Submittal of Requests and Reports to EPA/OEP

The following requests, reports, and information described in this permit shall be submitted to the EPA/OEP NPDES Applications Coordinator in the EPA Office Ecosystem Protection (OEP).

A. Request for changes in sampling location
B. Request for Reduction in WET Testing Requirement
C. Report on unacceptable dilution water / request for alternative dilution water for WET testing

These reports, information, and requests shall be submitted to EPA/OEP electronically at R1NPDES.Notices.OEP@epa.gov or by hard copy mail to the following address:

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP NPDES Applications Coordinator
5 Post Office Square - Suite 100 (OEP06-03)
Boston, MA 02109-3912

5. Submittal of Reports in Hard Copy Form

The following notifications and reports shall be submitted as hard copy with a cover letter describing the submission. These reports shall be signed and dated originals submitted to EPA.

A. Written notifications required under Part II
B. Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting
C. Collection System Operation and Maintenance Plan (from co-permittee)
D. Report on annual activities related to O&M Plan (from co-permittee)
E. Sludge monitoring reports

This information shall be submitted to EPA/OES at the following address:

U.S. Environmental Protection Agency
Office or Environmental Stewardship (OES)
Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

All sludge monitoring reports required herein shall be submitted only to:

U.S. Environmental Protection Agency, Region 7
Biosolids Center
Water Enforcement Branch
11201 Renner Boulevard
Lenexa, Kansas 66219

6. State Reporting

Unless otherwise specified in this permit, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.G.3, I.G.4, and I.G.5 also shall be submitted to the State at the following addresses:

MassDEP – Southeast Region
Bureau of Water Resources (Municipal)
20 Riverside Drive
Lakeville, MA 02347

Copies of toxicity tests and nitrogen optimization reports only shall be submitted to:

Massachusetts Department of Environmental Protection
Watershed Planning Program
8 New Bond Street
Worcester, Massachusetts 01606

7. Verbal Reports and Verbal Notifications

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 MassDEP. This includes verbal reports and notifications which require reporting within 24 hours. (As examples, see Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.) Verbal reports and verbal notifications shall be made to EPA's Office of Environmental Stewardship at:

U.S. Environmental Protection Agency
Office of Environmental Stewardship
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912
617-918-1510

G. STATE PERMIT CONDITIONS

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

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

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

ATTACHMENT A

MARINE CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
Plymouth WWTP (MA0100587)

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable silverside chronic and sea urchin chronic toxicity tests in accordance with the appropriate test protocols described below:

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

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

II. METHODS

The permittee shall use 40 CFR Part 136 methods. Methods and guidance may be found at:

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

The permittee shall also meet the sampling, analysis and reporting requirements included in this protocol. Where 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 AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a marine, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a fresh 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 hold time extension. All fresh test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6° C.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

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 (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. For TRC analysis performed on site the results must be included on the chain of custody (COC) presented to WET laboratory. For the purpose of sample preparation, i.e. eliminating chlorine prior to toxicity testing, if called for by the permit, TRC analysis may also be performed by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing. According to 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 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.

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 oxidants (as per 40 CFR Part 122.21).

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. 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 test acceptability criteria (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 the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternatedilution water (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 is the case where repeating a test due to toxicity in the site dilution water requires an immediate decision for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires 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
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.

If the use of an 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.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

EPA New England requires that if a reference toxicant test was being performed concurrently with an effluent or receiving water test and fails, both tests must be repeated.

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

test acceptability criteria:

EPA NEW ENGLAND RECOMMENDED TEST CONDITIONS FOR THE SEA URCHIN, ARBACIA PUNCTULATA, FERTILIZATION TEST[1]

1. Test type	Static, non-renewal
2. Salinity	30 o/oo $\pm$ 2 o/oo by adding dry ocean salts
3. Temperature	20 $\pm$ 1°C temperature must not deviate by more than 3°C during test
4. Light quality	Ambient laboratory illumination
5. Light intensity	10-20 uE/m^2/s, or 50-100 ft-c (Ambient Laboratory Levels)
6. Test vessel size	Disposal (glass) liquid scintillation vials (20 ml capacity), presoaked in control water
7. Test solution volume	5 ml
8. Number of sea urchins	Pooled sperm from four males and pooled eggs from four females are used per test
9. Number of egg and sperm cells	About 2000 eggs per chamber and 5,000,000 sperm cells per vial
10. Number of replicate chambers	4 per treatment
11. Dilution water	Uncontaminated source of natural seawater or deionized water mixed with artificial sea salts
12. Dilution factor	Approximately 0.5, must bracket the permitted RWC
13. Test duration	1 hour and 20 minutes
14. Effects measured	Fertilization of sea urchin eggs
15. Number of treatments per test[2]	5 and a control. (receiving water and laboratory water control) An additional dilution at the permitted effluent concentration (% effluent) is required.

16. Acceptability of test	70% - 90% egg fertilization in all controls. Minimum of 70% fertilization in dilution water control. Effluent concentrations exhibiting greater than 70% fertilization, flagged as statistically significantly different from the controls, will not be considered statistically different from the controls for NOEC reporting.
17. Sampling requirements	For on-site tests, samples are to be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection.
18. Sample volume required	Minimum 1 liter

Footnotes:

[1] Adapted from EPA 821-R-02-014

EPA NEW ENGLAND RECOMMENDED TEST CONDITIONS FOR THE INLAND SILVERSIDE, MENIDIA BERYLLINA, GROWTH AND SURVIVAL TEST[1]

1. Test type	Static, renewal
2. Salinity	5 o/oo to 32 o/oo +/- 2 o/oo of the selected salinity by adding artificial sea salts
3. Temperature	25 $\pm$ 1°C, temperature must not deviate by more than 3°C during test
4. Light quality	Ambient laboratory light
5. Light intensity	10-20 uE/m^2/s, or 50-100 ft-C (Ambient Laboratory Levels)
6. Photoperiod	16 hr light, 8 hr darkness
7. Test vessel size	600 - 1000 mL beakers or equivalent (glass test chambers should be used)
8. Test solution volume	500-750 mL/replicate loading and DO restrictions must be met)
9. Renewal of test solutions	Daily using most recently collected sample
10. Age of test organisms	Seven to eleven days post hatch; 24 hr range in age
11. Larvae/test chamber	15 (minimum of 10)
12. Number of replicate chambers	4 per treatment
13. Source of food	Newly hatched and rinsed Artemia nauplii less than 24 hr old
14. Feeding regime	Feed once a day 0.10 g wet wt Artemia nauplii per replicate on days 0 – 2 feed 0.15 g wet wt Artemia nauplii per replicate on days 3-6
15. Cleaning	Siphon daily, immediately before test solution renewal and feeding
16. Aeration[2]	None
17. Dilution water	Uncontaminated source of natural seawater; or deionized water mixed with artificial sea salts

18. Effluent concentrations	5 and a control (receiving water and laboratory water control) An additional dilution at the permitted effluent concentration (% effluent) is required
19. Dilution factor	$\geq$ 0.5, must bracket the permitted RWC
20. Test duration	7 days
21. Effects measured	Survival and growth (weight)
22. Acceptability of test	The average survival of dilution water control larvae is a minimum of 80%, and the average dry wt of unpreserved control larvae is a minimum of 0.5 mg, or the average dry wt of preserved control larvae is a minimum of 0.43 mg if preserved not more than 7 days in 4% formalin or 70% ethanol
23. Sampling requirements	For on-site tests, samples are collected daily and used within 24 hours of the time they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection.
24. Sample Volume Required	Minimum of 6 liters/day.

Footnotes:

[1] Adapted from EPA 821-R-02-014

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

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. $\geq$3 standard deviations for IC25s values and $\geq$ two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

VI. CHEMICAL ANALYSIS

The toxicity test requires measurement of pH, salinity, and temperature at the beginning and end of each 24 hour period in each dilution and controls for both daily test renewal and waste. The following chemical analyses shall be performed for each initial sample as well as any renewal samples, if necessary pursuant to the requirement of Part III above.

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 AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported.

The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-014. Guidance for this review can be found at http://water.epa.gov/scitech/methods/cwa/wet/upload/2007_07_10_methods_wet_disk1_ctm.pdf.

In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoint growth for *Menidia beryllina* as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-014.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value, for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for marine tests in Section 10.2.8.3, p. 54, Table 6 of EPA-821-R-02-014. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The document can be located under Guidance Documents

at the following website location http://water.epa.gov/scitech/methods/cwa/wet/index.cfm#guidance. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-014, page 45

For discussion on Hypothesis Testing, refer to EPA 821-R-02-014, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-014, Section 9.7

2. *Menidia beryllina*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-014, page 181

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 182

Refer to growth data statistical analysis flowchart, EPA 821-R-02-014, page 193

3. *Arbacia punctulata*

Refer to fertilization data testing flowchart, EPA 821-R-02-014, page 312

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
    - Test sensitivity evaluation results (test PMSD for growth)
    - Permit limit and toxicity test results
    - Summary of test sensitivity and concentration response evaluation

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 limits (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.

Attachment B

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

* In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.

* In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.

* In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

  The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

* In Column (1), list the safety factor, if any, that was used when your existing TBLLs were calculated.

* In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

* List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

* Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

* Since your existing TBLLs were calculated, identify the following in detail:

  (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.

  (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

  All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see p.,3-28 in EPA's *Guidance Manual on the Development and Implementation of Local Limits Under the Pretreatment Program, 12/87*.

Item VI.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period. All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that

time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

* In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

  All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

  In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

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 Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL 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 Maximum (ug/l)	Column (1) Effluent Data Analyses Average (ug/l)	Columns (2A) Water Quality Criteria (Gold Book) From TBLLs (ug/l)	Columns (2B) Water Quality Criteria (Gold Book) Today (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - $CaCO_3$)

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 Pollutants	Limitations (ug/l)	Column (2) OLD PERMIT Pollutants	Limitations (ug/l)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was 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.

Pollutant	Column (1) Biosolids Data Analyses Average (mg/kg)	Columns (2A) Biosolids Criteria From TBLLs (mg/kg)	(2B) Biosolids Criteria New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

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 the 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 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 permittee is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

A. GENERAL CONDITIONS — Page

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

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

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

C. MONITORING AND RECORDS

1. Monitoring and Records — 6
2. Inspection and Entry — 7

D. REPORTING REQUIREMENTS

1. Reporting Requirements — 7
   a. Planned changes — 7
   b. Anticipated noncompliance — 7
   c. Transfers — 7
   d. Monitoring reports — 8
   e. Twenty-four hour reporting — 8
   f. Compliance schedules — 9
   g. Other noncompliance — 9
   h. Other information — 9
2. Signatory Requirement — 9
3. Availability of Reports — 9

E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements — 9
2. Definitions for NPDES Permit Sludge Use and Disposal Requirements — 17
3. Commonly Used Abbreviations — 23

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. <u>Upset</u>

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
5 POST OFFICE SQUARE – SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

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

NPDES PERMIT NO.: **MA0100587**

DATE OF PUBLIC NOTICE: October 14, 2015 - November 12, 2015 -

NAME AND ADDRESS OF APPLICANT:

Town of Plymouth
Department of Public Works
Town Hall
11 Lincoln Street
Plymouth, MA 02360

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Plymouth Wastewater Treatment Plant
131 Camelot Industrial Park Drive
Plymouth, MA 02360

RECEIVING WATER: **Plymouth Harbor (South Coastal Watershed)**

CLASSIFICATION: **SA (segment MA94-16)**

Table of Contents

I.	Proposed Action, Type of Facility, and Discharge Location	3
II.	Quantitative Data and Figures Presented in the Fact Sheet	3
III.	Limits and Conditions	4
IV.	Permit Basis and Explanation of Effluent Limitation Derivation	4
V.	Operation and Maintenance of the Sewer System	18
VI.	Sludge Information and Requirements	19
VII.	Pretreatment	19
VIII.	Unauthorized Discharges	20
IX.	Essential Fish Habitat	20
X.	Endangered Species Act (ESA)	24
XI.	Coastal Zone Management (CZM) Consistency Review	25
XII.	State Certification Requirements	25
XIII.	Public Comment Period, Public Hearing, and Procedures for Final Decision	25
XIV.	EPA and MassDEP Contacts	26

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

The Town of Plymouth has requested that the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) reissue its National Pollutant Discharge Elimination System (NPDES) permit. The facility discharges into Plymouth Harbor. The Plymouth Wastewater Treatment Facility (Plymouth WWTF) is engaged in the collection and treatment of municipal and industrial wastewater. The current NPDES permit became effective on January 29, 2005 and expired on January 29, 2010.

The applicant filed a complete application as required by 40 Code of Federal Regulations (CFR) Part 122.6. The current permit has been administratively extended and will remain in effect until a renewed permit has been issued. The current permit and Draft Permit authorize only one discharge, from Outfall 001, at the facility. The Draft Permit has been written to reflect current operations and conditions at the facility.

II. Quantitative Data and Figures Presented in the Fact Sheet

A quantitative description of the facility's discharge in terms of significant effluent parameters based on Discharge Monitoring Reports (DMRs) from January 2010 through March 2015 is shown in Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data of this fact sheet. Data in Attachment B, Effluent Nitrogen Data and Attachment C, Plymouth Harbor Nitrogen Data provides information on total nitrogen in the effluent discharged to Plymouth Harbor and total nitrogen data sampled directly from Plymouth Harbor and analyzed by the Town. Attachment D, Plymouth Wastewater Treatment Plant-Whole Effluent Toxicity Results provides quarterly acute and chronic WET tests results from January 2010 through January 2015 and Attachment E, Effluent Metals Data from Whole Effluent Toxicity Test Reports shows effluent metals data reported in the WET tests from January 2010 through April 2015.

Table 1, Total Recoverable Metals Criteria and Table 2, Reasonable Potential Analysis provide data used to determine the need for effluent limitations in the Draft Permit. Table 3, Species in Area of Outfall within the area outfall and Table 3, Species Area of Outfall, provide coordinates and fish species used in the Essential Fish Habitat (EFH) assessment.

The figures attached to the fact sheet include a site locus map of the facility and the outfall, an aerial view of the treatment plant, a schematic diagram of the flow process, the outfall location in Plymouth Harbor and the Town of Plymouth's sampling locations in Plymouth Harbor.

Fact sheet attachments, tables and figures.

Attachment A	Plymouth Wastewater Treatment Plant-Discharge Monitoring Report Data
Attachment B	Effluent Nitrogen Data
Attachment C	Plymouth Harbor Nitrogen Data
Attachment D	Plymouth Wastewater Treatment Plant-Whole Effluent Toxicity Results
Attachment E	Effluent Metals Data from Whole Effluent Toxicity Test Reports
Table 1	Total Recoverable Metals Criteria
Table 2	Reasonable Potential Analysis
Table 3	Species in area of outfall

Figure 1	Plymouth WWTP, MA0100587, Site Locus Map
Figure 2	Plymouth WWTP - Aerial View
Figure 3	Plymouth WWTP Flow Process Diagram
Figure 4	Plymouth Harbor WWTP Outfall Location
Figure 5	Plymouth Harbor Sampling Sites

III. Limits and Conditions

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

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The Plymouth Wastewater Treatment Plant, is a 3.0 million gallon per day (MGD) advanced wastewater treatment plant owned by the Town of Plymouth, Massachusetts and operated by Veolia Water North America. The treatment plant is located adjacent to the Eel River at 131 Camelot Industrial Park Drive and went on line in May 2002, replacing the 1970 treatment plant located at 197 Water Street on the Plymouth Harbor waterfront.

The Draft Permit authorizes an annual average discharge of up to 1.75 MGD (2.71 cfs) effluent to Plymouth Harbor via outfall #001 consistent with the requirements of the Ocean Sanctuaries Act. The remainder of the treated effluent is discharged to the treatment plant's groundwater infiltration basins. Effluent discharged to the infiltration basins is regulated by a groundwater discharge permit issued by the MassDEP.

Screened, degritted raw wastewater is pumped to the treatment plant via a 4.5 mile force main. Wastewater entering the plant is measured and chemicals (soda ash and ferric chloride) are added for odor control prior to entering the two inlet tanks. The covered inlet tanks are designed to equalize and aerate the influent wastewater. From the inlet tanks, the wastewater moves to one of three sequencing batch reactors (SBRs). The sequencing batch process consists of aeration, settling and decanting. The SBRs perform year-round nitrification for ammonia-nitrogen reduction and denitrification for total nitrogen reduction. Wastewater decanted from the SBRs flow to the chlorine contact tank for disinfection and dechlorination before entering the 4.5 mile effluent pipe, which lies parallel to the influent force main.

The effluent is discharged through a 30 inch diameter, 1840 foot long reinforced concrete outfall pipe. The end of the outfall pipe is nearly flat on the harbor floor in a channel located to the south of Goose Point Channel. The outfall terminus is at 7.2 mean lower low water (MLLW) and the discharge location is shown in Figure 1, Plymouth WWTP Site Locus Map.

<u>Overview of Federal and State Regulations</u>

General Requirements

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

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Act. Under Section 301(b)(1)(B) of the CWA, publicly owned treatment works (POTWs) must have achieved effluent limitations based upon secondary treatment by July 1, 1977. The secondary treatment requirements are set forth at 40 CFR Part 133.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to limits in addition to or more stringent than technology-based limits where necessary to meet water quality standards at 40 CFR 122.40(The Massachusetts Surface Water Quality Standards (MA SWQS), found in 314 Code of Massachusetts Regulations (CMR) 4.00, include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, be used unless a site specific criterion is established. MA SWQS also require that discharges of pollutants to surface waters be limited or prohibited to assure that surface water quality standards of the receiving waters are protected and maintained or attained. See 314 (CMR) 4.03(1)(a). EPA regulations at 40 CFR 122.44(d)(1)(i), require that the permit limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that caused, has reasonable potential to cause, or contribute to an excursion above any water quality criterion. An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and, where appropriate, the dilution of the effluent in the receiving water.

EPA's anti-backsliding provisions, found in Sections 402(o) and 303(d)(4) of the CWA and at 40 CFR§ 122.44(l), prohibit less stringent permit limits, standards, and conditions, except under certain, limited circumstances. Therefore, the effluent limits in the reissued permit must be at least as stringent as those in the previous permit, unless in compliance with the anti-backsliding requirement of the CWA. Anti-backsliding provisions apply to effluent limits based on technology, water quality, best professional judgment and State Certification requirements.

The Massachusetts anti-degradation regulations (314 CMR 4.04) require that all existing uses of the receiving water must be protected. The Draft Permit is being issued with limits that are the same as or are more restrictive than the limits in the current permit. EPA and MassDEP believe there will be no lowering of water quality and/or no loss of existing water uses for Plymouth Harbor as a result of the Draft Permit and that no additional anti-degradation review is warranted.

Waterbody Classification and Usage

The final effluent from the treatment plant is discharged to segment (MA94-16) of Plymouth Harbor. A description of the segment is on page 145 of the South Shore Coastal Watersheds 2001 Water Quality Assessment Report and can be reviewed at http://www.mass.gov/dep/water/resources/wqassess.htm.

Plymouth Harbor is listed as a Class SA water by the MassDEP.

Class SA waters are designated as 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 not be 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.

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. To meet this goal, the CWA requires states to develop information on the quality of their water resources and report this information to the EPA, the U.S. Congress, and the public. To this end, the EPA released guidance on November 19, 2001, for the preparation of an integrated "List of Waters" that could combine reporting elements of both §305(b) and §303(d) of the CWA. The integrated list format allows the states to provide the status of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories:

1) Unimpaired and not threatened for all designated uses; 2) Unimpaired waters for some uses and not assessed for others; 3) Insufficient information to make assessments for any uses; 4) Impaired or threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and 5) Impaired or threatened for one or more uses and requiring a TMDL.

Section 303(d) of the CWA requires states to identify and list those water bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such, require the development of Total Maximum Daily Load.

The MassDEP combines the requirements in Sections 305(b) and 303(d) of the CWA into one report titled, *Final Massachusetts 2012 Integrated Lists of Waters* (2012 Integrated List). It is available on the MassDEP website at http://www.mass.gov/dep/water/resources/tmdls.htm.

The 2012 Integrated List was approved by EPA on May 2, 2013. This report (and the proposed 2014 Integrated List of Waters) has Plymouth Harbor (MA94-16) as Category 5; not in attainment of MA SWQS and requiring a total maximum daily load (TMDL). The listed impairments for this segment are fecal coliform and nutrient/eutrophication biological indicators.

Dilution

The available dilution in the receiving water was established from a dye-dilution study conducted in 1994 as part of the design of the treatment plant by the Town's consultants, Camp Dresser& McKee, Inc. The minimum dilution measured at the outfall during a slack low tide was calculated as 10 to 1. This information is available in the Town's facility plan and was submitted in the Town's 2003 NPDES Permit Application which is in the administrative file at the EPA Region 1 office. A dilution factor of 10 was used to calculate water quality-based effluent limits in the current permit.

The dilution factor of 10 has been carried forward and is used to calculate water quality-based effluent limits in the Draft Permit.

Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), BOD_5 and TSS Percent Removal, Settleable Solids, pH, Dissolved Oxygen (DO) and, Bacteria

The limits for BOD_5, TSS, BOD_5 and TSS Percent Removal, Settleable Solids and pH have been carried forward from the current permit to the Draft Permit. The bacteria limits reflect revisions to the MA SWQS since issuance of the current permit.

BOD_5 and TSS

The BOD_5, and TSS limits are based on secondary treatment requirements set forth at 40 CFR 133.102. The BOD_5 and TSS monthly average limits are 30 mg/l and 438 lbs/day and the weekly average limits are 45 mg/l and 657 lbs/day. There is also a maximum daily reporting requirements in the current permit.

A review of DMR data from January 2010 through March 2015 show the BOD_5 and TSS limits have been consistently achieved. There was an exceedance of the monthly average TSS limit, 31.63 mg/l, reported in April 2012. See Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data of the fact sheet for DMR data.

The BOD and TSS monthly average, weekly average and maximum daily reporting requirements have been carried forward in the Draft Permit.

Eighty-Five Percent (85%) BOD_5 and TSS Removal Requirement

The 85% BOD_5 and TSS removal limitations are based on the requirements of 40 CFR 133.102(3). These limitations are in the current permit. The DMR data show the facility has primarily been in compliance with these requirements from January 2010 through March 2015. There were no BOD_5 excursions and two TSS excursions of the limit. The TSS excursions occurred in April 2012 and August 2014. See Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data for DMR data. These limits have been carried forward in the Draft Permit.

Settleable Solids

The Settleable Solids monthly average limit of 0.1 ml/l and maximum daily limit of 0.3 ml/l are in the current permit. There have been no reported exceedances for the monthly average limit or the maximum daily limit for the last several years. See Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data for DMR data. These limitations have been carried forward in the Draft Permit.

pH

The pH range in the MA SWQS for a Class SA water is 6.5 su to 8.3 su. The minimum pH limit in the current permit is 6.0 standard units (su) and is based on secondary treatment requirements in 40 CFR 133.102. The Town requested a lower pH limit to achieve compliance and the limit is consistent with minimum pH limit in the groundwater permit. The Agencies agreed to a lower pH limit based on a review of the pH levels in Plymouth Harbor documented in the WET test which is greater than 7.6 su.

This provides a buffering capacity for the pH of the effluent. Therefore, the effluent that is discharged into Plymouth Harbor does not adversely impact state water quality standards for a Class SA water.

Maximum and minimum pH permit limits were achieved from January 2010 and March 2015. Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data of the fact sheet provides recent pH effluent data submitted on the Town's DMRs.

The Draft Permit includes a minimum pH limit is 6.0 su and the maximum pH limit is 8.3 su. MassDEP will include the minimum pH of 6.0 su limit as an acceptable condition of the 401 State Certification.

Dissolved Oxygen, DO

The dissolved oxygen criteria of an Class SA water must be 6.0 mg/l or greater according to the MA SWQS at 314 CMR 4.05(4)(a)(1). The current permit has a DO reporting requirements only. Attachment A, Plymouth Wastewater Treatment Plant- Discharge Monitoring Report Data of the fact sheet provides DO data submitted from the facility's DMRs which are consistently less than the water quality standard for a Class SA water.

The Draft Permit includes a dissolved oxygen limit of 6.0 mg/l or greater to ensure the effluent does not cause or contribute to an exceedance of MA SWQS in the receiving water.

Fecal Coliform Bacteria and *Enterococci*

On December 29, 2006, the State revised the bacteria criteria in the MA SWQS for surface water. The maximum fecal coliform criterion was changed from 43 cfu/ml to 28 cfu/ml to be consistent with the standards established by the National Shellfish Sanitation Program. MassDEP added water quality criteria for *enterococci* to protect recreational uses. EPA approved these revisions on September 19, 2007 and the changes are reflected in the Draft Permit. The bacteria standards for Class SA waters state,

"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 that 10% of the samples exceed an 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." and " 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 based on a minimum of five samples shall not exceed 35 enterococci colonies per 100 ml.

The current permit has a year-round, monthly geometric mean fecal coliform limit of 14 colony forming unit (cfu)/100 milliliter (ml) and a maximum daily limit of 43 cfu/100 ml. The current permit also has year-round disinfection required to reduce bacteria in the effluent that is discharged to Plymouth Harbor and this requirement has been carried forward in the Draft Permit.

Compliance schedules are allowed under MA SWQS for limitations based on new, newly interpreted, or revised water quality standards (see 314 CMR 4.03(1)(b)). The schedule is also consistent with federal regulations found at 40 CFR 122.47.

Fecal Coliform

The Draft Permit includes a monthly average effluent limit for fecal coliform of 14 cfu/100 ml and a maximum daily effluent limit for fecal coliform of 28 cfu/100 ml. These limits are calculated as a geometric mean. Due to the revised MA SWQS revisions, the maximum daily limit in the Draft Permit is more stringent than the maximum daily limit of 43 cfu/ml in the current permit and the Agencies have included a one year compliance schedule in the Draft Permit to provide time for the Town to make any necessary equipment changes or operational changes to ensure consistent attainment of the limit.

The DMR data for the monthly average fecal coliform limit shows the permit limit was exceeded 4 times from January 2010 through March 2015. The maximum daily limit was exceeded 13 times in the same time period from January 2013 to March 2015 however, the limit has been achieved since December

2013. See Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data for DMR data.

Enterococci

In addition to the fecal coliform limits, the Draft Permit also includes a monthly average limit of 35 *enterococci* cfu/100 ml and a maximum daily limit of 104 *enterococci* cfu/100 ml, consistent with the revised MA SWQS criteria. A one year compliance schedule for *enterococci* is included in the Draft Permit to provide time for the facility to make any necessary equipment changes or operational changes to ensure consistent attainment of the limits. The Draft Permit requires *enterococci* monitoring and reporting only for one year from the effective date of the permit and the limits become effective at the end of the one year compliance schedule.

Non-Conventional Pollutants

Chlorine

Chlorine and chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The maximum daily and monthly average effluent limits in the current permit for Total Residual Chlorine (TRC) are based on the acute and chronic criteria in EPA's National Recommended Water Quality Criteria: 2002. These criteria have been adopted into the MA SWQS [see 314 CMR 4.05(5)(e)].

The monthly average and maximum daily TRC limits in the current permit are 75 ug/l and 130 ug/l based on the criteria and the available dilution. The permittee reported zero on the monthly DMR when a TRC sample result was less than or equal to 20 ug/l, the minimum detection level. TRC monthly average data from the facility's DMR report for the period of January 2010 through March 2015 were mainly below the minimum detection limit. The Town reported three exceedances reported in May, July and, December 2012. See Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data for DMR data.

The TRC limits remain the same in the Draft Permit. The monthly average TRC in the receiving water should not exceed 75 microgram per liter (ug/l) to protect saltwater aquatic life from chronic toxicity, and the maximum daily TRC concentration in the receiving water should not exceed 130 ug/l to protect saltwater aquatic life from acute toxicity. The calculations are shown below.

(acute criteria * dilution factor) = Maximum Daily Effluent Limit
(13 ug/l x 10) = 130 ug/l

(chronic criteria * dilution factor) = Monthly Average Effluent Limit
(7.5 ug/l x 10) = 75 ug/l

Ammonia Nitrogen

Ammonia can reduce a receiving water's dissolved oxygen concentration through nitrification and can also be toxic at elevated levels. The water quality criteria for ammonia in saltwater is based on the temperature, pH and salinity of the receiving water. The current water quality criteria can be reviewed at http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm - altable

The current permit includes seasonal monitoring and reporting requirements, during the months of June through October. From January 2010 through March 2015, the effluent ammonia results ranged from 0.04 mg/l to 7.35 mg/l. See Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data for the seasonal data.

The ammonia criterion are based on the receiving water's temperature, pH and salinity. EPA reviewed theses parameters for Plymouth Harbor in the in the Town's whole effluent toxicity tests. A temperature of 15°C, a pH of 7.8 and a salinity of 30 g/kg were used to determine the acute and chronic water quality criterion for ammonia.

Ammonia effluent limits based on the criteria and available dilution are shown below.

Average monthly limit = (2.4 mg/l)(10) = 24 mg/l
Maximum daily limit = (16 mg/l)(10) = 160 mg/l

As shown in Attachment A, Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data, the effluent data indicates there is no reasonable potential for ammonia in the effluent to cause or contribute to an excursion of the water quality criteria and permit limits have not been included in the Draft Permit.

The monitoring and reporting requirements for ammonia have been carried forward in the Draft Permit to ensure toxicity related to low dissolved oxygen does not cause or contribute to a water quality excursion.

Metals

Certain metals in water can be toxic to aquatic life. There is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted.

Metals may be present in both dissolved and particulate forms in the water column. However, extensive studies suggest that it is the dissolved fraction that is biologically available and, therefore, presents the greatest risk of toxicity to aquatic life inhabiting the water column. This conclusion is widely accepted by the scientific community both within and outside of EPA (Water Quality Standards Handbook: Second Edition, Chapter 3.6 and Appendix J, EPA 1994 [EPA 823-B-94-005a]). Also see http://water.epa.gov/scitech/swguidance/standards/handbook/chapter03.cfm#section6. As a result, water quality criteria are established in terms of dissolved metals.

However, many inorganic components of domestic wastewater, including metals, are in the particulate form, and differences in the chemical composition between the effluent and the receiving water affects the partitioning of metals between the particulate and dissolved fractions as the effluent mixes with the receiving water, often resulting in a transition from the particulate to dissolved form (*The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (USEPA 1996 [EPA-823-B96-007]). Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge may not accurately reflect the biologically-available portion of metals in the receiving water.

Regulations at 40 CFR 122.45(c) require, with limited exception, that metals limits in NPDES permits be expressed as total recoverable metals.

An evaluation of the concentration of metals in the effluent from the facility's Whole Effluent Toxicity

(WET) reports submitted between March 2010 and April 2015 were used to determine reasonable potential for toxicity caused by cadmium, copper, lead, nickel and, zinc. The facility's effluent concentrations of these metals were characterized assuming a lognormal distribution in order to determine the estimated 95th percentile of the daily maximum. The following mass balance equation was used to project metal concentrations from the effluent at the end of the outfall pipe to determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the water quality criteria for each metal.

$$Q_d C_d + Q_b C_b = Q_{ph} C_{ph}$$

rewritten as:

$$C_{ph} = \frac{Q_d C_d + Q_b C_b}{Q_{ph}}$$

where:

Q_d = effluent flow (design flow of the treatment plant = 1.75 mgd = 2.70 cfs)
C_d = effluent metals concentration in ug/L (95th percentile)
Q_b = 10 to 1 available background dilution at the end of the outfall in Plymouth Harbor
C_b = background metal concentration in Plymouth Harbor, ug/L (median, 0)
Q_{ph} = ($Q_b + Q_d$ = 2.70 cfs)
C_{ph} = combined metals concentration in Plymouth Harbor at the end of outfall pipe in ug/L

Reasonable potential is then determined by comparing the combined metals concentration in Plymouth Harbor, C_{ph} for the acute and chronic conditions with the criteria for each metal. In EPA's Technical Support Document for Water Quality Based Toxics Control (TSD), EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration criteria. If there is reasonable potential for the acute or chronic conditions, the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_d) using the criterion as the metals concentration (C_{ph}) in the receiving water. See the table below for the results of this analysis with respect to cadmium, copper, lead, nickel and zinc.

The total recoverable criteria of each metal that is discharged to Plymouth Harbor is calculated by dividing the Criterion Maximum Concentration (CMC) and the Criterion Chronic Concentration (CCC) by the appropriate conversion factors. Per example, for cadmium, the calculations are:

Acute Criteria = CMC/CMC Conversion Factor
where:

CMC = 40 µg/l
CMC Conversion Factor = 0.994

Acute Criteria = 40/0.994 = 40.2 µg/l

and

Chronic Criteria = CCC/CCC Conversion Factor
where:

CCC = 8.8 ug/l
CCC Conversion Factor = 0.994

Chronic Criteria = 8.8/0.994 = 8.9 μg/l

The following table contains the calculated acute and chronic criteria for metals of concern in the Plymouth WWTP discharge.

Table 1. Total Recoverable Metals Criteria

	Dissolved Criteria				**Total Recoverable Criteria**	
Metals	**CMC**	**CCC**	**CMC Factor**	**CCC Factor**	**Acute, ug/l**	**Chronic, ug/l**
Cadmium	40	8.8	0.994	0.994	40.2	8.9
Copper	4.8	3.1	0.83	0.83	5.8	3.7
Lead	210	8.1	0.951	0.951	220.8	8.5
Nickel	74	8.2	0.99	0.99	74.7	8.3
Zinc	90	81	0.946	0.946	95.1	86

Table 2. Reasonable Potential Analysis

Metal	Q_d	C_d[1] (99th Percentile)	C_d[1] (95th Percentile	Q_b	C_b[2] (Median)	$Q_{ph} = Q_d + Q_b$	$C_{ph} = \frac{(Q_dC_d+Q_bC_b)}{Q_{ph}}$		Criteria Total Recoverable		Reasonable Potential	Limit = $\frac{(Q_{ph}C_{ph}-Q_bC_b)}{Q_d}$	
	cfs	ug/l	ug/l	cfs	ug/l	cfs	(ug/l)	(ug/l)	Acute (ug/l)	Chronic (ug/l)	Cr > Criteria	Acute (ug/l)	Chronic (ug/l)
Cd		0	0		N/R		0	0	40.2	8.9	N	N/A	N/A
Cu		14.9	11.2		N/R		3.2	2.4	5.8	3.7	N	57[3]	37[3]
Pb	2.7	74.8	11.6	10	N/R	12.7	16	2.5	220.8	8.5	N	N/A	N/A
Ni		36.1	29.1		N/R		7.8	6.21	74.7	8.3	N	N/A	N/A
Zn		54.6	45.6		N/R		11.7	9.7	95.1	85.6	N	N/A	N/A

[1] values calculated using data from the statistical analysis. The statistical analysis for each metal is available for review in the EPA Region I's NPDES administrative file for this facility.

[2] upstream metals concentration not reported (N/R) in Whole Effluent Toxicity (WET) test.

[3] anti-backsliding applies, see 40 CFR122.44(l) and Section 402(o) of the CWA

As shown in Table 2, Reasonable Potential Analysis the in-stream concentration for each metal is less than the water quality criteria (C_{ph} < Criteria) and there is no reasonable potential for the metals listed to cause contribute or have reasonable potential to cause or contribute to an exceedance of the water quality criteria.

Copper

The current permit has a monthly average copper limit of 37 ug/l and a maximum daily copper limit of 57 ug/l with a once per month monitoring and reporting frequency. Attachment A, Plymouth Wastewater Treatment Plant – Discharge Monitoring Report Data provides copper data reported by the Town from January 2010 through March 2015. There were no exceedances of the monthly average copper limit. The DMR data reported for the maximum daily copper limit is the same as the monthly average data since reporting requirement is once per month.

Pursuant to EPA's anti-backsliding provisions in accordance with Sections 402(o) and 303(d)(4) of the CWA and 40 CFR 122.44(1), the copper limits in the Draft Permit remain the same as in the current permit. The monthly average limit is 37 ug/l and the maximum daily limit is 57 ug/l.

Nutrients

The basic cause of nutrient problems in estuaries and near shore coastal waters is the enrichment of freshwater with nitrogen on its way to the sea and by direct inputs within tidal systems. EPA defines nutrient over enrichment as the anthropogenic addition of nutrients, in addition to any natural processes, causing adverse effects or impairments to beneficial uses of a waterbody. Eutrophication is an aspect of nutrient over-enrichment and is defined as an increase in the rate of supply of organic matter to a waterbody. Cultural eutrophication has been defined as the human-induced addition of wastes containing nutrients to surface waters that results in excessive plant growth and/or a decrease in dissolved oxygen.

Increased nutrient inputs promote a progression of symptoms beginning with excessive growth of phytoplankton and macroalgae to the point where grazers cannot control growth (NOAA, 2007). Phytoplankton is microscopic algae growing in the water column and is measured by chlorophyll *a*. Macroalgae are large algae, commonly referred to as "seaweed." The primary symptoms of nutrient over-enrichment include an increase in the rate of organic matter supply, changes in algal dominance, and loss of water clarity and are followed by one or more secondary symptoms such as loss of submerged aquatic vegetation, nuisance/toxic algal blooms and low dissolved oxygen. (EPA, 2001). In U.S. coastal waters, nutrient over-enrichment is a common thread that ties together a diverse suite of coastal problems such as red tides, fish kills, some marine mammal deaths, outbreaks of shellfish poisonings, loss of seagrass and bottom shellfish habitats, coral reef destruction, and hypoxia and anoxia now experienced as the Gulf of Mexico's "dead zone." (EPA, 2001).

The deleterious physical, chemical, and biological responses in surface water resulting from excessive plant growth can impair designated uses in both receiving and downstream water bodies. Excessive plant growth can result in a loss of diversity and other changes in the aquatic plant, invertebrate, and fish community structure and habitat. For example, losses of submerged aquatic vegetation (SAV), such as eelgrass, occur when light is decreased due to turbid water associated with overgrowth of algae or as a result of epiphyte growth on leaves (NOAA, 2007 and EPA, 2001). Excess nitrogen and phosphorus cause an increased growth of algae and epiphytes (plants that grow on other plants). Algae growth leads to increased turbidity, blocking light attenuation, and epiphytic growth further blocks sunlight from reaching the SAV surface. When sunlight cannot reach SAV, photosynthesis decreases and eventually the submerged plants die. (State-EPA Nutrient Innovations Task Group, 2009). The loss of SAV can have negative effects on the ecological functioning of an estuary and may impact some fisheries because the

SAV beds serve as important habitat. SAV responds rapidly to water quality changes, and its health can be an indicator of the overall health of the coastal ecosystem.

Nutrient-driven impacts on aquatic life and habitat are felt throughout the eutrophic cycle of plant growth and decomposition. Nutrient-laden plant detritus can settle to the bottom of a water body. In addition to physically altering the benthic environment and aquatic habitat, organic materials (*i.e.*, nutrients) in the sediments can become available for future uptake by aquatic plant growth, further perpetuating and potentially intensifying the eutrophic cycle.

Nutrient over-enrichment of estuaries and near shore coastal waters from human-based causes is now recognized as a national problem on the basis of CWA Section 305(b) reports from coastal States (EPA, 2001). Most of the nation's estuarine and coastal waters are moderately to severely polluted by excessive nutrients, especially nitrogen and phosphorus (NOAA, 2007; NOAA, 1999; EPA, 2006; EPA, 2004; and EPA, 2001).

EPA Region 1 analyzes available nutrient data from a reasonably conservative standpoint when permitting nutrient discharges. The permit limit is a means to prevent nutrient over-enrichment in a waterbody. This protective approach is appropriate because, once the cycle of eutrophication begins, it can be difficult to reverse due to the tendency of nutrients to be retained in the sediments. Nutrients can be re-introduced into a waterbody from the sediment, or by microbial transformation, potentially resulting in a long recovery period even after pollutant sources have been reduced.

Facility Performance

Total nitrogen (TN) data is provided in Attachment B, Effluent Nitrogen Data (calculated as the sum of nitrite, nitrate and TKN) from DMR data. The TN range is 2.80 mg/l to 11.29 mg/l for January 2010 through March 2015 with an average of 5.42 mg/l for the same time period.

Reasonable Potential Analysis

The water quality classification of Plymouth Harbor is SA, the most protective classification for saline waters. Plymouth Harbor has historically supported eelgrass habitat, a critically important habitat for many marine species. The water depth, sediment type, and exposure of the harbor are all consistent with being able to support eelgrass habitat. However, there was a major loss of eelgrass habitat in Plymouth Harbor between 1951 and 2001 (MassDEP South Shore Coastal Watershed - 2001 Water Quality Assessment Report, March 2006). From 2001- 2013 eelgrass coverage has been relatively stable. See www.maps.massgis.state.ma.us/images/dep/eelgrass/eelgrass_maps.htm

The Town of Plymouth published the, Nutrient Management Data Report in April 2012. The report is located at www.plymouth-ma.gov/natural-resources/files/eelrivernmpfinalreport2011. The report provides data from two designated sampling location in Plymouth Harbor, Station S7 and Station S10. Station S7 (S-7) is at the head of Plymouth Harbor, near the mouth of the Eel River approximately 1.5 mile from the treatment plant's outfall and Station 10 (S-10) is approximately 0.5 miles from the outfall towards the middle of the Harbor. These locations are shown in Figure 5, Plymouth Harbor Sampling Sites, of this fact sheet. The data from the report shows no apparent improvement in total nitrogen concentrations following the completion of the new treatment plant in 2002; however, a discussion of past data in Section 2 of the Nutrient Management Data Report describes analytical problems with nitrogen data collected prior to 2009, specifically that detection limits were too high, resulting is measurements that were also skewed high.

The Town collected ten total nitrogen samples at each location from June 2010 through September 2014. The values for total nitrogen averaged 0.46 mg/l at Station S7 and 0.45 mg/l at Station S10. Total nitrogen reported from Station S10 in June 2012 was more than twice the next highest data point. If this outlier is not included in the data set then the total nitrogen values for Station S10 averaged 0.36 mg/l. Attachment C, Plymouth Harbor Nitrogen Data of this fact sheet provides results of each sampling event.

Since the MA SWQS do not contain a numeric nitrogen criteria, the narrative nutrient criteria must be interpreted in order to establish an appropriate threshold concentration. EPA considered a reference-based approach which identifies a target nitrogen concentration threshold based on a location within the estuary where water quality standards are not violated, in order to identify a nitrogen concentration consistent with unimpaired conditions. However, a comprehensive data set of nitrogen levels and impairment status in Plymouth Harbor that would allow for such an analysis does not exists. Consequently, EPA relied on relevant information from the scientific literature to establish a protective threshold for total nitrogen in Plymouth Harbor.

The MassDEP has identified total nitrogen levels believed to be protective of eelgrass habitats as less than 0.39 mg/l and ideally less than 0.3 mg/l (MADEP/SMAST, 2003))[1]. Additionally, in Massachusetts a study was performed that looked at the relationship to eelgrass survival and habitat quality to water column nitrogen level, phytoplankton biomass, particulate matter, bottom light intensity, and light attenuation. The study covered 70 sites in 19 estuaries which ranged in habitat quality from stable productive beds to areas that had lost all eelgrass coverage. The study concluded that healthy eelgrass beds existed where average total nitrogen concentrations were less than 0.34 mg/l (Benson et. al., 2013).

EPA notes that the highest concentration of total nitrogen in Plymouth Harbor is near the mouth of Eel River. EPA also notes that the Town of Plymouth has made significant efforts to reduce pollutant loadings, including nitrogen, to the Eel River. See www.plymouth-ma.gov/natural-resources for additional information on Eel River Watershed projects. Continued efforts to reduce pollutant loadings should result in lower concentrations of nitrogen in Plymouth Harbor. Additionally, the upcoming reissuance of the Massachusetts Small MS4 (municipal separate storm sewer) General Permit will require stronger control of municipal storm water sources.

Given that average total nitrogen concentrations near the outfall (excluding the outlier) are within the range of protective values identified by MassDEP and do not exceed the protective value identified in the Benson Report, the Draft Permit requires effluent monitoring and receiving water monitoring at S7 and S10 and treatment optimization requirements. The Draft Permit does not include nitrogen limits during this permit cycle. If receiving water monitoring does not demonstrate that receiving water concentrations of nitrogen are stable or declining or if new information indicates that lower nitrogen levels are necessary for a full recovery of eelgrass habitat, a nitrogen permit limit as low as the limit of technology (currently 3.0 mg/l total nitrogen) may be required in a future permit action.

Specifically, the Draft Permit requires monthly receiving water monitoring at Stations S7 and S10, a description of previous and on-going optimization methods implemented at the facility and an evaluation of alternative methods of operating the existing treatment plant to optimize the removal of nitrogen. The permittee is also required to implement optimization measures sufficient to ensure that their nitrogen loads do not increase. The evaluation of alternative methods of operating the treatment plant must at a minimum include improved instrumentation, operational changes designed to enhance nitrification

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1 Massachusetts Department of Environmental Protection, UMASS-Dartmouth School for Marine Science and Technology. 2003. Massachusetts Estuaries Project: Site-Specific Nitrogen Thresholds for Southeastern Massachusetts Embayments: Critical Indicators Interim Report. Massachusetts Department of Environmental Protection. July 21, 2003. Revised September 16, 2003 and December 22, 2003.

(seasonal and year-round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies which, include but is not limited to, documenting the annual average discharge load from the facility and tracking trends relative to previous years.

The agencies may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a future TMDL or other new information that may warrant the incorporation of nitrogen effluent limits. Although not a permit requirement, it is strongly recommended that any facilities planning conducted for this facility consider alternatives for further enhancing nitrogen reduction.

Whole Effluent Toxicity Test

Under Section 301(b)(1) of the CWA, discharges are subject to effluent limitations based on water quality standards. MA SWQS (314 CMR 4.05(5)(e)), include the following narrative statements and require that EPA criteria established pursuant to Section 304(a)(l) of the CWA be used as guidance for interpretation of the following narrative criteria:

"All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. 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. Where the Department determines that naturally occurring background concentrations are higher, those concentrations shall be the allowable receiving water concentrations. Site specific limits, human health risk levels and permit limits will be established in accordance with 314 CMR 4.05(5)(e)(1)(2)(3)(4)."

National studies conducted by the EPA have demonstrated that industrial and domestic sources contribute toxic constituents, such as metals, chlorinated solvents aromatic hydrocarbons, and other pollutants, to POTWs and the impact of such complex mixtures is often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity testing. In addition, 40 CFR 122.44 (d) requires whole effluent toxicity limits in NPDES permits when the effluent has a reasonable potential to cause toxicity.

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

EPA Region 1 and the MassDEP have developed a toxicity control policy. The policy requires wastewater treatment facilities to perform toxicity bioassays on their effluent. Facilities that discharge into a water body having a dilution of 10:1 require toxicity testing four times per year and the Draft Permit includes quarterly testing. (See, e.g., "Policy for the Development of Water quality based Permit Limitations for Toxic Pollutants", 50 Fed. Reg. 30,784-July 24, 1985. See also EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505-90-001).

The current permit requires the Town to perform acute WET tests with the mysid (Americamysis bahia) and the inland silverside (Menidia beryllina) and chronic WET tests with the sea urchin (Arbacia punctulata) and the inland silverside (Menidia beryllina). This is more than what is typically required in a renewed NPDES permit. Additional testing was required because the treatment plant was new and the Agencies wanted effluent data based on the new treatment process that the discharge would not cause or contribute to an excursion of the MA SWQS.

The Lethal Concentration causing mortality to 50% of the test organisms in 100% effluent is referenced as the LC_{50}. The LC_{50} limit of $\geq$ 100% is the limit in the current permit and is consistent with MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters", February 23, 1990. This limit prohibits acute effects causing lethality when aquatic organisms are exposed to 100% POTW effluent.

The Chronic-No Observed Effect Concentration (C-NOEC) limitation in the current permit prohibits chronic adverse effects that adversely affect survival, growth, or reproduction when aquatic organisms are exposed to the POTW effluent at the available dilution. The C-NOEC is established equal to the receiving water concentration, (the inverse of the dilution factor) consistent with MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters", February 23, 1990.

The acute WET test results from January 2010 to April 2015 achieved compliance with the effluent limit. The results of the chronic tests indicate toxicity several times from January 2010 through April 2015. The results of the quarterly tests from January 2010 through April 2015 are shown in Attachment D, Plymouth Whole Effluent Toxicity Test Results.

Whole Effluent Toxicity Test Permit Requirements

The Draft Permit carries forward quarterly chronic WET testing with the sea urchin (Arbacia punctulata) and the inland silverside (Menidia beryllina). The requirements for acute WET tests using the mysid and the inland silverside are not a requirement during this permit cycle.

Toxicity tests shall continue to be performed in January, April, July, and October. See Attachments A, Marine Chronic Toxicity Test Procedures and Protocols of the Draft Permit for the most recent test procedures and protocols. Toxicity test reports are part of the administrative file and available for review at the EPA Region 1 office.

The Draft Permit includes a C-NOEC limit of 10% based on the following dilution calculation.

C-NOEC
1/dilution factor *100 = C-NOEC
Dilution Factor = 10
1/10 * 100 = 10%

V. Operation and Maintenance of the Sewer System

The Town of Plymouth owns, operates and, maintains the sewer collection system that transports sewage to the treatment plant.

Updated requirements in Part 1.C, Operation and Maintenance of the Sewer System are included in the Draft Permit. The permittee is required to develop and implement a Collection System Operation and Maintenance Plan (the Plan) within two year of the effective date of the Final Permit. The Plan is to include a description of the collection system and its current condition, information on managing and

maintaining the collection system, a map of the collection system and, data on infiltration and inflow. The purpose of the Plan is to assist the Town in preventing unauthorized discharges, minimizing infiltration and inflow and protecting public health and the environment by eliminating bypasses and sanitary sewer overflows.

The permittee is required to provide a summary report of activities related to implementation of its Plan to EPA and MassDEP each year.

VI. Sludge Information and Requirements

Section 405(d) of the Clean Water Act requires that sludge conditions be included in all POTW permits. The sludge conditions in the Draft Permit satisfy this requirement and are taken from EPA's Standard for the disposal of sewage sludge (40 CFR 503).

The activated sludge generated at the treatment plant is combined with the septage from the septic receiving station at the facility then dewatered in a gravity belt press. After thickening, the sludge is pumped to the sludge storage tank prior to disposal. The thickened sludge is shipped off-site and incinerated at Veolia Water North America in Cranston, Rhode Island. Approximately 1156 dry metric tons of sewage sludge was sent for incineration in 2014.

VII. Pretreatment

The Plymouth WWTP has one non-categorical significant industrial user and two categorical industrial users. The permittee is required to administer a pretreatment program based on the authority granted under 40 CFR §122.44(j), 40 CFR Part 403 and Section 307 of the Act. The Permittee's pretreatment program received EPA approval on December 24, 1987. Appropriate pretreatment program requirements were incorporated into permits, which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued in 1987. The last audit of the pretreatment program was August 3, 2006.

In October 1988 and July 1990, the Federal Pretreatment Regulations at 40 CFR 403 were amended. Those amendments established new requirements for implementation of pretreatment programs. By reissuing of this NPDES permit, the permittee is obligated to modify its pretreatment program to be consistent with current federal regulations. Those activities that the permittee must address include, but are not limited to, the following: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; (3) develop an enforcement response plan; (4) implement a slug control evaluation program; (5) track significant noncompliance for industrial users; and (6) establish a definition of, and track significant industrial users.

These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices. In addition to the requirements described above, the Draft Permit requires the permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes to the permittee's pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the Draft Permit as Attachment B, USEPA Region 1 Reassessment of Technically Based Industrial Discharge Limits and ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect.

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

USEPA Region 1 NPDES Permit Requirement for Industrial Pretreatment Annual Report of the permit describes the information should be included in the Industrial Pretreatment Program Annual Report.

VIII. Unauthorized Discharges

The permittee is not authorized to discharge wastewater from any pump station emergency overflow. Overflows must be reported in accordance with reporting requirements found in Section D.1.e.of Part II of the permit (24-hour reporting). If a discharge does occur, the permittee must notify EPA, MassDEP, and others, as appropriate (i.e. local Public Health Department, Division of Marine Fisheries), both orally and in writing as specified in the Draft Permit.

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

Essential fish habitat is only designated for species for which federal fisheries management plans exist. 16 U.S.C.§ 1855(b)(1)(A). The U.S. Department of Commerce approved EFH designations for New England on March 3, 1999.

Description of Proposed Action

The effluent from the facility is discharged into Plymouth Harbor through an outfall pipe 1,850 feet from the shore at a depth of 10.9 feet. Details of the facility and the pollutants discharged are discussed in Sections IV through VII of the fact sheet.

The species listed in Table 3, Species in Area of Outfall are believed to be the only managed species present during one or more life stages within the area which encompasses the discharge site. No "habitat area of particular concern." as defined under § 600.815(a)(9) of the Magnunson-Stevens Act, has been designated for this site.

Coordinates within the area of outfall

Cape Cod Bay waters within the square affecting the following: east of Plymouth, MA and Kingston, MA. from the Jones River past High Cliff to Plymouth Harbor break wall.

Boundary	North	East	South	West
Coordinate	42° 50.0' N	70° 40.0' W	41° 50.0' N	70° 50.0' W

Table 3. Species in Area of Outfall

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod *(Gadus morhua)*	X	X	X	X
haddock *(Melanogrammus aeglefinus)*			X	
pollock *(Pollachius virens)*		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			
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
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
monkfish *(Lophius americanus)*	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 dog (*Squalus acanthias*)	n/a	n/a		
bluefin tuna *(Thunnus thynnus)*			X	X

Analysis of Effects

There are a number of pollutants that may be associated with treated municipal wastewater that could potentially impact EFH. These are broadly divided into two categories: conventional and non-conventional pollutants. Conventional pollutants (including indicators of pollution) evaluated during permit development include biochemical oxygen demand (BOD_5), total suspended solids (TSS), pH, bacteria (fecal coliform bacteria and Enterococci), and dissolved oxygen (DO). Non-conventional pollutants include chlorine, metals (e.g., copper), and the combination of all pollutants known and unknown (i.e, whole effluent toxicity).

For conventional pollutants, this Draft Permit carries forward limits on BOD_5 and TSS, requiring 85 percent removal prior to discharge, based on a 30-day average. The permit also limits changes in pH to be no greater than 0.5 standard units from ambient conditions, consistent with state water quality requirements for Class SA waters. Bacteria limits are also included to protect designated uses of Class SA waters that reflect the recently revised state water quality standards issued by MassDEP and approved by EPA in 2007.

The discharge of non-conventional pollutants were monitored and evaluated to determine if there was reasonable potential for these pollutants to exceed state numeric or narrative criteria for Class SA waters. Effluent limits for total residual chlorine and total copper have been carried over from the current permit and the monitoring and reporting requirement for ammonia has also been carried forward in the Draft Permit. Reasonable potential analyses were calculated for lead, cadmium, nickel and zinc and it was determined that these pollutants would not be discharged at a level that would cause, have reasonable potential to cause, or contribute to an excursion above water quality standards.

A monthly average limit of 0.075 mg/l and a maximum daily limit of 0.130 mg/l of total residual chlorine have been carried forward from the current permit. Quarterly whole effluent toxicity tests using *menidia beryllina* and *mysid shrimp* must be conducted to track the potential toxicity from a combination of pollutants, or unknown pollutants.

The Draft Permit has nutrient monitoring and reporting requirements for the effluent and receiving water (monthly monitoring and reporting of nitrite, nitrate, Total Kjeldahl Nitrogen, and total nitrogen) as discussed earlier in the fact sheet.

The Draft Permit requirements and implementation of the Town's nutrient management plan will provide protection of existing and designated uses as required in the State Water Quality Standards.

This permit action does not constitute a new source of pollutants. It is the reissuance of an current NPDES

permit. In addition, the facility withdraws no water from the Atlantic Ocean, so there is no potential for mortality to EFH species life stages from impingement or entrainment.

Eel Grass Protection

As discussed earlier in this fact sheet, the water quality classification of Plymouth Harbor is SA, the most protective classification for saline waters. Plymouth Harbor has historically supported eelgrass habitat, a critically important habitat for many marine species, including EFH species. The water depth, sediment type, and exposure of the harbor are all consistent with being able to support eelgrass habitat. However, there was a major loss of eelgrass habitat in Plymouth Harbor between 1951 and 2001 (MassDEP South Shore Coastal Watershed - 2001 Water Quality Assessment Report, March 2006). From 2001- 2011 eelgrass coverage has been relatively stable with the highest level of coverage in 2006. Adverse effects on this important habitat as a result of the permit action could be considered an indirect, site-specific impact on EFH species.

The Plymouth Nutrient Management Plan designated two sampling locations, Station S7 and Station S10, in Plymouth Harbor to monitor nitrogen levels. For the period of June 2010 through September 2014, data from ten sampling events at each location averaged 0.46 mg/lof total nitrogen at Station S7 and 0.42 mg/l total nitrogen at Station S10. Total nitrogen reported from Station S10 in June 2012 was more than twice the next highest data point. If this outlier is not included in the data set then the total nitrogen values for Station S10 averaged 0.34 mg/l.

Since the MA SWQS do not contain a numeric nitrogen criteria, the narrative nutrient criteria must be interpreted in order to establish an appropriate threshold concentration. EPA considered a reference-based approach which identifies a target nitrogen concentration threshold based on a location within the estuary where water quality standards are not violated, in order to identify a nitrogen concentration consistent with unimpaired conditions. However, a comprehensive data set of nitrogen levels and impairment status in Plymouth Harbor that would allow for such an analysis does not exist. Consequently, EPA relied on relevant information from the scientific literature to establish a protective threshold for total nitrogen in Plymouth Harbor.

The MassDEP has identified total nitrogen levels believed to be protective of eelgrass habitats as less than 0.39 mg/l and ideally less than 0.3 mg/l (MADEP/SMAST, 2003). A Massachusetts study concluded that healthy eelgrass beds existed where average total nitrogen concentrations were less than 0.34 mg/l (Benson et. al., 2013).

Given that average total nitrogen concentrations near the outfall (excluding the outlier) are within the range of protective values identified by MassDEP and do not exceed the protective value identified in the Benson Report, this permit requires effluent monitoring and receiving water monitoring at S7 and S10 and treatment optimization requirements (see Nutrients section of this fact sheet for more details). However, the Draft Permit does not include a nitrogen limit during this permit cycle. If receiving water monitoring does not demonstrate that receiving water concentrations of nitrogen are stable or declining or if new information indicates that lower nitrogen levels are necessary for a full recovery of eelgrass habitat, a nitrogen permit limit as low as the limit of technology (currently 3.0 mg/l total nitrogen) may be required in a future permit action.

The agencies may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a TMDL is issued or other new information that may warrant the incorporation of numeric permit limits. Although not a permit requirement, it is strongly recommended that any facilities planning that might be conducted for this facility should consider alternatives for further enhancing nitrogen reduction.

Finding

It is EPA's judgment that the effluent from this treatment plant will not adversely impact the species of concern or their habitat. The permit is sufficiently stringent to assure that state water quality standards will be met for Class SA waters. The permit limitations in the Draft Permit are at least as stringent as those in the current permit and the permit includes additional effluent limits for enterococci and dissolved oxygen.

Based on the nature of the effluent (primarily municipal wastewater), the 1850 foot discharge into Plymouth Harbor to take better advantage of the tidal exchange of the receiving water, and permit limits designed to ensure the protection of aquatic life consistent with state water quality standards, the requirements of this NPDES permit are judged by EPA to sufficiently protect EFH. Therefore additional mitigation is not warranted. If adverse effects to EFH do occur either as a result of non-compliance, or from unanticipated effects from this activity, then consultation with NMFS will be reinitiated.

X. Endangered Species Act (ESA)

Section 7(a) of the Endangered Species Act of 1973, as amended, grants authority to and imposes requirements upon federal agencies regarding endangered or threatened species of fish, wildlife, and plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every federal agency, in consultation with and with the assistance of the Secretary of Interior or Commerce, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) typically administers Section 7 consultations for fresh water species, and the National Marine Fisheries Services (NMFS) administers Section 7 consultations for marine species and anadromous fish.

Action Area

To determine the action area for this federal permit, EPA has taken into consideration the design flow of the Plymouth WWTP effluent of 1.75 MGD, the discharge pipe configuration, which extends 1,850 feet from shore into Plymouth Harbor and the projected dilution rate of 10:1 (achieved 200 feet from the discharge point). Based on this information, the action area is confined to inner Plymouth Harbor, bounded by the Long Beach peninsula.

Protected Species

EPA has reviewed the federal endangered or threatened species of fish, wildlife, or plants to determine if any listed species might potentially be impacted by the re-issuance of this NPDES permit. Coastal areas of Massachusetts provide habitat for a number of federally protected marine species, including: mammals (whales: North Atlantic Right, Humpback, Fin, Sei, Sperm, Blue – all endangered) and reptiles (sea turtles: Kemp's Ridley, Leatherback, Green – all endangered; Loggerhead – threatened but proposed for listing as endangered).

Two anadromous fish species are also federally protected. The first is the shortnose sturgeon, which is listed as endangered range-wide. The Final Shortnose Sturgeon Recovery Plan recognizes 19 spawning populations occurring throughout the range of the species. These populations are in New Brunswick, Canada (1); Maine (2); Massachusetts (1); Connecticut (1); New York (l); New Jersey/Delaware (l); Maryland and Virginia (1); North Carolina (1); South Carolina (4); Georgia (4); and Florida (2). The second species is the Atlantic sturgeon. Five distinct population segments (DPSs) of Atlantic sturgeon are

listed under the Endangered Species Act. The Chesapeake Bay, New York Bight, Carolina, and South Atlantic populations of Atlantic sturgeon are listed as endangered, while the Gulf of Maine population is listed as threatened.

Finding

EPA does not consider the area influenced by the facility's discharge to be suitable habitat for the protected species listed for Massachusetts Bay. Based on the normal distribution of these species, it is extremely unlikely that there would be any NMFS listed species in the vicinity of the area influenced by the Plymouth WWTP outfall. EPA has made the determination that no protected species are present in the area influenced by the discharge. Therefore, EPA has made the assessment that consultation is not required for these protected species under section 7 of the ESA.

Consultation will take place: (a) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) if a new species is listed or critical habitat is designated that may be affected by the identified action.

XI. Coastal Zone Management (CZM) Consistency Review

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

The discharge from this treatment facility is within the boundaries defined by CZM. The permittee shall submit a letter to the Massachusetts CZM Program stating their intentions to abide by CZM water quality and habitat policies.

XII. State Certification Requirements

EPA may not issue a permit unless the Agency (MassDEP) 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 Massachusetts State Water Quality Standards or that this certification is deemed to be waived. The staff of the MassDEP has reviewed the Draft Permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State and expects that the permit will be certified.

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

All person, including applicants, who believe any condition of the permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to **Betsy Davis, U.S. EPA, 5 Post Office Square, Suite 100, Boston, Massachusetts 02114-2023**.

Any person, prior to such date, may submit a request in writing for a public hearing to consider the permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever, the Regional

Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 CFR § 124.74, 48 Fed. Reg. 14279-14780 (April 1, 1983).

XIV. EPA and MassDEP Contacts

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:

Betsy Davis
US Environmental Protection Agency
5 Post Office Square - Suite 100
Mailcode: OEP06-1
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1576

or

Jennifer Wood
Massachusetts Department of Environmental Protection
Wastewater Management Program
1 Winter Street, 5th Floor
Boston, MA 02108
Telephone: (617) 654-6536

Date: 10/07/2015

Ken Moraff, Director
Office of Ecosystems Protection
U.S. Environmental Protection Agency

REFERENCES

Massachusetts Department of Environmental Protection, University of Massachusetts-Dartmouth, School for Marine Science and Technology. 2003. Massachusetts Estuaries Project: Site-Specific Nitrogen Thresholds for Southeastern Massachusetts Embayments: Critical Indicators Interim Report. Massachusetts Department of Environmental Protection. July 21, 2003. Revised September 16, 2003 and December 22, 2003.

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Provincetown Center for Coastal Studies. 2012. How is Our Bay? Five Years of Environmental Monitoring of Cape Cod Bay. October 2012.

Massachusetts Office of Coastal Zone Management. 2013. Report on the 2010 Rapid Assessment Survey of Marine Species at New England Floating Docks and Rocky Shores. March 2013.

Attachment A	Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data							
MONITORING PERIOD END DATE	Flow (MGD)	BOD, 05 day, 20 C (mg/l)		BOD, 05 day, 20 C (lb/d)	BOD, 5-day, percent removal	Dissolved Oxygen (mg/l)	pH (s.u.)	pH (s.u.)
	Annual Average	Daily Maximum	Monthly Average	Monthly Average	Monthly Minimum	Daily Minimum	Minimum	Maximum
1/31/2010	1.6356	10.7	6.23	94	94.6	2.8	6.4	6.9
2/28/2010	1.6356	14.7	8.67	121	94.7	1.1	6.5	7.4
3/31/2010	1.6425	24.7	11.81	242	92.5	1.6	6.6	7.3
4/30/2010	1.6424	15.5	9.44	153	94.7	3.1	6.5	6.9
5/31/2010	1.641	18.6	11.	158	95.3	2.4	6.6	7.1
6/30/2010	1.6274	12.	7.35	98	97.1	3.7	6.6	7.2
7/31/2010	1.6117	23.1	8.37	105	95.7	3.8	6.6	7.4
8/31/2010	1.5999	28.9	11.73	143	94.1	3.6	6.6	7.1
9/30/2010	1.5911	12.1	8.74	104	95.8	3.8	6.	6.8
10/31/2010	1.5777	15.4	8.77	106	95.7	3.1	6.5	6.7
11/30/2010	1.5704	19.	9.45	112	94.	2.5	6.6	7.
12/31/2010	1.5553	6.25	4.52	54	97.4	3.3	6.4	6.7
1/31/2011	1.54	6.38	4.40	53	97.70	3.1	6.4	6.7
2/28/2011	1.53	8.72	5.20	65	97.40	2.9	6.40	6.60
3/31/2011	1.53	7.62	5.51	73	97.40	3.2	6.40	6.60
4/30/2011	1.52	10.50	6.84	97	96.60	6.6	6.40	6.60
5/31/2011	1.53	10.70	8.55	115	95.50	6.9	6.40	6.60
6/30/2011	1.53	8.74	3.67	70	97.20	6.6	6.50	6.70
7/31/2011	1.55	21.10	3.76	98	96.20	5.7	6.40	6.80
8/31/2011	1.55	18.00	4.00	117	92.40	3.8	6.10	6.60
9/30/2011	1.56	9.00	4.74	89	96.50	3.8	6.30	6.70
10/31/2011	1.56	7.23	3.86	74	97.10	3.5	6.00	6.70
11/30/2011	1.57	10.60	4.10	90	96.30	3.2	6.30	6.70
12/31/2011	1.57	26.30	14.00	175	92.70	3.2	6.40	6.70
1/31/2012	1.56	22.80	13.10	208	91.10	2.5	6.40	6.70
2/29/2012	1.55	40.40	13.00	236	90.30	2.2	6.50	6.90
3/31/2012	1.53	16.90	5.15	131	95.60	4.1	6.50	6.90
4/30/2012	1.52	42.70	3.00	187	91.30	3.9	6.40	6.80
5/31/2012	1.53	17.20	4.48	113	96.00	4.4	6.40	6.80
6/30/2012	1.54	9.53	2.00	79	97.10	5.1	6.50	6.90
7/31/2012	1.54	20.20	2.00	71	97.50	6.4	6.40	7.00
8/31/2012	1.56	56.40	11.76	146	93.50	7.6	6.60	7.00
9/30/2012	1.57	45.10	2.00	118	94.10	5.8	6.50	7.10
10/31/2012	1.57	95.00	2.00	156	97.10	4.8	6.80	7.20
11/30/2012	1.59	30.10	3.23	91	96.30	5.5	6.70	7.10

12/31/2012	1.65	9.30	2.10	75	98.20	5.8	6.70	7.00
1/31/2013	1.6345	24.	2.82	117	95.6	6.8	6.5	7.
2/28/2013	1.6598	9.3	3.	75	97.3	6.2	6.7	7.
3/31/2013	1.6998	17.	3.91	98	97.	4.4	6.7	6.9
4/30/2013	1.722	17.	4.84	104	97.3	6.1	6.7	7.
5/31/2013	1.7301	10.	6.	88	96.3	5.0	6.8	7.
6/30/2013	1.7492	26.	2.3	126	96.4	3.0	6.6	7.
7/31/2013	1.7488	19.	6.	109	96.6	6.5	6.8	7.6
8/31/2013	1.75	10.	2.	68	98.	7.6	6.9	7.2
9/30/2013	1.75	18.	8.4	102	96.4	6.7	6.9	7.1
10/31/2013	1.74	15.	3.	92	95.7	6.0	6.8	7.2
11/30/2013	1.72	23.	4.	93	96.1	5.8	6.8	7.2
12/31/2013	**1.6936**	16.00	6.67	81	93.50	5.1	6.80	7.00
1/31/2014	1.6896	20.	6.17	78	95.8	5.7	6.7	7.1
2/28/2014	1.67	21.	7.73	99	95.9	5.1	6.6	7.
3/31/2014	1.6485	15.	6.75	85	95.5	3.7	6.6	6.9
4/30/2014	1.6366	20.	8.91	125	93.3	3.0	6.6	7.3
5/31/2014	1.618	21.	10.95	145	92.1	3.2	6.7	7.
6/30/2014	1.593	21.	11.49	149	93.2	4.3	6.7	7.1
7/31/3014	1.5883	27.	3.	168	92.3	2.4	6.8	7.1
8/31/2014	1.5841	23.	7.8	99	96.5	3.3	6.7	6.9
9/30/2014	1.5843	14.	7.9	97	96.6	3.4	6.7	7.1
10/31/2014	1.6574	14.	4.6	55	97.8	3.1	6.8	7.
11/30/2014	1.615	17.	4.2	54	97.7	4.6	6.7	7.1
12/30/2014	1.627	17.	4.1	53	98.3	3.2	6.7	7.2
1/31/2015	1.623	5.7	1.3	15	99.4	6.7	6.4	7.
2/28/2015	1.7	8.1	2.6	33	98.9	8.2	6.5	6.9
3/31/2015	1.617	8.7	2.7	36	99.	7.0	6.5	6.9
2004 Permit	**1.75**	**Report**	**30**	**438**	**85.00**	**6.0**	**6.00**	**8.50**
Minimum	1.52	5.70	1.30	15.00	90.30	1.1	6.00	6.60
Maximum	1.75	95.00	14.00	242.00	99.40	8.2	6.90	7.60
Average	1.61	19.18	6.06	105.73	95.73	4.5	6.56	6.96
Standard Deviation	0.07	13.73	3.33	44.61	2.04	1.7	0.19	0.22
# Measurements	63	63	63	63	63	63	63	63
# Exceeds Limits	0	not required	0	0	0	48	19	0

Attachment A	Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data						
MONITORING PERIOD END DATE	Fecal Coliform, 14 cfu/100 mL	Fecal Coliform, 43/100 mL	Total Residual Chlorine (ug/l)	Total Suspended Solids (TSS) (mg/l)	Total Suspended Solids (TSS) (mg/l)	Total Suspended Solids (TSS) (lb/d)	TSS percent removal
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Monthly Average	Monthly Minimum
1/31/2010	6.5	22.	0	15.5	10.09	152.	92.8
2/28/2010	3.4	12.	0	17.	10.81	151.	92.7
3/31/2010	3.2	12.	0	20.5	10.86	218.	93.7
4/30/2010	3.	18.	0	13.	8.29	133.	91.1
5/31/2010	5.4	36.	0	20.5	12.5	178.	94.1
6/30/2010	6.2	42.	0	18.5	10.72	144.	96.1
7/31/2010	8.3	30.	0	25.	15.83	202.	92.2
8/31/2010	6.1	40.	0	58.5	20.18	249.	91.2
9/30/2010	3.6	19.	0	28.	18.29	217.	90.5
10/31/2010	5.4	89.	0	29.3	14.47	177.	92.6
11/30/2010	8.1	22.	0	25.5	15.72	188.	90.4
12/31/2010	4.8	38.	0	12.3	8.34	101.	95.
1/31/2011	4.10	12.00	0	9.50	7.31	88.00	95.50
2/28/2011	2.80	12.00	0	11.00	7.43	93.00	95.80
3/31/2011	2.50	16.00	0	9.50	6.94	92.00	96.30
4/30/2011	10.70	68.00	0	22.00	10.68	150.00	94.50
5/31/2011	3.30	8.00	0	25.00	15.72	212.00	91.00
6/30/2011	9.00	56.00	0	17.50	9.68	127.00	94.80
7/31/2011	3.30	12.00	0	12.70	10.06	134.00	94.50
8/31/2011	5.30	40.00	0	18.50	11.09	148.00	92.80
9/30/2011	3.80	11.00	0	16.00	11.61	150.00	93.30
10/31/2011	2.80	15.00	0	15.00	9.77	129.00	93.80
11/30/2011	7.70	41.00	0	30.00	13.80	180.00	91.80
12/31/2011	5.10	24.00	0	28.00	17.64	227.00	89.10
1/31/2012	13.10	140.00	0	28.00	17.50	219.00	89.30
2/29/2012	8.30	24.00	0	40.50	22.63	275.00	86.60
3/31/2012	24.10	140.00	0	24.30	12.78	158.00	94.10
4/30/2012	63.30	320.00	1	93.00	31.63	388.00	81.70
5/31/2012	41.50	9999.00	0	53.00	20.46	273.00	89.40
6/30/2012	5.20	39.00	2	18.70	11.56	161.00	94.80
7/31/2012	4.60	24.00	550	75.00	21.83	287.00	88.30
8/31/2012	6.20	34.00	0	91.30	22.02	275.00	88.40
9/30/2012	8.30	65.00	0	59.00	16.46	203.00	91.20
10/31/2012	14.90	640.00	750	207.00	18.90	242.00	96.10
11/30/2012	6.80	48.00	0	38.00	9.97	124.00	94.40

12/31/2012	3.16	63.00	80	7.30	5.44	73.00	99.20
1/31/2013	3.1	14.	0	22.	14.69	189.	90.9
2/28/2013	1.6	10.	0	20.5	9.88	140.	94.1
3/31/2013	1.4	3.	0	28.	8.9	138.	96.
4/30/2013	3.6	9999.	0	16.	6.35	85.	97.5
5/31/2013	4.2	10.	0	15.	8.	106.	96.2
6/30/2013	2.9	10.	0	10.5	7.46	116.	95.7
7/31/2013	3.7	21.	0	13.	8.71	122.	94.9
8/31/2013	5.8	28.	0	12.	6.88	91.	96.7
9/30/2013	1.9	7.	0	10.	6.97	89.	96.
10/31/2013	1.4	6.	0	11.	5.79	69.	94.3
11/30/2013	2.3	47.	0	6.	4.69	54.	95.4
12/31/2013	1.20	6.00	0	9.70	5.76	69	94.40
1/31/2014	1.2	10.	0	14.	6.22	80.	93.5
2/28/2014	1.	1.	0	16.	7.57	95.	91.9
3/31/2014	1.	1.	0	11.	5.83	74.	94.7
4/30/2014	1.2	2.	23	9.7	6.21	87.	91.2
5/31/2014	1.1	2.	0	14.	9.63	127.	88.3
6/30/2014	1.2	4.	0	14.	10.98	142.	86.7
7/31/3014	1.5	5.	0	22.	12.06	159.	85.5
8/31/2014	1.	10.	0	35.	17.2	219.	82.8
9/30/2014	1.	3.	0	15.	10.2	125.	92.2
10/31/2014	1.	18.	2	19.	11.8	145.	92.
11/30/2014	1.	5.	8	22.	10.3	129.	92.1
12/30/2014	1.	7.	9	16.	9.6	126.	94.7
1/31/2015	1.	10.	5	10.1	5.9	77.	96.7
2/28/2015	1.	4.	1	17.	6.	75.	95.9
3/31/2015	3.	8.	0/01	13.	6.	77.	95.9
2004 Permit	**14.00**	**43.00**	**75**	**Report**	**30.00**	**438.00**	**85.00**
Minimum	1.00	1.00	0	6.00	4.69	54.00	81.70
Maximum	63.30	9999.00	750	207.00	31.63	388.00	99.20
Average	5.95	356.86	23	26.27	11.56	151.16	92.78
Standard Deviation	9.55	1762.23	117	29.37	5.35	66.56	3.45
# Measurements	63	63	62	63	63	63	63
# Exceeds Limits	4	13	3	not required	1	0	2

Attachment A	Plymouth Wastewater Treatment Plant - Discharge Monitoring Report Data					
MONITORING PERIOD END DATE	Copper, Total (ug/l)	Copper, Total (ug/l)	Nitrogen Ammonia, Total, mg/l	Nitrogen Kjeldahl, Total, mg/l	Nitrogen, Nitrate, mg/l	Nitrogen, Nitrite, mg/l
	Monthly Average	Maximum Daily	Monthly Average	Monthly Average	Monthly Average	Monthly Average
1/31/2010	12.0	12.0	reporting not required	3.4	2.17	.03
2/28/2010	10.0	10.0	reporting not required	6.6	1.42	.19
3/31/2010	0.0	0.0	reporting not required	9.4	1.43	.46
4/30/2010	5.0	5.0	reporting not required	4.4	1.74	.54
5/31/2010	6.0	6.0	reporting not required	3.6	1.24	.21
6/30/2010	6.0	6.0	.04	2.5	4.53	1.99
7/31/2010	9.0	9.0	4.12	2.6	1.49	.03
8/31/2010	9.0	9.0	4.34	2.7	1.63	.05
9/30/2010	8.0	8.0	4.43	1.9	2.5	.03
10/31/2010	10.0	10.0		3.1	2.53	.04
11/30/2010	0.0	0.0	reporting not required	3.	5.28	.03
12/31/2010	10.0	10.0	reporting not required	1.7	5.06	0.00
1/31/2011	8.0	8.0	reporting not required	1.70	3.93	0.01
2/28/2011	10.0	10.0	reporting not required	1.80	3.50	0.03
3/31/2011			reporting not required	2.90	2.74	0.15
4/30/2011	7.0	7.0	reporting not required	2.40	3.23	0.02
5/31/2011	10.0	10.0	reporting not required	2.80	3.35	0.05
6/30/2011	8.0	8.0	6.19	2.00	4.14	0.05
7/31/2011	6.0	6.0		2.50	4.08	0.06
8/31/2011	8.0	8.0	7.19	2.90	4.24	0.05
9/30/2011	12.0	12.0	6.34	1.50	4.81	0.00
10/31/2011	8.0	8.0	7.35	1.60	5.75	0.00
11/30/2011	6.0	6.0	reporting not required	2.80	4.60	0.06
12/31/2011	5.0	5.0	reporting not required	2.50	4.06	0.00
1/31/2012	11.0	11.0	reporting not required	3.20	4.68	0.02
2/29/2012	8.0	8.0	reporting not required	3.60	3.79	0.19
3/31/2012	6.0	6.0	reporting not required	2.70	2.58	0.40
4/30/2012	9.0	9.0	reporting not required	3.00	2.56	0.22
5/31/2012	10.0	10.0	reporting not required	2.30	2.74	0.24
6/30/2012	4.0	4.0	4.68	2.00	2.60	0.62
7/31/2012	10.0	10.0	4.55	2.10	2.42	0.01
8/31/2012	0.0	0.0	4.88	2.30	2.63	0.00
9/30/2012	0.0	0.0	5.60	1.60	3.88	0.10
10/31/2012	0.0	0.0	4.00	2.60	1.30	0.00
11/30/2012	0.0	0.0	reporting not required	1.50	1.98	0.04

12/31/2012	0.0	0.0	reporting not required	1.30	2.38	0.41
1/31/2013	0.0	0.0	reporting not required	3.3	1.93	.27
2/28/2013	0.0	0.0	reporting not required	2.9	1.7	.54
3/31/2013	0.0	0.0	reporting not required	3.3	1.98	1.17
4/30/2013	0.0	0.0	reporting not required	1.7	2.8	1.28
5/31/2013	0.0	0.0	reporting not required	2.1	1.95	.72
6/30/2013	0.0	0.0	4.33	1.6	2.53	.2
7/31/2013	0.0	0.0	4.2	1.9	2.25	.02
8/31/2013	0.0	0.0	4.38	1.4	1.4	.
9/30/2013	0.0	0.0	4.68	2.3	3.2	.
10/31/2013	10.0	10.0	5.79	1.7	3.98	.11
11/30/2013	10.0	10.0	reporting not required	1.6	3.65	.15
12/31/2013	0.0	0.0	reporting not required	1.60	2.34	0.27
1/31/2014	10.0	10.0	reporting not required	1.7	2.05	.29
2/28/2014	0.0	0.0	reporting not required	2.1	1.4	.28
3/31/2014	0.0	0.0	reporting not required	2.9	1.33	.54
4/30/2014	0.0	0.0	reporting not required	2.8	.91	.45
5/31/2014	0.0	0.0	reporting not required	2.9	.42	.32
6/30/2014	0.0	0.0	3.2	2.4	.54	.08
7/31/3014	0.0	0.0	3.61	2.2	1.34	.08
8/31/2014	0.0	0.0	2.98	2.28	.44	.26
9/30/2014	0.0	0.0	3.4	1.93	1.27	.21
10/31/2014	0.0	0.0	4.47	2.	2.26	.21
11/30/2014	5.5	5.5	reporting not required	1.95	2.5	.14
12/30/2014	5.2	5.2	reporting not required	1.98	3.03	.23
1/31/2015	7.3	7.3	reporting not required	1.68	3.88	.35
2/28/2015	5.9	5.9	reporting not required	1.53	2.23	.38
3/31/2015	6.2	6.2	reporting not required	1.9	1.8	.35
2004 Permit	**37.0**	**57.0**	**Report**	**Report**	**Report**	**Report**
Minimum	0.0	0.0	0.04	1.30	0.42	0.00
Maximum	12.0	12.0	7.35	9.40	5.75	1.99
Average	4.7	4.7	4.55	2.51	2.67	0.24
Standard Deviation	4.3	4.3	1.52	1.22	1.26	0.34
# Measurements	62	62	23	63	63	63
# Exceeds Limits	0	0	not required	not rerquired	not required	not required

Attachment B. Effluent Nitrogen Data

MONITORING PERIOD END DATE	Nitrogen Kjeldahl, Total, mg/l	Nitrogen, Nitrate, mg/l	Nitrogen, Nitrite, mg/l	Total Nitrogen
	Monthly Average	Monthly Average	Monthly Average	
1/31/2010	3.4	2.17	.03	5.6
2/28/2010	6.6	1.42	.19	8.21
3/31/2010	9.4	1.43	.46	11.29
4/30/2010	4.4	1.74	.54	6.68
5/31/2010	3.6	1.24	.21	5.05
6/30/2010	2.5	4.53	1.99	9.02
7/31/2010	2.6	1.49	.03	4.12
8/31/2010	2.7	1.63	.05	4.38
9/30/2010	1.9	2.5	.03	4.43
10/31/2010	3.1	2.53	.04	5.67
11/30/2010	3.	5.28	.03	8.31
12/31/2010	1.7	5.06	0.00	6.76
1/31/2011	1.70	3.93	0.01	5.64
2/28/2011	1.80	3.50	0.03	5.33
3/31/2011	2.90	2.74	0.15	5.79
4/30/2011	2.40	3.23	0.02	5.65
5/31/2011	2.80	3.35	0.05	6.2
6/30/2011	2.00	4.14	0.05	6.19
7/31/2011	2.50	4.08	0.06	6.64
8/31/2011	2.90	4.24	0.05	7.19
9/30/2011	1.50	4.81	0.00	6.31
10/31/2011	1.60	5.75	0.00	7.35
11/30/2011	2.80	4.60	0.06	7.46
12/31/2011	2.50	4.06	0.00	6.56
1/31/2012	3.20	4.68	0.02	7.9
2/29/2012	3.60	3.79	0.19	7.58
3/31/2012	2.70	2.58	0.40	5.68
4/30/2012	3.00	2.56	0.22	5.78
5/31/2012	2.30	2.74	0.24	5.28
6/30/2012	2.00	2.60	0.62	5.22
7/31/2012	2.10	2.42	0.01	4.53
8/31/2012	2.30	2.63	0.00	4.93
9/30/2012	1.60	3.88	0.10	5.58
10/31/2012	2.60	1.30	0.00	3.9
11/30/2012	1.50	1.98	0.04	3.52
12/31/2012	1.30	2.38	0.41	4.09
1/31/2013	3.3	1.93	.27	5.5
2/28/2013	2.9	1.7	.54	5.14
3/31/2013	3.3	1.98	1.17	6.45
4/30/2013	1.7	2.8	1.28	5.78
5/31/2013	2.1	1.95	.72	4.77
6/30/2013	1.6	2.53	.2	4.33

7/31/2013	1.9	2.25	.02	4.17
8/31/2013	1.4	1.4	.	2.8
9/30/2013	2.3	3.2	.	5.5
10/31/2013	1.7	3.98	.11	5.79
11/30/2013	1.6	3.65	.15	5.4
12/31/2013	1.60	2.34	0.27	4.21
1/31/2014	1.7	2.05	.29	4.04
2/28/2014	2.1	1.4	.28	3.78
3/31/2014	2.9	1.33	.54	4.77
4/30/2014	2.8	.91	.45	4.16
5/31/2014	2.9	.42	.32	3.64
6/30/2014	2.4	.54	.08	3.02
7/31/3014	2.2	1.34	.08	3.62
8/31/2014	2.28	.44	.26	2.98
9/30/2014	1.93	1.27	.21	3.41
10/31/2014	2.	2.26	.21	4.47
11/30/2014	1.95	2.5	.14	4.59
12/30/2014	1.98	3.03	.23	5.24
1/31/2015	1.68	3.88	.35	5.91
2/28/2015	1.53	2.23	.38	4.14
3/31/2015	1.9	1.8	.35	4.05
2004 Permit	**Report**	**Report**	**Report**	
Minimum	1.30	0.42	0.00	2.80
Maximum	9.40	5.75	1.99	11.29
Average	2.51	2.67	0.24	5.42

Attachment C. Plymouth Harbor Nitrogen Data			
Station ID	Date	Time	Total Nitrogen (mg/L)
S-7	22-Jun-10	9:00:00 AM	0.887
S-7	26-Aug-10	1:10:00 PM	0.497
S-7	16-May-11	11:00:00 AM	0.315
S-7	13-Jun-11	9:45:00 AM	0.295
S-7	19-Jun-12	12:15:00 PM	0.535
S-7	29-Aug-12	10:20:00 AM	0.205
S-7	18-Jun-13	10:25:00 AM	0.855
S-7	20-Aug-13	11:25:00 AM	0.445
S-7	09-Jun-14	9:15:00 AM	0.242
S-7	08-Sep-14	11:25:00 AM	0.3
AVG			0.458
S-10	22-Jun-10	9:15:00 AM	1.267
S-10	26-Aug-10	1:00:00 PM	0.567
S-10	16-May-11	10:45:00 AM	0.285
S-10	13-Jun-11	9:30:00 AM	0.215
S-10	19-Jun-12	12:30:00 PM	0.405
S-10	29-Aug-12	10:30:00 AM	0.125
S-10	18-Jun-13	10:15:00 AM	0.585
S-10	20-Aug-13	11:10:00 AM	0.345
S-10	09-Jun-14	9:30:00 AM	0.377
S-10	08-Sep-14	11:35:00 AM	0.32
Avg			0.449
Avg w/o June 22, 2010 data			0.358

Attachment D.	Plymouth Wastewater Treatment Plant - Whole Effluent Toxicity Test Results Data			
	7 day chronic test	48 hour acute test	48 hour acute test	1 hour fertilization test
	Menidia beryllina	Menidia beryllina	Mysidopsis bahia	Arbacia puntulata
1/31/2010	10%	100%	100%	100%
4/30/2010	10%	100%	100%	10%
7/31/2010	50%	100%	100%	100%
10/31/2010	10%	100%	100%	100%
1/31/2011	100%	100%	100%	100%
4/30/2011	10%	100%	100%	100%
7/31/2011	100%	100%	100%	100%
10/31/2011	10%	100%	100%	100%
1/31/2012	100%	100%	100%	100%
4/30/2012	100%	100%	100%	100%
7/31/2012	100%	100%	100%	100%
10/31/2012	100%	100%	100%	25%
1/31/2013	100%	100%	100%	100%
4/30/2013	100%	100%	100%	100%
7/31/2013	100%	100%	100%	100%
10/31/2013	100%	100%	100%	100%
1/31/2014	100%	100%	100%	100%
4/30/2014	100%	100%	100%	100%
7/31/2014	100%	100%	100%	100%
10/31/2014	100%	100%	100%	100%
1/31/2015	100%	100%	100%	25%
4/30/2015	100%	100%	100%	10%

Attachment E. Effluent Metals Data from Whole Effluent Toxicity Tests				
MONITORING PERIOD END DATE	Aluminum, mg/l	Cadmium, mg/l	Copper, mg/l	Lead, mg/l
January 2010	<0.02	<0.0005	0.013	0.001
April 2010	0.076	<0.0005	0.006	0.0007
July 2010	0.044	<0.0005	0.006	0.0007
October 2010	0.029	<0.0005	0.004	0.0006
January 2011	0.05	<0.0005	0.005	0.0008
April 2011	0.034	<0.0005	0.005	0.0007
July 2011	0.059	<0.0005	0.004	0.0007
October 2011	0.036	<0.0005	0.006	<0.0005
January 2012	0.051	<0.0005	0.008	0.0008
April 2012	0.066	<0.0005	0.011	0.001
July 2012	0.035	<0.0005	0.006	0.0006
October 2012	0.03	<0.0005	0.006	<0.0005
April 2013	0.044	<0.0005	0.012	0.0005
July 2013	0.045	<0.0005	0.006	0.0009
October 2013	0.025	<0.0005	0.003	<0.0005
January 2014	0.024	<0.0005	0.006	<0.0005
April 2014	0.07	<0.0005	0.003	0.0005
October 2014	0.04	<0.0005	0.003	<0.0005
January 2015	0.029	<0.0005	0.005	<0.0005
April 2015	0.039	<0.0005	0.005	0.0008
Reporting Level	**0.020**	**0.0005**	**0.002**	**0.0005**
Minimum	0.02	0.00	0.003	0.0005
Maximum	0.076	0.00	0.013	0.0010

Scale 1 : 32,713

0 500 Meters

0 1,000 2,000 Feet

Regulated Facilities: EPA

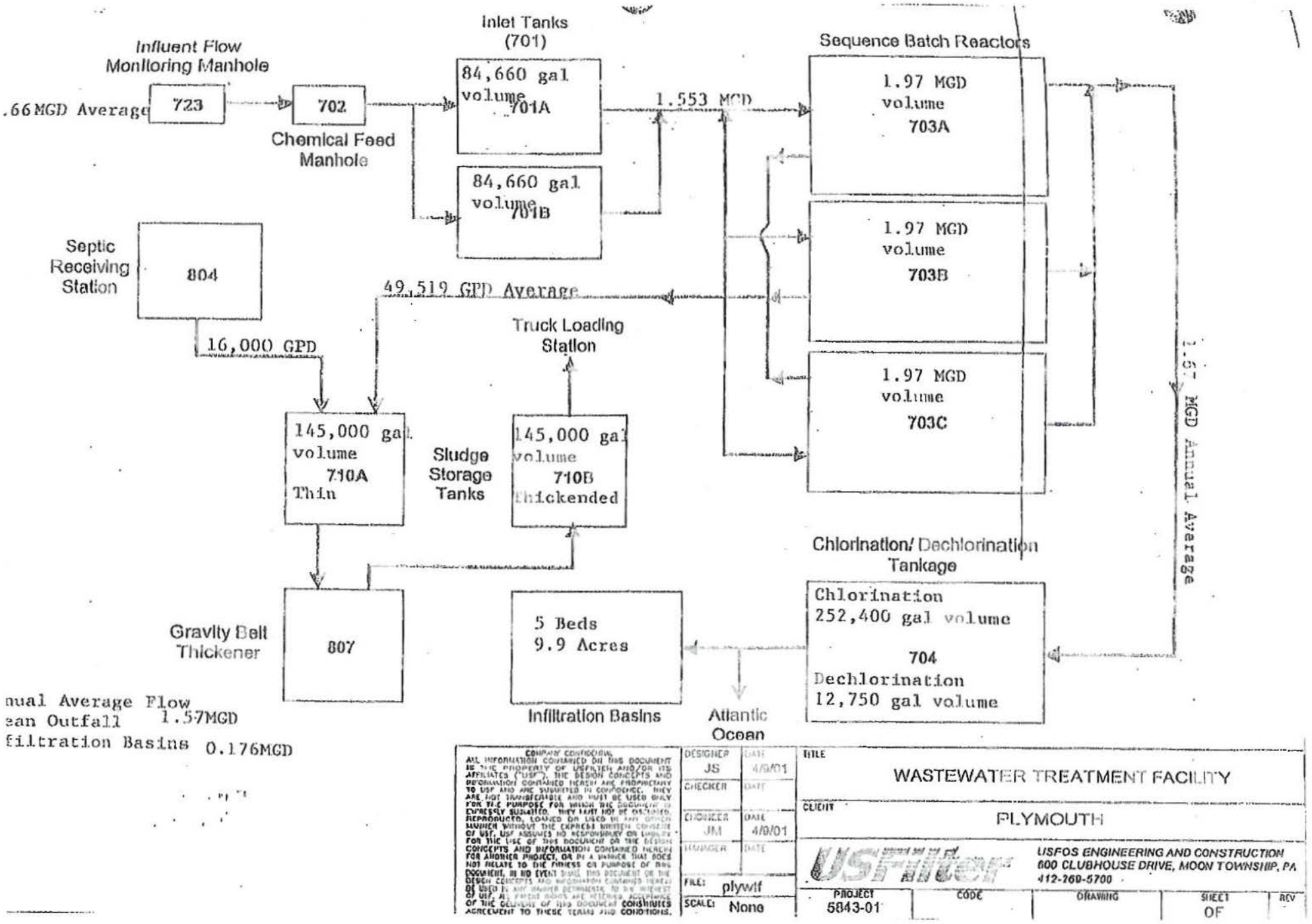
Figure 1
Plymouth WWTP
MA0100587
Site Locus Map

Plymouth, Massachusetts

EPA

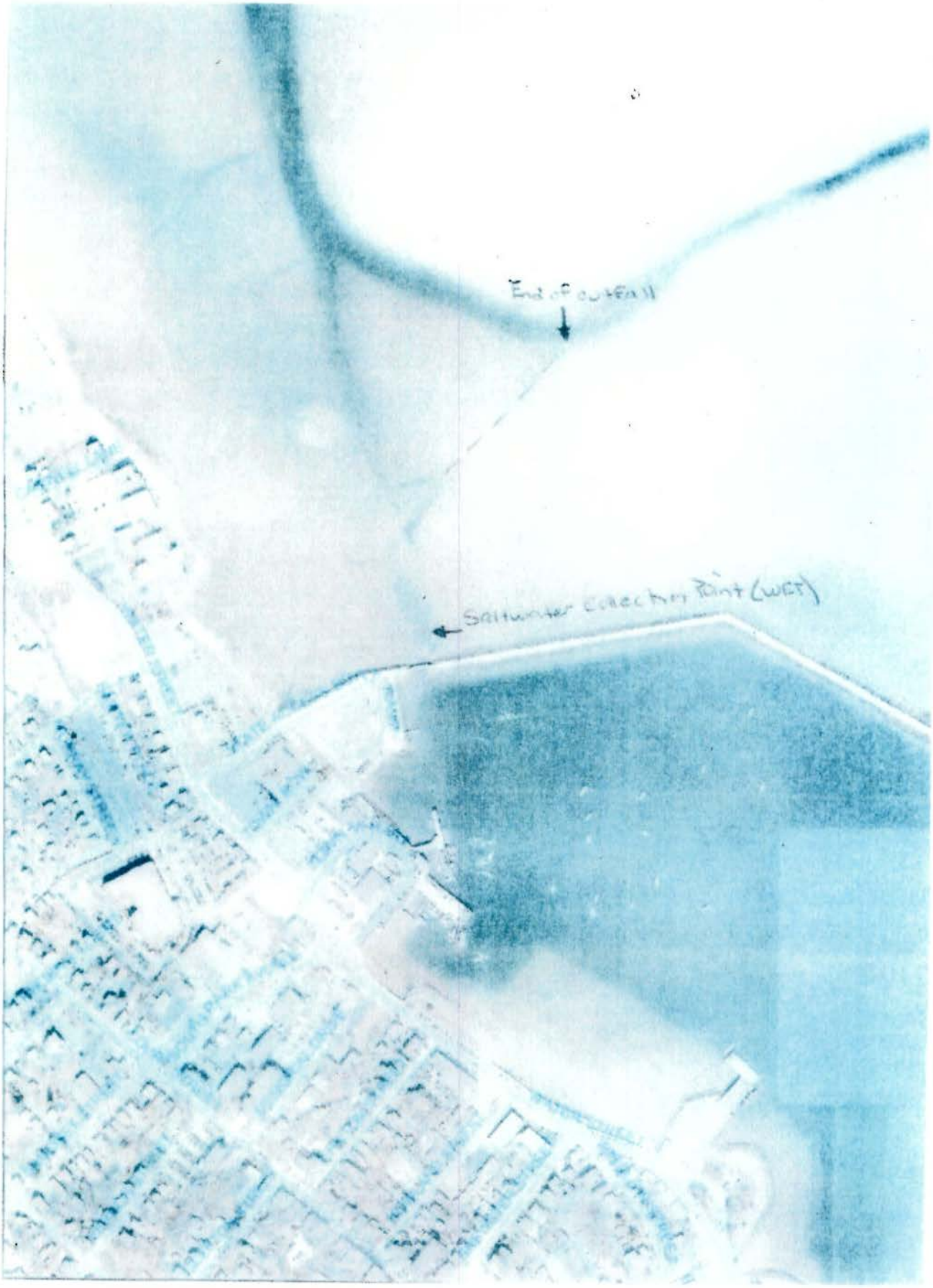
9/15/2015

Figure 2. Plymouth WWTP - Aerial View



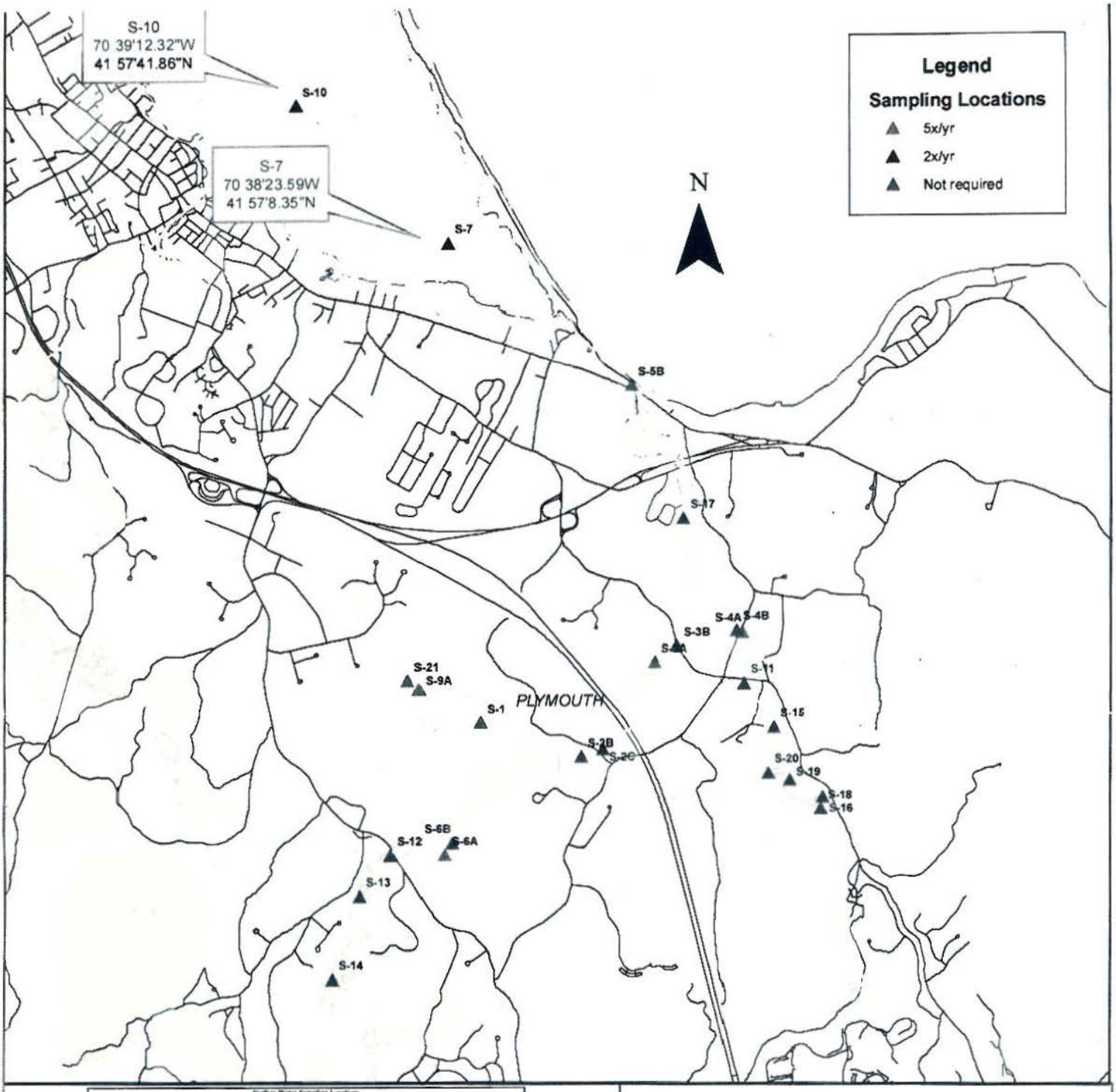
Source: Town Of Plymouth's NPDES Permit Application

Figure 3. Plymouth WWTP Flow Process Diagram



Source: Town of Plymouth, DPW

Figure 4. Plymouth WWTP Outfall Location



Surface Water Sampling Locations
Table 1

Location ID	Description	Required by NMP	Schedule
S-1	Russell Mill Pond Rd - prior to hatchery take off on dirt road - from right at fork and follow to water NOTE: ACCESS CLOSED AS OF NOVEMBER 2009	☑	5x/yr
S-2B	24 Russell Mill Pond Rd - John Property - From end of dock	☑	5x/yr
S-3A	Hayden Pond upstream of fish ladder	☑	5x/yr
S-4A	Howland Pond at Clifford Rd Bridge - u/s of dam	☑	5x/yr
S-5B	Downstream of Warren Avenue Bridge	☑	5x/yr
S-6A	The Nature Conservancy – at Eastbridge (prior to dam removal sample taken in Pond upstream of dam)	☑	5x/yr
S-7	In Harbor near Powers Point	☑	2x/yr
S-10	In Harbor near jetty	☑	2x/yr
S-17	End of dock at 16 Eel River Circle	Not required	
S-4B	Downstream of Clifford Rd Bridge	Not required	
S-11	Upstream of Howland Pond - At outlet upstream of bridge	Not required	
S-15	At outlet of Forge Pond	Not required	
S-16	Inlet of Forge Pond off Old Sandwich Road near bog	Not required	
S-18	Outlet from lower bog off Old Sandwich Road	Not required	
S-19	Outlet from upper bog off Old Sandwich Road	Not required	
S-20	Pond south of Forge Pond	Not required	
S-9B	Downstream of Hayden Pond - North Downstream of bridge off Sandwich Rd - Across from 129 Sandwich Rd	Not required	
S-2A	Russell Mill Pond - DEEP Tan drum	Not required	
S-2C	Off Russell Mill Pond Rd - Downstream of dam	Not required	
S-9A	Clifford fish hatchery - upstream of hatchery drain pond/brook in bog - NOTE: ACCESS DENIED AS OF NOVEMBER 2009	Not required	
S-6B	The Nature Conservancy – downstream of Eastbridge, between Eastbridge and outlet to Russell Mill Pond - Note: Data collected at this location in 2008	Not required	
S-12	Upstream of Long Pond Rd culvert (prior to 2010 when at culvert outlet)	Not required	
S-13	Upstream of Bog 2 (as of 2010) outlet to wetland south of Long Pond Rd	Not required	
S-14	At headwaters – near inlet to Bog 6 (as of 2010) outlet to wetland	Not required	

Town of Plymouth DPW
Environmental Management Division

Surface Water Sampling Sites

1 inch = 3,500 feet

Figure 5. Plymouth Harbor Sampling Sites

Source: Town of Plymouth, Department of Public Works

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMONWEALTH OF MASSACHUSETTS
l WINTER STREET
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02203

JOINT PUBLIC NOTICE OF A DRAFT NATJONAL 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 (THE "ACT"), AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE ACT.

DATE OF NOTICE: October 14, 2015 – November 12, 2015

PERMIT NUMBER: MA0100587

PUBLIC NOTICE NUMBER: MA-001-16

NAME AND MAILING ADDRESS OF APPLICANT:

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Melissa Arrighi, Town Manager
Town of Plymouth
11 Lincoln Street
Plymouth, Massachusetts 02360

RECEIVING WATER: Plymouth Harbor

RECEIVING WATER CLASSIFICATION: Class SA

PREPARATJON OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency, (EPA) and the Massachusetts Department of Environmental Protection (MADEP) have cooperated in the development of a permit for the above identified facility. The effluent limits and permit conditions imposed have been drafted to assure that State Water Quality Standards and provisions of the Clean Water Act will be met. The sludge is transported offsite for incineration. 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.

TNFORMATION ABOUT THE DRAFT PERMIT:

A fact sheet or a statement of basis (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) may be obtained at no cost by writing or calling EPA's contact person named below:

Betsy Davis
US EPA
5 Post Office Square
Suite 100
Boston, MA 02109-3912
Telephone: (617) 9L8-1576

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 November 12, 2015, to the U.S. EPA, 5 Post Office Square, Suite I 00, Boston, Massachusetts 02109-23912. 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.

F£NAL PERMIT DECISION AND APPEALS:

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. Within 30 days following the notice of the final permit decision any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 C.F.R. 124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

DAVID FERRIS, DIRECTOR
MASSACHUSETTS WASTEWATER MANAGEMENT PROGRAM
MASSACHUSEITS DEPARTMENT OF ENVIRONMENTAL PROTECTION

KEN MORAFF, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY -REGION 1