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 Salisbury Sewer Commission

is authorized to discharge from the facility located at

Salisbury Wastewater Treatment Plant
187 Elm Street
Salisbury, MA 01950

to receiving water named

tidal creek (unnamed) that drains to the Merrimack River (MA84A-06)

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 (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on October 9, 2007.

This permit consists of **Part I** (15 pages including effluent limitations and monitoring requirements); Attachment A, USEPA Region 1 Marine Chronic Toxicity Tests Procedure and Protocol (November 2013, 12 pages); Attachment A-1, Marine Acute Toxicity Test Procedure and Protocol (July 2012, 10 pages) and Part II, NPDES Standard Conditions (25 pages).

Signed this 9th day of July, 2015

_/S/ SIGNATURE ON FILE
_____
Ken Moraff, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

_/S/ SIGNATURE ON FILE
_____
David Ferris, Director
Massachusetts Wastewater Management Program
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

Part I.

A.1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall number **001** to a tidal creek that drains to the Merrimack River. 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]	********	********	1.3 MGD	********	Report MGD	CONTINUOUS	RECORDER
FLOW[2]	********	********	Report MGD	********	********	CONTINUOUS	RECORDER
$CBOD_5$ [4]	54 lbs/Day	76 lbs/Day	5.0 mg/l	7.0 mg/l	Report mg/l	2/WEEK	24-HR COMP[5]
TSS [4]	54 lbs/Day	76 lbs/Day	5.0 mg/l	7.0 mg/l	Report mg/l	2/WEEK	24-HR COMP[5]
pH RANGE[1]	6.5 - 8.5 SU (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
FECAL COLIFORM[1,6]	**********	**********	50 cfu/100 ml	75cfu/100 ml	100 cfu/100 ml	3/WEEK	GRAB
ENTEROCOCCI [1,6]	********	**********	35 cfu/100 ml	********	104 cfu/100 ml	3/WEEK	GRAB
TOTAL COPPER[7]	********	********	3.7 ug/l	********	5.8 ug/l	1/MONTH	24-HR COMP[5]
TOTAL NICKEL	********	********	8.3 ug/l	********	********	1/MONTH	24-HR COMP[5]
DISSOLVED OXYGEN (April 1- October 31)	NOT LESS THAN 6.0 mg/l					1/DAY	GRAB

A.1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall number **001** to a tidal creek that drains to the Merrimack River. 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 (May 1- October 31)	Report lbs/Day	Report lbs/Day	5.0 mg/l	7.0 mg/l	10.0 mg/l	2/WEEK	24-HR COMP[5]
AMMONIA-NITROGEN (November 1– April 30)	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMP[5]
TOTAL NITROGEN	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMP[5]
TOTAL KJELDAHL NITROGEN	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMP[5]
TOTAL NITRATE	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMP[5]
TOTAL NITRITE	Report lbs/Day	*********	Report mg/l	*********	Report mg/l	1/MONTH	24-HR COMP[5]
WHOLE EFFLUENT TOXICITY [8,9,10,11,12]	Acute $LC_{50} \geq 100\%$ Chronic C-NOEC $\geq 100\%$					4/YEAR	24-HR COMP[5]
Hardness[12]	Report mg/l					4/YEAR	24-HR COMP[5]
Ammonia Nitrogen as N[12]	Report mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Cadmium[12]	Report mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Copper[12]	Report mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Nickel[12]	Report mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Lead[12]	Report mg/l					4/YEAR	24-HR COMP[5]
Total Recoverable Zinc[12]	Report mg/l					4/YEAR	24-HR COMP[5]

Sampling Location: Samples shall be collected immediately after ultraviolet disinfection except dissolved oxygen which is collected immediately after the re-aeration weir.

Footnotes:

1. Required for State Certification.

2. Report annual average, monthly average, and the maximum daily effluent flow to an unnamed tidal creek that drains to the Merrimack River. 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 sampling shall be of the discharge and shall be collected at the point specified on page 3. 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 twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

   A grab sample is a single sample that represent the composition of the final effluent discharged from Outfall 001 and shall be collected during regular operating hours. Regular operating hours are Monday through Friday, 7:00 am to 3:00 pm.

6. The monthly average limits for fecal coliform and *enterococc*i are expressed as geometric means. The limits are in effect the entire year.

   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. 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.

8. The permittee shall conduct chronic and acute toxicity tests *four* times per year. The chronic test may be used to calculate the acute LC_{50} at the 48 hour exposure interval. The permittee shall test the Inland Silverside, (*Menidia berllina*) only. Toxicity test samples shall be collected during the

second week of the months of January, April, July and October. 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 31, August 31 and November 30, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A and Attachment 1-A** of this permit.

Test Dates Second Week	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**	**Chronic Limit C-NOEC**
January April July October	February 28 May 31 August 31 November 30	Menidia beryllina (Inland Silverside)	≥ 100%	≥ 100%

9. The LC_{50} is the concentration of effluent that causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

10. 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 "100 % or greater" limit is defined as a sample which is composed of 100 % (or greater) effluent, the remainder being dilution water.

11. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in **Attachment A**, **Marine Chronic Toxicity Test Procedure and Protocol) Section IV., DILUTION WATER** to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance, which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of *NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA Region I web site at http://www.epa.gov/Region1/enforcementandassistance/dmr.html. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A.** Any modification or revocation to this guidance will be transmitted to the permittees. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

12. For each whole effluent toxicity test the permittee shall report on the appropriate discharge monitoring report (DMR), 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. 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 6.5 or greater than 8.5 at any time and not more than 0.2 standard units outside of the natural background range. There shall be no change from background conditions that would impair any use assigned to this class.

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

g. If the average annual flow in any calendar year exceeds 80 percent of the facility's design flow (1.04 MGD), 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.

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.

   c. Chlorine is not monitored in this permit and the use of chlorine is prohibited.

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 MassDEP 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 that 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 (1.04 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:

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

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

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

[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

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. PERMIT REOPENER

Revisions may be made to the permit pursuant to the Reopener Clause, on page 3 of 25, in Part II. Standard Conditions, Section A. General Conditions.

F. 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 and the Use of NetDMR

Beginning the effective date of the permit the permittee must submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP no later than the 15th day of the month following the completed reporting period. **For a period of six months from the effective date of the permit**, the permittee may submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP either in hard copy form, as described in Part I.F.4, or in DMRs electronically submitted using NetDMR. NetDMR is a web-based tool that allows permittees to electronically submit DMRs and other required reports via a secure internet connection. NetDMR is accessed from: http://www.epa.gov/netdmr. **Beginning no later than six months after the effective date of the permit**, the permittee shall begin reporting monthly monitoring data using NetDMR, unless, in accordance with Part I.F.6, the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs. The permittee must continue to use the NetDMR after the permittee begins to do so. When a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs to EPA or MassDEP.

2. Submittal of Reports as NetDMR Attachments

After the permittee begins submitting DMR reports to EPA electronically using NetDMR, the permittee shall electronically submit **all** reports to EPA as NetDMR attachments rather than as hard copies, unless otherwise specified in this permit. Permittees shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. (See Part I.F.5. 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 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 testing frequency
C. Request for Reduction in WET Testing Requirement
D. 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

4. 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. Whole Effluent Toxicity Reports
D. Collection System Operation and Maintenance Map
E. Collection System Operation and Maintenance Plan
F. Report on annual activities related to O&M Plan
G. Reports and DMRs submitted prior to the use of NetDMR

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

5. 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.F.3, and I.F.4 also shall be submitted to the State at the following addresses:

MassDEP – Northeast Regional Office
Bureau of Water Resources
205B Lowell Street
Wilmington, MA 01887

Copies of toxicity tests reports only shall be submitted to:

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
8 New Bond Street
Worcester, Massachusetts 01606

6. Submittal of NetDMR Opt-Out Requests

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

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

And

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
1 Winter Street, 5th Floor
Boston, Massachusetts 02108

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-New England 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

F. 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 CFR 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

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^{o} 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 ± 2 o/oo by adding dry ocean salts
3. Temperature	20 ± 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 ± 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 1-A

MARINE ACUTE
TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

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

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1 mg/L chlorine. If dechlorination is necessary, a thiosulfate control consisting of the maximum concentration of thiosulfate used to dechlorinate the sample in the toxicity test control water must also be run in the WET test.

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

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

IV. DILUTION WATER

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

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

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

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

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

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

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

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

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

and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

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

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

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

	effluent) is required if it is not included in the dilution series.
17. Effect measured	Mortality - no movement of body appendages on gentle prodding
18. Test acceptability	90% or greater survival of test organisms in control solution
19. Sampling requirements	For on-site tests, samples are used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters

Footnotes:

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

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

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

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

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

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

Footnotes:

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

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

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

V.1. Test Acceptability Criteria

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

V.2. Use of Reference Toxicity Testing

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

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

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

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

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

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

VI. CHEMICAL ANALYSIS

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

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

Superscript:

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

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

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration

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

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

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

In addition to the summary sheets the report must include:

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

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. Upset

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

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.

c. Records of monitoring information shall include:

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

d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

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

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

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

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. Twenty-four hour reporting.

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

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

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

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

(3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

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

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

h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

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

Average weekly discharge limitation means the highest allowable average of "daily discharges" measured during the calendar week divided by the number of "daily discharges" measured during the week.

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

(a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

(b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.

(c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

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

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

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

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

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

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

Discharge of a pollutant means:

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

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

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any "indirect discharger."

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

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

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

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

(b) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

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

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

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

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

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

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

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

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

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

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore rig or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

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

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

(a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

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

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

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

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

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

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

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

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
(iii) are pollutants for which EPA has published acute or chronic water quality criteria.

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

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

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

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

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

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

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

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

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

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

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

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

For purposes of this definition, "domestic sewage" includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a "treatment works treating domestic sewage", where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

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

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

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

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

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

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

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

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

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

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

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

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

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

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

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

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

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

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

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

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

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

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

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

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

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

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

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

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

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

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	"Whole effluent toxicity" is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	"Chronic (Long-term Exposure Test) – No Observed Effect Concentration". The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	"Acute (Short-term Exposure Test) – No Observed Effect Concentration" (see C-NOEC definition).
LC_{50}	LC_{50} is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND
5 POST OFFICE SQUARE
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.: **MA0102873**
PUBLIC NOTICE START AND END DATES: January 14, 2015 – February 12, 2015

NAME AND ADDRESS OF APPLICANT:

Salisbury Sewer Commission
P.O. Box 5521
Salisbury, MA 01950

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Salisbury Wastewater Treatment Plant
125 Elm Street
Salisbury, MA 01950

RECEIVING WATER: **an unnamed tidal creek that drains to the Merrimack River Basin and the Coastal Drainage Basin, (MA84A-06)**

CLASSIFICATION: **SA**

Table of Contents

I. PROPOSED ACTION, TYPE OF FACILITY, AND DISCHARGE LOCATION 3

II. QUANTITATIVE DATA, TABLES AND FIGURES IN THE FACT SHEET 3

III. LIMITATIONS AND CONDITIONS 3

IV. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION 4

V. UNAUTHORIZED DISCHARGES 14

VI. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM 15

VII. PRETREATMENT 16

VIII. SLUDGE INFORMATION AND REQUIREMENTS 16

IX. MONITORING AND REPORTING 16

X. ESSENTIAL FISH HABITAT, (EFH) 16

XI. ENDANGERED SPECIES ACT, (ESA) 19

XII. STATE CERTIFICATION REQUIREMENTS 19

XIII. PUBLIC COMMENT PERIOD, HEARING REQUESTS AND PROCEDURES FOR FINAL DECISION 20

XIV. EPA AND MASSDEP CONTACTS 20

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

The Town of Salisbury 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 to discharge into a tidal creek that drains to the Merrimack River and the mouth of the Atlantic Ocean. The Salisbury Wastewater Treatment Plant (WWTP) is engaged in the collection and treatment of municipal wastewater.

The existing NPDES permit was signed on October 9, 2007, became effective on January 1, 2008 and, expired on December 31, 2012. The applicant submitted a complete application for permit reisssuance on September 26, 2012 in accordance to 40 Code of Federal Regulations (CFR) Part 122.6. Therefore, the existing permit has been administratively extended and will remain in effect until a renewed permit has been issued. The existing permit and Draft Permit authorize a discharge only from outfall 001 at the facility. The Draft Permit has been written to reflect current operations and conditions at the facility.

II. Quantitative Data, Tables and Figures in the fact sheet

A quantitative description of the facility's discharge in terms of significant effluent parameters based on discharge monitoring reports from January 2009 through September 2014 is shown in Attachment B, Salisbury Wastewater Treatment Plant - Discharge Monitoring Report Data. Data from Attachment C, Whole Effluent Toxicity Test Results and Chemistry Data, were used to determine reasonable potential of metals to cause or contribute to an in-stream excursion of the Massachusetts State Water Quality Standards (MA SWQS). Attachment D, Endangered Species Act Assessment, addresses the requirements under the Endangered Species Act (ESA) relative to the Draft Permit requirements. Table 1, Copper and Ammonia Interim Limits, provides the interim limits for two parameters in the 2007 Administrative Order, Table 2, Total Recoverable Metals Criteria, shows the calculated total recoverable metals criteria, Table 3, Reasonable Potential Table, shows the calculations to determine the reasonable potential of certain metals to cause or exceed an applicable water quality criteria, and Table 4, Essential Fish Habitat Species, provides a list of species in the area that includes the treatment plant discharge. Figures 1 and 2 pertain to the location of the facility and the treatment process.

The attachments and figures to the fact sheet are:

Attachment A	Summary of NPDES Permit Reporting Requirements
Attachment B	Salisbury Wastewater Treatment Plant-Discharge Monitoring Report Data
Attachment C	Whole Effluent Toxicity Test Results and Chemistry Data
Attachment D	Endangered Species Act Assessment
Table 1	Copper and Ammonia Interim Limits
Table 2	Total Recoverable Metals Criteria
Table 3	Reasonable Potential Table
Table 4	Essential Fish Habitat Species
Figure 1	Site Locus Map
Figure 2	Flow Process Diagram

III. Limitations and Conditions

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

IV. Permit Basis and Explanation of Effluent Limitation Derivation

Treatment Plant Flow

The Town currently owns, operates and maintains a 1.3 million gallons per day (MGD) advanced wastewater treatment facility with seasonal nitrification that serves approximately 5000 people. There are seventeen pump stations in Salisbury and all are owned, operated and, maintained by the Town.

Wastewater entering the facility flows to two aerated lagoons. The 5 and 7 million gallon clay-lined lagoons are in series, with retention times of five and ten days. Effluent from the final lagoon flows to 8 clay-lined rapid infiltration sand beds encompassing a total area of over 10 acres. The effluent passes by an ultraviolet (uv) system for disinfection and is aerated prior to discharge. Sludge is digested aerobically, stabilized with lime and trucked off-site for incineration.

Overview of Federal and State Regulations 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 is used to implement technology-based effluent limitations, water quality-based effluent limitations and other requirements such as 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 more stringent than technology-based limits where necessary to meet water quality standards. The MA SWQS 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. The 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 contributes to an excursion above any water quality criterion. An excursion occurs if the projected or actual in-stream concentrations exceed the applicable criterion. In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and, where appropriate, the dilution of the effluent in the receiving water.

A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirement of the CWA. EPA's anti-backsliding provisions, found in Sections 402(o) and 303(d)(4) of the CWA and at 40 CFR 122.44(l), prohibit the relaxation of permit limits, standards and, conditions except under certain,

limited conditions. Therefore, the effluent limits in the reissued permit must be at least as stringent as those in the existing permit, unless a less stringent effluent limit is allowed under the provisions of the law and regulations.

Waterbody Classification and Usage

The facility discharges to an unnamed tidal creek that drains to segment MA84-06 of the Merrimack River and the mouth of the Atlantic Ocean as described on page 52 of the Merrimack River Watershed 2004-2009 Quality Assessment Report (Assessment Report) published by MassDEP in January 2010. A copy of the Assessment Report can be reviewed at http://www.mass.gov/eea/docs/dep/water/resources/71wqar09/84wqar09.pdf. State waters that are not classified or listed in 314 CMR 4.05, such as the receiving water, are assigned a designation in 314 CMR 4.06, Basin Classification and Maps. 314 CMR 4.06(4) states,

"Unless otherwise designated in 314 CMR 4.06 or unless otherwise listed in the tables to 314 CMR 4.00, other waters are Class B, and presumed High Quality Waters for inland waters and Class SA, and presumed High Quality Waters for coastal and marine waters.

314 CMR 4.05(4) states,

These 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 and it is available on the MassDEP website at http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf "*Final Massachusetts Year 2012 Integrated List of Waters"* (2012 Integrated List).

The 2012 Integrated List was approved by EPA in March 2013 and, segment MA84A-06 of the Merrimack River is listed as impaired for enterococcus, fecal coliform and PCBs in fish tissue. The

enterococcus and fecal coliform limits in the Draft Permit are sufficiently stringent to ensure that the discharge attains water quality standards and the treatment plant is not thought to be a contributor of PCBs. The United States Fish and Wildlife Service reported[1] the presence of PCBs in whole fish in the Merrimack River well upstream of segment MA84A-06, the river segment that receives the treatment plant discharge.

River Flow and Available Dilution

Water quality-based effluent limits in the Draft Permit are determined using water quality criteria and the available dilution in the receiving water at the outfall location. When appropriate, water quality-based permit limits are established with the use of a dilution factor.

At times during the summer, stream flow in the tidal creek may be minimal such that during low flow, low tide conditions the effluent may discharge to a wetland. Under these conditions there is no stream flow to provide dilution. Therefore, a dilution factor of 1, the same as in the existing permit, has been used for the water quality-based effluent limits in the Draft Permit.

Effluent Flow

Federal regulations at 40 CFR 122.45(b)(i) require that effluent limits be calculated based on design flow of the facility. The design flow is 1.3 MGD (2.01 cfs) and shall be measured continuously. The permittee shall report the annual average flow using the annual rolling average method noted in footnote 2 of the Draft Permit. The range of the monthly average flow recorded for the period of January 2009 through September 2014 was 0.514 MGD to 1.48 MGD. The annual average flow ranged from 0.638 MGD to 0.748 MGD over the same period.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) and Total Suspended Solids (TSS)

The $CBOD_5$ and TSS effluent limits shall remain the same as in the existing permit. The concentration and mass limits are more stringent than secondary requirements found at 40 CFR Part 133. These limits are based on the 1979 facility plan and subsequent environmental impact report that were prepared when the facility was designed.

A review of $CBOD_5$ and TSS data concentration, mass and percent removal data submitted on the monthly discharge monitoring reports showed no exceedances for either parameter between January 2009 and September 2014.

Dissolved Oxygen (DO)

A dissolved oxygen limitation of 6.0 mg/l is included in the Draft Permit to ensure that the discharge does not cause or contribute to a violation of the MA SWQS, 314 CMR 4.05 (4)(b)(1). The MA SWQS require that dissolved oxygen concentration for a Class SA water shall not be less than 6.0 mg/l unless background conditions are lower. The limit and monitoring frequency of once per day are the same as in the current permit. A review of data submitted on the monthly discharge monitoring reports demonstrates compliance with the permit limit for dissolved oxygen from January 2009 through September 2014.

1 Major, A.R. and K.C. Carr. 1991, Contaminant Concentrations in Merrimack River Fish. Report Number RY91-NEFO-1_EC. US Fish and Wildlife Service, Concord, New Hampshire

pH

The Draft Permit includes pH limitations based on MA SWQS. The MA SWQS are more stringent than the pH limitations set forth in 40 CFR 133.102. In accordance with 314 CMR 4.05(4)(a)(3), the pH for Class SA waters shall be in the range of 6.5 through 8.5 standard units and not more than 0.2 standard units outside the background range. There shall be no change from background conditions that would impair any use assigned to this Class. The frequency of monitoring is shall remain once per day.

The pH data submitted for the period from January 2009 through September 2014 are within the maximum pH range for a SA water. The minimum pH reported was 6.4 standard units in September 2009 and May 2014.

Bacteria limits

The bacteria limits for fecal coliform and enterococci in the existing permit shall remain the same in the Draft Permit. The fecal coliform limits are a monthly geometric mean of 50 organisms/100 ml, a weekly geometric mean of 75 organisms/100 ml and a maximum daily discharge of 100 organisms/100 ml. For enterococci, a monthly average limit of 35 colonies per 100 ml and a maximum daily limit of 104 colonies per 100 ml are in the Draft Permit. The fecal coliform limits were established to minimize impacts on water quality conditions in the receiving water and are based on the 1979 facility plan and subsequent environmental reports.

Bacteria water quality standards for a Class SA water state,

"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 discharge monitoring report data from January 2009 through September 2014 listed one exceedance of the maximum daily fecal coliform limit in July 2012. There were no exceedances of enterococci for the same time period.

Toxic Pollutants

EPA is required to limit any pollutant that is or may be discharged at a level that caused, or has reasonable potential to cause, or contribute to an excursion above any water quality criterion. See 40 CFR §122.44(d)(1)(VI). Data submitted with the permit renewal application and previous monitoring data were used to determine if there was reasonable potential to cause or contribute to a violation of water quality.

In particular, chlorine and chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. Sodium hypochlorite that is commonly used for disinfection at treatment plants, is not added to the effluent at this facility and the permit prohibits the use of chlorine.

Administrative Order

EPA issued an Administrative Order (AO) to the Town in August 2011 to implement controls at the WWTP to optimize and achieve full compliance with the total copper and total ammonia-nitrogen permit

limits. The Town recently submitted a report for EPA and MassDEP which evaluates whether a tidal discharge from the treatment plant would achieve compliance with the limits for anomia nitrogen and copper. The Agencies will continue to work with the Town during this permit cycle to achieve compliance with the permit. Table 1 outlines the interim effluent limits and monitoring requirements included in Attachment B of the AO.

Table 1. Copper and Ammonia Interim Limits

	Average Monthly	Maximum Daily	Frequency
Total Copper	25 mg/l	Report	1 Week
Total Ammonia as Nitrogen (November 1 – June 15)	Report	Report	2/Week
Total Ammonia as Nitrogen (June 15 – October 31)	10 mg/l	Report	2/Week

The average monthly total ammonia nitrogen limit of 10 mg/l is calculated as a seasonal average collected from June 15 through October 31 and it is reported on the Town's October discharge monitoring report for the purpose of compliance In accordance with the AO, the seasonal average ammonia nitrogen concentrations in 2011, 2012, 2013 and 2014 were 9.1 mg/l, 8.5 mg/l, 5.6 mg/l and 3.5 mg/l.

Metals

Certain metals in water can be toxic to aquatic life. There is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. An evaluation of the concentration of metals in the effluent from the facility's Whole Effluent Toxicity (WET) reports submitted between March 2008 and September 2014 were used to determine reasonable potential for toxicity caused by cadmium, copper, lead, nickel and, zinc.

Metals may be present in both dissolved and particulate forms in the water column. 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://www.epa.gov/waterscience/standards/ handbook/chapter03.html#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. The facility's effluent concentrations were characterized assuming a lognormal distribution in order to determine the estimated 95th percentile of the daily maximum.

The following mass balance equation is used to project in-stream metal concentrations downstream from the discharge to determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the in-stream water quality criteria for each metal.

$$Q_d C_d + Q_S C_S = Q_r C_r$$

rewritten as:

$$C_r = \frac{Q_d C_d + Q_S C_S}{Q_r}$$

where:

Q_d = effluent flow (design flow = 1.3 mgd = 2.01 cfs)
C_d = effluent metals concentration in ug/L (95th percentile)
Q_s = low flow upstream (0)
C_s = background in-stream metals concentration in ug/L (median)
Q_r = downstream in-stream flow, downstream of the discharge ($Q_s + Q_d$ = 2.01 cfs)
C_r = in-stream concentration downstream of the discharge in ug/L

Reasonable potential is then determined by comparing this in-stream concentration, C_r, (for both 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 either 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 in-stream concentration (C_r). See the table below for the results of this analysis with respect to cadmium, copper, lead, nickel and zinc.

The total recoverable criteria of metals being discharged to saltwater environments in calculated by dividing the CMC and the CCC by the appropriate conversion factors. 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 for the Salisbury WWTP discharge.

Table 2. Total Recoverable Metals Criteria

Parameters					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	75	8.2	0.99	0.99	75.8	8.3
Zinc	95	81	0.946	0.946	100.4	85.6

Table 3. Reasonable Potential Table

Metal	Qd	Cd[1] (95th Percentile)	Qs	Cs[2] (Median)	Qr = Qs + Qd	Cr = (QdCd+QsCs) / Q_R	Criteria Total Recoverable		Reasonable Potential	Limit = (QrCr-QsCs) / Qd	
	cfs	ug/l	cfs	ug/l	cfs	ug/l	Acute (ug/l)	Chronic (ug/l)	Cr > Criteria	Acute (ug/l)	Chronic (ug/l)
Cadmium	2.01	0.50	0	N/R	2.01	0.50	40.2	8.9	No	N/A	N/A
Copper		27.13		N/R		27.13	5.8	3.7	Yes	5.8	3.7
Lead		1.89		N/R		1.89	220.8	8.5	No	N/A	N/A
Nickel		14.14		N/R		14.14	75.8	8.3	Yes	N/A	8.3
Zinc		24.37		N/R		24.37	100.4	85.6	No	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 Salisbury NPDES administrative file.

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

As indicated in Table 2, Reasonable Potential Table, there is reasonable potential that the discharge of copper will cause or contribute to an exceedance of applicable acute and chronic water quality criteria and the discharge of nickel will cause or contribute to an exceedance of applicable chronic water quality criterion. Limits are included in the Draft Permit for metals that exceed the criteria. Monitoring of all listed metals in the table above will continue to be required as part of the quarterly Whole Effluent Toxicity tests.

Copper

The existing permit has a monthly average copper limit of 3.1 ug/l and a maximum daily copper limit of 4.8 ug/l based on the marine water quality criteria, as recommended in the EPA 2002: National Recommended Water Quality Criteria for Copper.

The copper concentrations routinely achieved through treatment were determined using a statistical analysis of data reported in the whole effluent toxicity tests for the period of March 2008 through September 2014. The analysis was based on the methodology set forth in the "Technical Support Document for Water Quality based Toxics Control, Appendix E", published in March 1991, EPA/505/2-90-001. Using the facility's whole effluent toxicity test data in the statistical analysis it was determined that reasonable potential for the discharge to exceed the acute and chronic water quality criteria exists and effluent limits are necessary and shall remain in the Draft Permit.

The maximum daily limit for dissolved copper based on the acute water quality criterion is 4.8 ug/l and the average monthly limit for dissolved copper, based on the chronic criterion, is 3.1 ug/l. As stated above, EPA's regulations require that permit limits be based on total recoverable (tr) rather than dissolved metals. The recommended conversion factor for acute and chronic copper criteria, 0.83, was used to arrive at the total recoverable copper limits in the Draft Permit.

Chronic criterion is 3.1 ug/l (dissolved)	Acute criterion is 4.8 ug/l (dissolved)
Chronic criterion is (3.1/0.83) = 3.7 ug/l (tr)	Acute criterion is (4.8/0.83) = 5.8 ug/l (tr)

$C_d = (Q_r * C_r) - (Q_s * C_s)/Q_d$

(2.01 cfs *5.8 ug/l)/(2.01 cfs) = 5.8 ug/l
(2.01 cfs * 3.7 ug/l)/(2.01 cfs) = 3.7 ug/l

Nickel

As shown in Table 1, there is reasonable potential that the discharge will cause or contribute to an exceedance of the chronic criterion for nickel and a monthly average limit has been included in the Draft Permit.

The chronic water quality criterion for nickel is 8.2 ug/l and the recommended conversion factor of 0.99 is used to achieve a total recoverable monthly average limit of 8.3 ug/l.

$C_d = (Q_r * C_r) - (Q_s * C_s)/Q_d$

(2.01 cfs *8.3 ug/l)/(2.01 cfs) = 8.3 ug/l

Ammonia-Nitrogen

The seasonal effluent limitations and reporting requirements for ammonia-nitrogen are May 1 through October 31. The Draft Permit limits are the same as in the current permit and are based on achieving water quality standards for dissolved oxygen. The monthly average, weekly average and maximum daily limits are 5 mg/l, 7 mg/l and 10 mg/l from May through October. Effluent discharged to the receiving water has been in excess of the total ammonia-nitrogen limits since the permit was issued in 2008.

See Attachment B, Salisbury Wastewater Treatment Plant – Discharge Monitoring Report Data, for effluent data on total nitrogen as ammonia, total nitrite, total nitrate and total Kjeldahl nitrogen from January 2009 through January 2014.

The Draft Permit also carries forward the seasonal and yearly reporting requirements in the existing permit for total nitrogen as ammonia (November through April), total nitrite, total nitrate and total Kjeldahl nitrogen. The Draft Permit also establishes a monthly monitoring and reporting requirement for total nitrogen. This data in conjunction with other pertinent water quality data will be used to determine the need for a water quality-based permit limit in subsequent NPDES permits.

As previously noted in the fact sheet, the AO established an interim limit for ammonia-nitrogen of 10 mg/l that is reported as a seasonal average each year in October. The AO requires the permittee to optimize removal of ammonia-nitrogen throughout the year at the treatment plant.

To determine if cold weather ammonia limits were necessary during this permit reissuance, the EPA reviewed the Ambient Water Quality Criteria for Ammonia (Saltwater) -1989, USEPA 440/66/004. In-stream data on the pH, temperature and salinity of the receiving water are necessary to determine the ammonia criteria. Because the location of the discharge is inaccessible, the Agency assumed the following conditions of the receiving water as provided in the ambient criteria document stated above, a pH of 7.0 (typical of marine water), a salinity of 10 g/kg (the discharge is located in an estuary) and a range of the receiving water temperature between 0^0 C and 10^0 C. The acute criteria range for total ammonia is between 191 and 270 mg/l, and the chronic criteria would be between 29 and 41 based on the pH and salinity parameters. Ammonia-nitrogen data reported on the DMRs as shown in Attachment B, Salisbury Wastewater Treatment Plant-Discharge Monitoring Report Data, are consistently less than the acute and chronic criteria therefore; winter ammonia limits are not needed at this time.

Whole Effluent Toxicity Tests

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

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents to POTWs above those which may be contributed from industrial users. These pollutants include metals, chlorinated solvents, aromatic hydrocarbons and other constituents. The EPA Region 1 current policy is to include toxicity testing requirements in all POTW permits, while Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts.

Based on the potential for toxicity resulting from domestic sewage, and in accordance with EPA regulations and policy, the Draft Permit includes chronic and acute toxicity limitations and monitoring requirements. (See, e.g. Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 50FR30784 (July 25, 1985); see also EPA's TSD).

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

The Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990) requires 7-day chronic and acute toxicity testing four times per year for discharges having a dilution factor of less than 10.

The LC_{50} limit remains at 100% based on the Massachusetts Implementation Policy.

The chronic-no observed effect concentration (C-NOEC) whole effluent toxicity limit is calculated using the in-stream waste concentration (IWC) of the effluent. The IWC is the inverse of the dilution.

C-NOEC = 1/ dilution factor = 1/1 = 1.0 = 100 %

These are the same limits that are in the existing permit.

The Draft Permit will continue to require testing one specie only, the inland silverside, ***Menidia beryllina.*** The tests results for the last several years are shown in Attachment C, Whole Effluent Toxicity Test Results and Chemistry Data of this fact sheet. The toxicity test schedule has been changed from what is in the current permit. Testing is currently done in March, June, September and December however, the Draft Permit requires the test be conducted in January, April, July and October according to a schedule developed by MassDEP. EPA and MassDEP require all facilities discharging into the Merrimack Watershed to use this schedule in an effort to understand the collective impact of pollutants discharged to the watershed. See Permit Attachment A, Marine Chronic Toxicity Test Procedure and Protocol and Attachment A-1, Marine Acute Toxicity Test and Procedure Protocol for a description of the testing requirements.

V. Unauthorized Discharges

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

VI. Operation and Maintenance of the Sewer System

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

EPA regulations set forth a standard condition for "Proper Operation and Maintenance" that is included in all NPDES permits. *See* 40 CFR § 122.41(e). This condition is specified in Part II.B.1 (General Conditions) of the Draft Permit and it requires the proper operation and maintenance of all wastewater treatment systems and related facilities installed or used to achieve permit conditions.

EPA regulations also specify a standard condition to be included in all NPDES permits that specifically imposes on permittees a "duty to mitigate." *See* 40 CFR § 122.41(d). This condition is specified in Part II. B. General Conditions of the Draft Permit and it requires the permittees to take all reasonable steps, which in some cases may include operations and maintenance work, to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment.

Proper operation of collection systems is critical to prevent blockages and equipment failures that would cause overflows of the collection system (sanitary sewer overflows, or SSOs), and to limit the amount of non-wastewater flow entering the collection system (inflow and infiltration or I/I). I/I in a collection system can pose a significant environmental problem because it may displace wastewater flow and thereby cause, or contribute to causing, SSOs. Moreover, I/I could reduce the capacity and efficiency of the treatment plant and cause bypasses of secondary treatment. Therefore, reducing I/I will help to minimize any SSOs and maximize the flow receiving proper treatment at the treatment plant. MassDEP has stated that I/I control conditions in NPDES permit is a standard State Certification requirement under Section 401 of the CWA and 40 CFR § 124.55(b).

Therefore, specific permit conditions have been included in Part I.B. and I.C. of the Draft Permit. These requirements include mapping of the wastewater collection system, preparing and implementing a collection system operation and maintenance plan, reporting unauthorized discharges including SSOs, maintaining an adequate maintenance staff, performing preventative maintenance, controlling infiltration and inflow to the extent necessary to prevent SSOs and I/I related-effluent violations at the wastewater treatment plant, and maintaining alternate power where necessary. These requirements are intended to minimize the occurrence of permit violations that have a reasonable likelihood of adversely affecting human health or the environment.

Several of the requirements in these sections of the Draft Permit are not included in the current permit. EPA has determined that these additional requirements are necessary to ensure the proper operation and maintenance. For example, updated requirements in Part 1.C, Operation and Maintenance of the Sewer System require the permittee to develop and implement a Collection System Operation and Maintenance Plan (the Plan) within two years of the effective date of the Final Permit. The Plan shall 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 information in the Plan shall assist the Town to prevent unauthorized discharges, minimize infiltration and inflow and protect 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.

VII. Pretreatment

The facility does not treat pollutants from major industrial facilities. Pollutants introduced into the POTW by a nondomestic source shall not enter the POTW or interfere with the operation or performance of the works.

VIII. 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).

In an effort to improve nitrification, the permittee had sludge dredged from the lagoons in 2003 and 2005. Prior to 2003, the lagoons had never been dredged. The Town's budget for the plant now includes dredging for the lagoons every two years. The sludge is transported offsite to Synagro/NETCO in Woonsocket, RI for incineration.

IX. Monitoring and Reporting

The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308 (a) of the CWA in accordance with 40 CFR §§122.41 (j), 122.44 (l), and 122.48.

The Draft Permit requires the permittee to continue to electronically report monitoring results obtained during each calendar month as Discharge Monitoring Report (DMRs) to EPA and the state using NetDMR no later than the 15th day of the month following the completed reporting period.

NetDMR is a national web-based tool for regulated CWA permittees to submit DMRs electronically via a secure internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR can be found on the EPA Region 1 NetDMR website located at http://www.epa.gov/region1/npdes/netdmr/index.html.

In most cases, reports required under the permit shall be submitted to EPA as an electronic attachment through NetDMR. Certain exceptions are provided in the permit such as for providing written notifications required under the Part II Standard Permit Conditions. With the use of NetDMR to report DMRs and reports, the permittee is no longer required to submit hard copies of DMRs or other reports to EPA and is no longer be required to submit hard copies of DMRs to MassDEP. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. State reporting requirements are further explained in the Draft Permit.

X. Essential Fish Habitat, (EFH)

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C.§ 1801 et seq. (1998)), EPA is required to consult with 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.

EFH 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.

EFH Species

The following is a list of the EFH species and applicable life stage(s) for the area that includes Atlantic Ocean Waters around Salisbury:

Name of Estuary/ Bay/ River: Merrimack River, Massachusetts

10' x 10' latitude and longitude squares included in this bay or estuary or river (southeast corner boundaries):

4250/7040; 4250/7050; 4240/7040; 4240/7050; 4240/7100; 4240/7110

Table 3. Essential Fish Habitat Species

Species	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Atlantic salmon *(Salmo salar)*			F,M	F,M	
pollock *(Pollachius virens)*	M	M	M		
whiting *(Merluccius bilinearis)*	M				
white hake *(Urophycis tenuis)*	M				
winter flounder *(Pleuronectes americanus)*	M	M	M	M	M
yellowtail flounder *(Pleuronectes ferruginea)*	S	S			
Atlantic halibut *(Hippoglossus hippoglossus)*	S	S	S	S	S

Atlantic sea herring *(Clupea harengus)*		M	M		
Atlantic mackerel *(Scomber scombrus)*	M	M			

S=The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).
M=The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary
(0.5 < salinity < 25.0‰).
F=The EFH designation for this species includes the tidal freshwater salinity zone of this bay or estuary
(0.0 < salinity < 0.5‰).

The Merrimack River estuary in the vicinity of the Salisbury Wastewater Treatment Facility discharge is designated essential fish habitat (EFH) for 9 finfish species. EPA has concluded that the limits and conditions contained in this Draft Permit minimize adverse effects to the EFH species present for the following reasons:

- This is a reissuance of an existing permit;
- While the dilution factor is 1 for the 0.5 mile long tidal creek, this creek is not expected to be suitable habitat for EFH species. The flow from the creek (2.01 cfs) is less than 1% of the average Merrimack River flow of approximately 5000 cfs in the area. Dilution of the creek discharge with the high tidal energy of the main stem of the river is expected to be complete and instantaneous;
- The complete and instantaneous dilution of the creek discharge with the high tidal energy of the main stem of the river will result in a sufficient zone of passage unaffected by the discharge. This will allow the movement of EFH species in the Merrimack River;
- Permit limits specifically protective of all aquatic life, based on State and Federal water quality criteria, have been included in the permit;
- The facility withdraws no water from the Merrimack River or the tidal creek, so no life stages of EFH species are vulnerable to impingement or entrainment from this facility;
- Acute and chronic toxicity tests will be conducted four times per year to ensure that the discharge does not present toxicity problems;
- The Draft Permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The Draft Permit prohibits violations of the state water quality standards.

EPA believes that the conditions and limitations contained within the Draft Permit adequately protect all aquatic life, including those species with EFH designation. Impacts associated with issuance of this permit to the EFH species, their habitat and forage, have been minimized to the extent that no significant adverse impacts are expected. Further mitigation is not warranted. NMFS will be notified and EFH will be reinitiated if adverse impacts to EFH are detected as a result of this permit action or if new information becomes available that changes the basis for these conclusions.

XI. Endangered Species Act, (ESA)

The Endangered Species Act of 1973, as amended, imposes requirements on Federal agencies related to the potential effects of their actions on endangered or threatened species of fish, wildlife, or plants (listed species) and their designated "critical habitat." Section 7 of the ESA requires, in general, that Federal agencies insure that any actions they authorize, fund, or carry out, in the United States or upon the high seas, are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated "critical habitat" for those species. Federal agencies carry out their responsibilities under the ESA in consultation with, and assisted by, the Departments of Interior (DOI) and/or Commerce (DOC), depending on the species involved. The United States Fish & Wildlife Service (USFWS) of the DOI administers Section 7 consultations for freshwater species, while the National Marine Fisheries Service (NMFS) of DOC does so for marine species and anadromous fish.

As the federal agency responsible for authorizing the discharge from this facility, EPA has reviewed available information and determined that a number of federally listed species inhabit (seasonally) waters in the broad general area of the relevant discharge. Further analysis was done with regard to the presence or absence of these protected species in the action area. 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); reptiles (sea turtles: Kemp's Ridley, Leatherback, Green – all endangered; Northwest Atlantic Ocean Distinct Population Segment of Loggerhead – threatened). However, EPA does not consider the area in the vicinity of the facility discharge to be suitable habitat for the species listed above. Based on the normal distribution of these species, it is unlikely that any of the coastal NMFS listed species identified above would be expected to be present in the vicinity of the treatment plant's discharge in the unnamed tidal creek that flows to the main stem of the Merrimack River, or in the associated riverine area along the north bank of the Merrimack River, approximately 7.8 kilometers upstream from the mouth of the river. EPA has made the determination that these protected marine species are not present in the action area of the discharge.

It is EPA's understanding that the only two federally listed species that have the potential to occur in the vicinity of the Salisbury WWTP discharge are the shortnose sturgeon (*Acipenser brevirostrum*) and the Atlantic sturgeon (*Acipenser oxyrinchus*). Because these species may be affected by the discharge authorized by the proposed permit, EPA has evaluated the potential impacts of the permit action on shortnose sturgeon and Atlantic sturgeon. On the basis of this evaluation, which is detailed in Fact Sheet Attachment D, Endangered Species Act Assessment, March 2014, EPA's preliminary determination is that this action is not likely to adversely affect these two listed species. Therefore EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NMFS regarding this determination through the information in the Draft Permit, this fact sheet and attachment, as well as a letter under separate cover.

Re-initiation of 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.

XII. State Certification Requirements

The staff of MassDEP has reviewed the Draft Permit. EPA has requested permit certification by the State pursuant to 40 CFR.124.53 and expects that the Draft Permit will be certified.

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

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to U.S.EPA, Office of Ecosystem Protection (CMA), 5 Post Office Square - Suite 100, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the 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 Draft Permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

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 (CPE)
Boston, Massachusetts 02109-3912
davis.betsy@epa.gov
Telephone: (617) 918-1576

or

Claire Golden
Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887
claire.golden@state.ma.us
Telephone: (978) 694-3244

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

Date:

Attachment A of the Fact Sheet
Salisbury Wastewater Treatment Plant
Summary of NPDES Permit Reporting Requirements Dates

Permit Page	Requirement and Dates	Submit to:
5	Whole Effluent Toxicity Tests results are due February 28, May 31, August 31, and November 30.	EPA/MassDEP
9	The permittee shall develop and implement a plan to control I/I to the separate sewer system. The plan shall be submitted to EPA and MassDEP six months from the effective date of the permit. See Part 1.C.3.	EPA/MassDEP
9	A summary report of all actions taken to minimize I/I during the previous calendar year shall be submitted to EPA and the MassDEP annually by the permittee by the anniversary date of the effective date of the permit	EPA/MassDEP
11	The permittee shall submit an annual report containing the information specified in the sludge section of the permit by February 19.	EPA/MassDEP
12	Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the effective date of the permit.	EPA/MassDEP

Attachment B. Salisbury Wastewater Treatment Plant - Discharge Monitoring Report Data

MONITORING PERIOD END DATE	Flow (Mgal/d) 12 Month Rolling Average	CBOD, 05 day, 20 C (mg/l) Average Monthly	CBOD, 05 day, 20 C (mg/l) Average Weekly	CBOD, 05 day, 20 C (mg/l) Daily Maximum	CBOD, 05 day, 20 C (lb/d) Monthly Average	CBOD, 05 day, 20 C (lb/d) Average Weekly	BOD, 5-day, percent removal Monthly Minimum
1/31/2009	0.717	1.3	2.2	2.4	6.4	10.9	99.1
2/29/2009	0.699	2.1	2.9	3.3	11.0	15.1	98.3
3/31/2009	0.689	1.8	2.4	3.3	11.0	14.7	98.3
4/30/2009	0.705	1.8	2.2	3.1	11.2	13.6	98.7
5/31/2009	0.700	1.5	2.0	2.4	7.6	10.2	99.2
6/30/2009	0.706	1.2	1.8	2.2	7.1	10.6	99.3
7/31/2009	0.734	1.1	2.8	4.8	8.8	22.5	99.5
8/31/2009	0.732	0.6	0.9	1.0	3.9	5.8	99.7
9/30/2009	0.715	0.2	0.5	0.7	1.0	2.6	99.8
10/31/2009	0.638	0.8	1.1	1.2	4.0	5.5	99.4
11/30/2009	0.656	0.8	1.1	1.2	5.6	7.7	99.3
12/31/2009	0.654	1.0	1.3	1.3	6.5	8.5	99.1
1/31/2010	0.670	2.8	3.3	3.6	18.4	21.7	97.9
2/28/2010	0.676	3.5	4.6	4.9	20.3	26.6	97.7
3/31/2010	0.737	2.5	4.9	4.9	30.8	60.3	97.3
4/30/2010	0.744	0.8	1.2	1.2	6.1	9.1	99.0
5/31/2010	0.748	1.0	1.6	1.8	5.5	8.7	99.4
6/30/2010	0.732	1.3	1.8	1.9	5.6	7.7	99.4
7/31/2010	0.706	1.5	1.9	2.4	8.2	10.3	99.4
8/31/2010	0.700	2.2	5.5	8.4	12.8	31.9	98.8
9/30/2010	0.699	0.7	1.0	1.3	3.6	5.1	99.6
10/31/2010	0.704	0.6	1.1	1.3	3.3	6.0	99.7
11/30/2010	0.691	0.4	0.9	1.2	2.3	5.1	99.7
12/31/2010	0.682	1.4	2.0	2.1	7.9	11.3	98.9
1/31/2011	0.668	3.2	3.9	4.2	16.5	20.1	98.2
2/28/2011	0.667	3.7	4.2	4.3	21.2	24.0	98.0
3/31/2011	.684	3.	4.	4.2	21.3	28.4	97.4
4/30/2011	.672	1.	1.6	1.6	6.4	10.2	99.4
5/31/2011	.678	1.1	1.6	1.9	6.7	21.4	99.4
6/30/2011	.701	.8	1.3	1.5	5.3	8.5	99.7
7/31/2011	.709	1.	1.9	1.9	6.2	11.9	99.6
8/31/2011	.72	.8	1.3	2.2	5.5	9.	99.6
9/30/2011	.727	.5	.6	.9	2.9	3.5	99.7
10/31/2011	.741	.5	.8	.9	3.4	5.5	99.7
11/30/2011	.746	.5	.8	.9	3.1	4.9	99.7
12/31/2011	.745	.8	1.3	1.5	4.5	7.3	99.5
1/31/2012	.742	.9	1.1	1.6	4.8	5.9	99.5
2/29/2012	.732	1.3	1.4	1.6	6.2	6.6	99.3
3/31/2012	.713	1.3	1.4	1.8	6.7	7.2	99.3
4/30/2012	.7	.8	1.7	2.2	4.1	8.6	99.6
5/31/2012	.698	1.	1.2	1.5	6.7	10.	99.5
6/30/2012	.696	.8	1.2	1.5	5.8	8.8	99.6

ASDFGJ Salisbury Wastewater Treatment Plant - Discharge Monitoring Report Data

MONITORING PERIOD END DATE	Dissolved Oxygen (mg/l) Daily Min	pH (s.u.) Daily Min	pH (s.u.) Daily Max	Fecal Coliform, 50 cfu/100 mL Monthly Average	Fecal Coliform, 100/100 mL Daily Max	Enterococci, 35 cfu/100 ml Monthly Average	Enterococci, 104 cfu/100 ml Daily Max
1/31/2009	6.2	6.6	6.8	2.1	30.0	4.0	40.0
2/29/2009	6.1	6.7	6.8	2.0	6.0	1.4	10.0
3/31/2009	6.1	6.7	6.7	1.2	6.0	0.0	0.0
4/30/2009	6.2	6.7	6.8	1.2	8.0	1.1	5.0
5/31/2009	6.0	6.6	6.7	9.9	27.0	2.9	10.0
6/30/2009	6.1	6.6	6.7	2.7	17.0	1.3	6.0
7/31/2009	6.2	6.5	6.7	1.3	18.0	1.3	9.0
8/31/2009	6.1	6.5	6.7	1.3	10.0	1.1	6.0
9/30/2009	6.2	6.4	6.6	1.2	7.0	0.0	1.0
10/31/2009	6.2	6.5	6.5	1.1	3.0	0.0	0.0
11/30/2009	6.3	6.5	6.6	1.1	2.0	0.0	1.0
12/31/2009	6.2	6.6	6.7	1.1	2.0	1.3	27.0
1/31/2010	6.1	6.5	6.6	3.5	31.0	2.9	15.0
2/28/2010	6.1	6.5	6.7	1.4	15.0	2.4	12.0
3/31/2010	6.2	6.5	6.7	2.0	16.0	1.5	13.0
4/30/2010	6.1	6.5	6.6	0.0	1.0	0.0	0.0
5/31/2010	6.1	6.5	6.6	1.1	3.0	1.5	4.0
6/30/2010	6.1	6.5	6.6	1.5	5.0	1.2	8.0
7/31/2010	6.1	6.5	6.7	0.0	0.0	1.3	6.0
8/31/2010	6.1	6.7	6.8	3.4	56.0	1.1	3.0
9/30/2010	6.3	6.7	6.8	2.3	20.0	0.0	0.0
10/31/2010	6.2	6.5	6.6	1.1	4.0	0.0	0.0
11/30/2010	6.2	6.5	6.9	0.0	1.0	0.0	1.0
12/31/2010	6.4	6.6	6.9	1.3	13.0	1.3	15.0
1/31/2011	6.5	6.7	6.8	1.3	4.0	0.1	1.0
2/28/2011	6.2	6.8	7.0	1.2	64.0	1.7	14.0
3/31/2011	6.2	6.7	7.0	4.1	23.0	1.9	6.0
4/30/2011	6.2	6.5	6.7	3.9		1.1	2.0
5/31/2011	6.3	6.5	7.1	0.0	89.0	1.7	46.0
6/30/2011	6.2	6.7	6.9	2.4	3.0	0.0	1.0
7/31/2011	6.2	6.8	7.0	1.2	38.0	0.0	0.0
8/31/2011	6.3	6.6	6.9	11.9	10.0	0.0	0.0
9/30/2011	7.4	6.5	6.8	1.3	0.0	0.0	0.0
10/31/2011	8.	6.6	6.9	0.0	0.0	0.0	0.0
11/30/2011	9.3	6.5	6.9	0.0	0.0	0.0	0.0
12/31/2011	9.4	6.5	6.7	0.0	1.0	0.0	1.0
1/31/2012	10.9	6.6	7.0	1.2	4.0	0.0	0.0
2/29/2012	10.2	6.6	6.9	1.2	4.0	0.0	0.0
3/31/2012	8.2	6.5	6.7	1.1	2.0	0.5	3.0
4/30/2012	7.3	6.5	6.7	1.8	37.0	3.1	30.0
5/31/2012	7.	6.7	6.8	2.5	42.0	3.6	39.0
6/30/2012	6.3	6.6	6.8	4.8	84.0	1.4	7.0

Attachment B. Salisbury Wastewater Treatment Plant - Discharge Monitoring Report Data

MONITORING PERIOD END DATE	TSS (mg/l) Average Monthly	TSS (mg/l) Average Weekly	TSS (mg/l) Daily Maximum	TSS (lb/d) Monthly Average	TSS (lb/d) Average Weekly	TSS, percent removal Monthly Minimum	Copper, Total* (ug/l) Monthly Average
1/31/2009	1.6	1.9	2.0	7.9	9.4	99.1	17.0
2/29/2009	1.7	2.2	2.3	8.9	11.5	99.0	22.0
3/31/2009	1.6	1.9	2.1	9.8	11.6	98.9	13.0
4/30/2009	3.2	3.6	4.1	19.8	22.3	97.9	12.0
5/31/2009	3.6	5.1	5.5	18.3	25.9	98.3	13.0
6/30/2009	2.6	3.0	4.0	15.3	17.7	98.8	16.0
7/31/2009	2.7	3.3	3.4	21.7	26.5	98.8	6.0
8/31/2009	2.9	4.1	4.4	18.8	26.5	98.9	8.0
9/30/2009	1.4	1.7	1.8	7.2	8.7	99.2	10.0
10/31/2009	1.8	2.5	2.5	9.0	12.5	98.9	15.0
11/30/2009	1.7	2.2	2.3	11.9	15.4	98.8	22.0
12/31/2009	1.3	1.9	1.9	8.5	12.4	99.1	14.0
1/31/2010	2.8	3.0	3.5	18.4	19.8	98.5	15.0
2/28/2010	3.3	3.8	3.9	19.1	22.0	98.3	18.0
3/31/2010	3.0	5.3	5.7	36.9	65.2	97.2	12.0
4/30/2010	2.3	3.2	3.7	17.4	24.2	98.2	10.0
5/31/2010	2.6	3.0	3.1	14.2	16.4	98.5	13.0
6/30/2010	3.5	4.1	5.1	15.0	17.6	98.5	9.0
7/31/2010	4.0	4.7	5.1	21.8	27.8	98.5	9.0
8/31/2010	2.7	3.1	3.5	15.7	18.0	98.6	9.0
9/30/2010	4.0	4.7	5.5	20.4	23.9	98.1	4.0
10/31/2010	2.1	2.5	2.8	11.4	13.6	98.9	10.0
11/30/2010	2.0	2.1	2.6	11.4	11.9	98.9	10.0
12/31/2010	2.5	3.0	3.1	14.1	17.0	98.3	13.0
1/31/2011	3.2	3.5	3.7	16.5	18.0	98.4	16.0
2/28/2011	3.4	4.0	4.1	19.5	22.9	98.5	17.0
3/31/2011	4.8	5.7	6.0	34.0	40.4	96.7	14.0
4/30/2011	3.5	4.8	6.4	22.3	30.6	97.9	11.0
5/31/2011	2.8	3.0	3.3	17.1	18.4	98.3	15.0
6/30/2011	3.6	4.2	4.3	23.7	27.6	98.3	17.0
7/31/2011	3.3	4.1	4.4	20.6	25.6	98.8	26.0
8/31/2011	2.9	3.0	4.5	20.0	20.1	98.9	28.0
9/30/2011	2.5	3.7	5.2	14.6	21.5	98.8	20.0
10/31/2011	1.9	2.6	3.4	13.0	17.8	98.9	22.0
11/30/2011	1.7	1.7	2.3	10.4	10.4	99.	13.0
12/31/2011	1.7	1.8	2.1	9.5	10.0	99.	15.0
1/31/2012	1.0	2.5	2.5	9.8	12.2	98.8	11.0
2/29/2012	1.9	2.0	2.1	9.0	9.5	98.9	22.0
3/31/2012	2.0	2.3	3.3	10.2	11.8	98.	29.5
4/30/2012	2.1	2.8	2.8	10.6	14.2	98.9	17.0
5/31/2012	2.3	2.4	3.0	13.8	14.4	98.8	7.0
6/30/2012	3.5	4.5	5.0	22.2	28.5	98.1	7.0

Attachment B. Salisbury Wastewater Treatment Plant - Discharge Monitoring Report Data

MONITORING PERIOD END DATE	Nitrogen Ammonia, Total*, mg/l Monthly Average	Nitrogen Ammonia, Total*, mg/l Weekly Average	Nitrogen Ammonia Total*, mg/l Daily Maximum	Nitrogen Kjeldahl, Total, mg/l Monthly Average	Nitrogen, Nitrate, mg/l Monthly Average	Nitrogen, Nitrite, mg/l Monthly Average
1/31/2009	11.1	13.8	13.8	14.0	4.0	0.05
2/29/2009	14.8	17.4	17.4	11.0	4.3	0.03
3/31/2009	12.9	14.8	15.0	17.0	3.6	0.10
4/30/2009	13.9	14.8	15.5	17.0	2.4	0.02
5/31/2009	15.3	17.2	18.5	28.0	2.3	0.04
6/30/2009	18.4	22.2	22.5	23.0	13.0	0.17
7/31/2009	14.1	16.9	18.0	12.0	12.0	0.00
8/31/2009	13.6	15.9	16.8	14.0	13.0	0.09
9/30/2009	4.2	11.2	11.8	not reported	not reported	not reported
10/31/2009	2.8	7.6	9.7	1.1	16.0	0.05
11/30/2009	6.0	7.9	8.1	5.5	13.0	0.22
12/31/2009	8.0	10.5	11.0	9.5	7.1	0.05
1/31/2010	10.4	11.5	11.9	12.0	6.7	0.06
2/28/2010	10.7	12.2	13.0	12.0	9.9	0.06
3/31/2010	9.7	14.5	16.9	12.0	5.0	0.00
4/30/2010	5.5	7.4	7.9	4.6	6.6	0.08
5/31/2010	11.3	12.7	13.8	7.1	14.0	0.01
6/30/2010	18.6	21.4	22.5	20.0	8.7	0.00
7/31/2010	11.3	13.0	16.4	12.0	4.9	0.12
8/31/2010	13.9	15.7	15.7	13.0	9.1	0.00
9/30/2010	9.6	12.5	13.1	12.0	6.1	0.00
10/31/2010	1.0	1.1	2.1	1.0	23.0	0.00
11/30/2010	8.6	12.9	13.0	5.6	15.0	0.05
12/31/2010	13.7	14.9	15.7	14.0	5.4	0.40
1/31/2011	16.1	17.0	17.7	17.0	3.4	0.22
2/28/2011	17.7	18.6	19.2	20.0	1.9	0.10
3/31/2011	13.2	19.3	19.3	19.0	2.5	.09
4/30/2011	8.5	12.1	13.1	11.0	7.	.03
5/31/2011	19.4	26.2	26.2	17.0	12.	.02
6/30/2011	18.4	19.3	19.6	19.0	13.	.09
7/31/2011	16.3	18.9	19.3	21.0	11.	not reported
8/31/2011	15.1	18.7	20.0	14.0	17.	not reported
9/30/2011	7.7	10.0	11.4	12.0	16.	not reported
10/31/2011	0.8	1.3	1.3	2.2	12.	not reported
11/30/2011	0.6	1.0	1.	0.9	11.	.02
12/31/2011	4.4	8.8	10.9	5.2	9.2	.08
1/31/2012	9.0	10.9	11.3	8.0	9.61	not reported
2/29/2012	9.1	not reported	11.8	10.9	12.6	.04
3/31/2012	8.2	not reported	11.9	7.0	17.2	.15
4/30/2012	12.0	not reported	17.	9.3	11.	.21
5/31/2012	13.3	not reported	16.1	16.7	5.43	.07
6/30/2012	15.6	not reported	16.9	17.4	7.08	.02

MONITORING PERIOD END DATE	Flow (Mgal/d) 12 Month Rolling Average	CBOD, 05 day, 20 C (mg/l) Average Monthly	CBOD, 05 day, 20 C (mg/l) Average Weekly	CBOD, 05 day, 20 C (mg/l) Daily Maximum	CBOD, 05 day, 20 C (lb/d) Monthly Average	CBOD, 05 day, 20 C (lb/d) Average Weekly	BOD, 5-day, percent removal Monthly Minimum
7/31/2012	.695	1.3	1.8	2.2	8.	11.1	99.5
8/31/2012	.748	1.2	1.7	2.5	7.5	10.6	99.4
9/30/2012	.673	.7	.7	1.	3.3	3.3	99.7
10/31/2012	.651	.3	.4	.4	1.4	1.9	99.8
11/30/2012	.644	.3	.4	.4	1.6	2.2	99.8
12/31/2012	.725	1.3	2.	2.7	8.6	13.3	99.
1/31/2013	.65	2.1	3.5	3.9	11.5	19.1	98.6
2/30/2013	.652	2.2	2.6	2.8	11.3	13.4	98.5
3/31/2013	.69	1.3	1.3	2.1	11.	11.	98.3
4/30/2013	.692	.7	1.3	1.3	3.7	6.9	99.5
5/31/2013	.686	1.	1.4	2.1	5.4	7.5	99.3
6/30/2013	.691	.9	1.	1.3	6.2	6.9	99.4
7/31/2013	.696	.9	1.2	1.5	6.	8.	99.5
8/31/2013	0.691	0.4	0.5	0.6	2.5	2.8	99.8
9/30/2013	.694	.4	.7	.7	2.	3.5	99.8
10/31/2013	.689	.3	.4	.9	1.2	1.7	99.7
11/30/2013	.679	.8	1.1	1.3	3.5	4.8	99.5
12/31/2013	.66	2.1	3.1	3.3	11.3	16.7	98.6
1/31/2014	.678	3.	4.3	4.9	20.6	29.6	96.8
2/28/2014	.688	3.7	4.3	4.9	19.6	22.8	97.2
3/31/2014	.66	4.6	5.4	5.7	26.3	30.8	96.6
4/30/2014	.682	2.6	3.8	4.3	19.5	28.5	97.
5/31/2014	.692	1.5	1.7	2.4	9.5	10.8	99.
6/30/2014	.682	.9	1.1	1.2	5.3	6.5	99.4
7/31/2014	.681	.6	.8	1.	3.9	5.2	99.7
8/30/2014	.675	.4	.7	1.2	2.5	4.3	99.8
9/30/2014	.664	.7	.9	1.2	3.2	4.1	99.6
2007 Permit Limit	**1.3**	**5.0**	**7.0**	**Report**	**54.0**	**76.0**	**85%**
Minimum	0.638	0.200	0.400	0.400	1.000	1.700	96.6
Maximum	0.748	4.600	5.500	8.400	30.800	60.300	99.8
Average	0.695	1.335	1.890	2.259	8.154	11.893	99.072
Standard Deviation	0.0	1.0	1.3	1.5	6.3	9.7	0.8
# Measurements	69.0	69.0	69.0	69.0	69.0	69.0	69.0
# Exceeds Limits	0.0	0.0	0.0	n/a	0.0	0.0	0.0

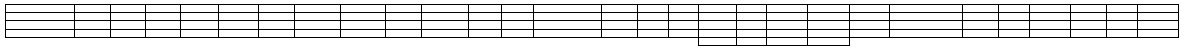
MONITORING PERIOD END DATE	Dissolved Oxygen (mg/l) Daily Minimum	pH (s.u.) Daily Minimum	pH (s.u.) Daily Maximum	Fecal Coliform, 50 cfu/100 mL Monthly Average	Fecal Coliform, 100/100 mL Daily Maximum	Enterococci, 35 cfu/100 ml Monthly Average	Enterococci, 104 cfu/100 ml Daily Maximum
7/31/2012	6.2	6.6	6.9	9.0	130.0	3.9	25.0
8/31/2012	6.2	6.7	7.0	1.3	20.0	0.1	0.1
9/30/2012	6.4	6.6	6.8	1.2	6.0	0.0	0.0
10/31/2012	7.6	6.6	6.8	0.0	0.0	0.0	0.0
11/30/2012	8.8	6.7	6.9	0.0	0.0	0.1	1.0
12/31/2012	7.8	6.7	6.9	4.2	34.0	3.7	17.0
1/31/2013	8.8	6.8	6.9	2.9	14.0	1.1	5.0
2/30/2013	8.9	6.8	6.8	2.4	38.0	8.8	46.0
3/31/2013	7.1	6.8	6.9	0.0	1.0	0.3	1.0
4/30/2013	8.1	6.6	6.8	0.0	1.0	0.0	0.0
5/31/2013	7.1	6.6	6.9	1.1	3.0	0.2	2.0
6/30/2013	6.8	6.7	6.9	1.4	24.0	0.9	4.0
7/31/2013	6.	6.7	6.9	14.6	88.0	0.4	4.0
8/31/2013	6.5	6.6	6.7	0.0	0.0	0.0	0.0
9/30/2013	7.2	6.6	6.8	0.0	0.0	0.0	0.0
10/31/2013	8.5	6.7	7.0	0.0	0.0	0.0	0.0
11/30/2013	9.7	6.6	6.8	0.0	0.0	0.0	0.0
12/31/2013	9.5	6.7	7.0	2.1	35.	2.1	25.
1/31/2014	9.5	6.9	7.2	25.	2.	0.0	0.0
2/28/2014	7.8	6.8	6.9	0.0	1.	0.0	0.0
3/31/2014	9.1	6.8	7.1	0.0	1.	0.0	0.0
4/30/2014	7.2	6.7	7.0	0.0	0.0	0.0	0.0
5/31/2014	6.9	6.4	6.9	0.0	0.0	0.0	0.0
6/30/2014	6.7	6.8	7.0	0.0	9.	0.0	0.0
7/31/2014	6.2	6.5	7.0	0.0	0.0	0.0	0.0
8/30/2014	7.	6.5	6.8	0.0	0.0	5.8	35.
9/30/2014	7.4	6.5	6.8	0.0	0.0	5.1	60.
2007 Permit Limit	**> 6.0**	**6.5**	**8.5**	**50.0**	**100.0**	**35.0**	**104.0**
Minimum	6.0	6.4	6.5	0.0	0.0	0.0	0.0
Maximum	10.9	6.9	7.2	25.0	130.0	8.8	60.0
Average	7.1	6.6	6.8	2.2	16.4	1.1	8.2
Standard Deviation	1.2	0.1	0.1	3.9	25.5	1.6	13.5
# Measurements	69.0	69.0	69.0	69.0	68.0	69.0	69.0
# Exceeds Limits	0.0	0.0	0.0	0.0	1.0	0.0	0.0

MONITORING PERIOD END DATE	TSS (mg/l) Average Monthly	TSS (mg/l) Average Weekly	TSS (mg/l) Daily Maximum	TSS (lb/d) Monthly Average	TSS (lb/d) Average Weekly	TSS, percent removal Monthly Minimum	Copper, Total (ug/l) Monthly Average
7/31/2012	2.5	3.1	3.5	17.0	19.1	98.9	19.0
8/31/2012	2.0	2.4	2.8	12.4	14.9	99.1	13.0
9/30/2012	1.5	1.9	1.9	7.0	8.8	99.2	8.0
10/31/2012	1.8	2.3	2.5	8.4	10.7	98.8	13.0
11/30/2012	2.1	2.6	2.6	11.3	14.1	98.7	11.0
12/31/2012	3.1	3.5	4.1	20.6	23.2	98.	23.5
1/31/2013	3.1	3.8	4.0	15.9	19.5	97.9	26.0
2/30/2013	2.5	3.1	3.2	12.9	16.0	98.4	28.0
3/31/2013	3.5	4.0	4.9	29.7	33.9	97.3	20.0
4/30/2013	3.6	4.0	4.5	19.0	21.1	98.4	22.0
5/31/2013	3.8	4.1	5.0	20.4	22.0	97.9	13.0
6/30/2013	4.5	5.3	5.8	30.9	36.4	97.3	15.0
7/31/2013	4.3	5.8	6.7	28.8	38.9	97.7	11.0
8/31/2013	2.0	2.4	3.7	11.4	13.6	99	17.0
9/30/2013	2.1	2.6	3.2	10.5	12.9	98.7	15.
10/31/2013	2.1	2.5	3.1	8.7	10.3	98.5	17.
11/30/2013	2.6	3.1	3.3	11.4	13.6	98.	11.
12/31/2013	4.6	5.9	6.2	21.9	28.1	97.1	20.5
1/31/2014	4.1	4.4	4.7	28.2	30.3	97.2	20.
2/28/2014	3.	3.7	4.4	15.9	19.6	98.2	26.
3/31/2014	2.9	3.3	3.7	16.6	18.9	97.4	21.
4/30/2014	3.9	4.2	5.	29.2	31.5	96.6	21.
5/31/2014	3.9	4.	4.4	24.7	25.3	97.9	18.
6/30/2014	3.6	4.4	5.8	21.3	26.1	98.	30.5
7/31/2014	2.7	3.1	4.	17.7	20.3	98.7	14.
8/30/2014	1.7	2.4	2.6	10.5	14.8	99.3	21.
9/30/2014	2.2	3.2	3.4	10.1	14.6	98.9	16.5
2007 Permit Limit	**5.0**	**7.0**	**Report**	**54.0**	**76.0**	**85%**	**25.**
Minimum	1.0	1.7	1.8	7.0	8.7	96.6	4.0
Maximum	4.8	5.9	6.7	36.9	65.2	99.3	30.5
Average	2.7	3.3	3.8	16.6	20.1	98.4	15.9
Standard Deviation	0.89	1.07	1.24	6.82	9.32	0.62	6.01
# Measurements	69.0	69.0	69.0	69.0	69.0	69.0	69.0
# Exceeds Limits	0.0	0.0	n/a	0.0	0.0	0.0	n/a

*** for an explanantion of the interim copper and ammonia nitrogen limits and conditions that have been in effect since 2011 see the EPA Administrative Order in the administrative file.**

MONITORING PERIOD END DATE	Nitrogen Ammonia, Total*, mg/l Monthly Average	Nitrogen Ammonia, Total*, mg/l Weekly Average	Nitrogen Ammonia Total*, mg/l Maximum Daily	Nitrogen Kjeldahl, Total, mg/l Monthly Average	Nitrogen, Nitrate, mg/l Monthly Average	Nitrogen, Nitrite, mg/l Monthly Average
7/31/2012	13.4	not reported	16.6	19.2	6.25	.07
8/31/2012	9.9	not reported	15.3	10.4	8.18	.09
9/30/2012	6.5	not reported	7.6	10.0	15.8	.03
10/31/2012	8.5	not reported	18.3	2.1	20.8	not reported
11/30/2012	1.9	not reported	5.9	1.1	14.7	not reported
12/31/2012	7.9	not reported	10.5	7.7	15.4	.09
1/31/2013	10.1	not reported	10.1	8.3	15.3	.69
2/30/2013	10.6	not reported	13.4	10.6	13.	.35
3/31/2013	9.3	not reported	13.2	14.4	2.83	.27
4/30/2013	7.3	not reported	11.00	5.9	12.9	.42
5/31/2013	14.9	not reported	19.8	17.7	5.36	.1
6/30/2013	15.4	not reported	20.2	27.1	5.15	.06
7/31/2013	15.9	not reported	20.0	19.7	8.28	.03
8/31/2013	2.8	not reported	8.7	5.1	14.1	0.007
9/30/2013	1.3	not reported	4.5	2.83	10.7	.07
10/31/2013	5.6	not reported	20.	.63	22.1	.19
11/30/2013	.7	not reported	1.7	.97	17.3	not reported
12/31/2013	8.5	not reported	11.6	10.1	13.3	.01
1/31/2014	9.2	not reported	11.4	19.8	3.53	.16
2/28/2014	6.1	not reported	8.3	10.1	10.6	.05
3/31/2014	13.4	not reported	16.	16.	5.11	.17
4/30/2014	11.5	not reported	13.6	13.	4.51	.29
5/31/2014	10.	not reported	13.8	7.2	13.4	.35
6/30/2014	16.2	not reported	21.5	25.8	4.12	.13
7/31/2014	3.8	not reported	8.5	5.98	17.3	.13
8/30/2014	.1	not reported	.1	.96	19.2	.22
9/30/2014	.1	not reported	.2	.91	23.9	not reported
2007 Permit Limit	5.0/Report	7.0/Report	10.0/Report	Report	Report	Report
Minimum	0.1	1.0	0.1	0.6	1.9	0.0
Maximum	19.4	26.2	26.2	28.0	23.9	0.7
Average	9.9	13.6	13.4	11.4	10.4	0.1
Standard Deviation	5.17	5.64	5.76	6.90	5.53	0.13
# Measurements	69.0	37.0	69.0	68.0	68.0	59.0
# Exceeds Limits	n/a	n/a	n/a	n/a	n/a	n/a

Salisbury DMR Data with Titles



Attachment C.	**Whole Effluent Toxicity Test Results and Chemistry Data**									
Monitoring Period End Date	Aluminum, mg/l	Cadmium, mg/l	Chromium, mg/l	Copper, mg/l	Nickel, mg/l	Lead, mg/l	Zinc, mg/l	Ammonia as Nitrogen, mg/l	LC_{50}, %	C-NOEC, %
March 2008	0.062	<0.001	0.003	0.014	0.006	<0.001	<0.002	8.5	>100%	100%
June 2008	0.022	<0.001	<0.001	0.014	0.015	<0.001	0.009	16	>100%	50%
September 2008	<0.010	<0.001	<0.001	0.012	0.009	<0.001	0.014	10	>100%	100%
December 2008	<0.010	<0.001	<0.001	0.012	0.004	<0.001	0.012	3	>100%	100%
March 2009	0.026	<0.001	<0.001	0.012	0.007	<0.001	0.01	15	>100%	100%
June 2009	<0.010	<0.001	<0.001	0.012	0.011	<0.002	0.008	22	>100%	100%
September 2009	<0.010	<0.001	<0.001	0.01	0.008	<0.001	0.008	2.9	>100%	100%
December 2009	<0.010	<0.001	<0.001	0.012	0.006	<0.002	0.006	9.8	>100%	100%
March 2010	<0.010	<0.001	<0.001	0.015	0.006	0.004	0.012	14	>100%	100%
June 2010	<0.010	<0.001	<0.001	0.011	0.017	<0.002	0.007	18	>100%	100%
September 2010	<0.010	<0.001	<0.001	0.003	0.005	<0.002	0.006	14	>100%	50%
December 2010	<0.010	<0.001	<0.001	0.012	0.003	<0.002	0.009	13	>100%	100%
March 2011	<0.010	<0.001	<0.001	0.014	0.007	<0.002	0.02	19	>100%	100%
June 2011	<0.010	<0.001	<0.005	0.015	0.014	<0.002	0.026	16	>100%	100%
September 2011	<0.010	<0.001	<0.001	0.014	0.008	<0.002	0.005	6.4	>100%	100%
December 2011	0.074	<0.001	<0.001	0.016	0.007	<0.002	0.008	5.1	>100%	100%
March 2012	0.016	<0.001	<0.001	0.03	0.005	<0.002	0.015	6.94	>100%	100%
June 2012	0.181	<0.001	<0.001	0.012	0.012	0.002	0.009	19.5	>100%	100%
September 2012	<0.010	<0.001	<0.001	0.017	0.009	<0.002	0.005	9.24	>100%	100%
December 2012	<0.010	<0.001	<0.001	0.025	0.007	<0.002	0.009	7.3	>100%	100%
March 2013	0.074	<0.001	<0.001	0.018	0.007	<0.002	0.013	12.4	>100%	100%
June 2013	<0.010	<0.001	<0.001	0.001		<0.002			>100%	100%
September 2013	<0.010	<0.001	<0.001	0.001		<0.002			>100%	100%
December 2013		<0.001	<0.001							
March 2014	0.107	<0.001	<0.001	0.021	0.006	<0.00005	0.02	15	>100%	100%
June 2014	0.088	<0.001	<0.001	0.02	0.008	<0.00005	0.014	25.1	>100%	100%
September 2014	0.144	<0.001	<0.001	0.016	0.005	<0.00005	0.009	0.14	>100%	100%
Reporting Level*	**0.010**	**0.001**	**0.001/0.005**	**0.001**	**0.001**	**0.002**	**0.002**	**0.040**		
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
Maximum	0.181	0	0	0.030	0.017	0.004	0.026	25.100		
Average	0.079	n/a	0.003	0.014	0.008	0.003	0.011	12.013		

* The reporting level for chromium was 0.001 mg/l for every test except the the test conducted in June 2011. The reporting level for chromium in the June 2011 test was 0.005 mg/l. The reporting level is defined as the level at which reliable measurements can be made under routine laboratory conditions.

Attachment D NPDES Permit for the Salisbury Wastewater Treatment Plant, Salisbury, Massachusetts, Permit No. MA0102873
Endangered Species Act Assessment, March 11, 2014

Endangered Species Act Assessment

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or 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, 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) administers Section 7 consultations for freshwater species. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish.

The federal action being considered in this case is EPA's proposed reissuance of a National Pollutant Discharge Elimination System (NPDES) Permit to the Town of Salisbury to discharge effluent from the Salisbury Wastewater Treatment Plant (WWTP). The new permit is intended to replace the existing NPDES permit issued in 2007 in governing wastewater discharges from the Town's WWTP, as discussed in the Salisbury WWTP fact sheet.

Protected Species Review

As the federal agency responsible for authorizing the discharge from this facility, EPA has reviewed available information and determined that a number of federally listed species inhabit (seasonally) waters in the broad general area of the relevant discharge. Further analysis was done with regard to the presence or absence of these protected species in the action area. 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); reptiles (sea turtles: Kemp's Ridley, Leatherback, Green – all endangered; Northwest Atlantic Ocean Distinct Population Segment of Loggerhead – threatened). However, EPA does not consider the area in the vicinity of the facility discharge to be suitable habitat for these marine species. Based on the normal distribution of these species, it is unlikely that any of the coastal ESA listed species identified above would be expected to be present in the vicinity of the treatment plant's discharge. The discharge flows into an unnamed tidal creek that drains to the mainstem of the Merrimack River. The discharge is diluted by the river as it reaches the mainstem along the north bank of the Merrimack River, approximately 7.8 kilometers upstream from the mouth of the river. EPA has made the determination that these protected marine species are not present in the action area of the discharge. Therefore, no consultation pertaining to these species is required.

It is EPA's understanding that the only two federally listed species that have the potential to occur in the vicinity of the Salisbury WWTP discharge are the shortnose sturgeon (*Acipenser brevirostrum*) and the Atlantic sturgeon (*Acipenser oxyrinchus*). Because these species may be affected by the discharge authorized by the proposed permit, EPA has evaluated the potential impacts of the permit action on these two species of sturgeon. On the basis of the evaluation

included below, EPA's preliminary determination is that this action is not likely to adversely affect shortnose sturgeon and Atlantic sturgeon. Therefore, EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NMFS regarding this determination through the information in the draft permit, the fact sheet, this assessment as well as a letter to the NMFS under separate cover.

Shortnose Sturgeon in the Merrimack River

According to information presented in the Final Recovery Plan for the Shortnose Sturgeon[1] studies done in 1989 and 1990 indicated that the Merrimack River supports a foraging, or total adult population, of less than 100 fish. Elsewhere in the document, a more specific estimate of approximately 33 adult shortnose sturgeon is recorded for the Merrimack River. These anadromous fish are benthic omnivores. In the Merrimack River, adults are thought to remain in freshwater all year, but some adults briefly enter low saline river reaches in May and June, then return upriver. The "concentration areas" used by fish in the Merrimack were identified as reaches where natural or artificial features cause a decrease in river flow, possibly creating suitable substrate conditions for freshwater mussels[2], a major prey item for adult sturgeon. The fish are generally associated with shallow and deep tidal channels and overwinter in deeper water. Spawning is thought to take place in the most upstream reach of the river used by the sturgeon, and channels are important for spawning. In the Merrimack River, spawning males have been found at a depth of 2.3 to 5.8 meters[3].

Further information on the location and site-specific behavior of shortnose sturgeon in the Merrimack River was provided by Jessica Pruden of NOAA Fisheries and Micah Kieffer of the U.S. Geological Survey. The upstream extent of the species in the Merrimack River is the Essex Dam in Lawrence, at River Kilometer (RKM) 46. Tracking data indicated that the majority of the population resided between RKM 7 and 32[4] Only a rare individual was observed outside of this range (one tagged individual made a brief movement upstream to RKM 35 in the summer of 1989)[5].

Spawning has been confirmed at Haverhill, MA (RKM 30–32). Spawning success was confirmed by the capture of two live embryos in 1990 at RKM 32[6]. Early life stages have also been collected, though no information exists on rearing habitat or success[7].

Some of the post-spawning and non-spawning adults move downstream to the salt/freshwater interface (RKM 7–12) to forage and remained for as long as six weeks (through mid-June). During the remainder of the year, shortnose sturgeon occupy an 11-km reach (RKM 13–23 between Haverhill and Amesbury) with reversing currents during flood tides and a maximum salinity penetration to RKM 16[8]. Tagged adult shortnose sturgeon tracked between late

[1] National Marine Fisheries Service. 1998. Recovery Plan for the Shortnose Sturgeon (*Acipenser brevirostrum*). Prepared by the Shortnose Sturgeon Recovery Team for the National Marine Fisheries Service, Silver Spring, Maryland. 104 pages.
[2] Kieffer, M., and B. Kynard. 1993. Annual Movements of shortnose and Atlantic sturgeons in the Merrimack River, Massachusetts. Transactions of the American Fisheries Society 122:1088-1103.
[3] NMFS 1998.
[4] Kieffer and Kynard, 1993.
[5] Jessica Pruden to John H. Nagle, 4 February 2011, in possession of John H. Nagle.
[6] Kieffer, M., and B. Kynard. 1996. Spawning of Shortnose Sturgeon in the Merrimack River. Transactions of the American Fisheries Society 125:179-186.
[7] Jessica Pruden to John H. Nagle, 4 February 2011, in possession of John H. Nagle.
[8] Jessica Pruden to John H. Nagle, 4 February 2011, in possession of John H. Nagle.

November through March overwintered within an 11-km reach[9, 10]. Since the largely undiluted Salisbury WWTP discharge meets the mainstem of the Merrimack River on the north bank at approximately RKM 7.8, it is possible that foraging adults could come in contact with the discharge once it mixes with the river.

Atlantic Sturgeon in the Merrimack River

The following information was taken from the Status Review of Atlantic Sturgeon (*Acipenser oxyrinchus*) (ASSRT February 2007):

> Historical reports of Atlantic sturgeon in the Merrimack River include a 104 kg sturgeon taken at Newburyport on September 14, 1938, while netting for blueback herring (Hoover 1938). An intensive gill net survey was conducted in the Merrimack River from 1987-1990 to determine annual movements, spawning, summering, and wintering areas of shortnose and Atlantic sturgeon (Kieffer and Kynard 1993). Thirty-six Atlantic sturgeon were captured (70-156 cm TL); most being under 100 cm TL. One dead Atlantic sturgeon was found on June 30, 1990 at the shortnose spawning area in Haverhill, MA (between RKM 31-32). Of 23 subadult Atlantic sturgeon sonically tracked in the river, 11 left the river within seven days, and the rest left by September or October of each year (Kieffer and Kynard 1993). Fish captured in one year were not observed in the river during subsequent years. On June 9, 1998, a 24 inch (estimated length) Atlantic sturgeon was captured and released in the Merrimack River by the USFWS personnel, who were conducting a contaminant study on the river (D. Major, USFWS, Pers. Comm. 2006). This information provides no evidence of a spawning population of Atlantic sturgeon in the Merrimack River, although it seems that the estuary is used as a nursery area (B. Kynard, Conte Anadromous Fish Research Center, Pers. Comm. 1998).

Since Atlantic sturgeon use the Merrimack River estuary as a nursery, the species may come in contact with the highly diluted Salisbury WWTP effluent that first enters the river from the tidal creek at approximately RKM 7.8 of the north bank.

Outfall Characteristics and Merrimack River Conditions

The Salisbury WWTP is a 1.3 million gallon per day (mgd) advanced wastewater treatment plant that discharges to an unnamed tidal creek approximately 0.5 mile upstream of the mainstem of the Merrimack River. (See Figure 1 of the fact sheet). As noted previously, the unnamed creek joins the river at approximately RKM 7.8. The collection system is 100% separate sanitary sewer and serves a total population of approximately 5,000. There are no industrial users discharging to the collection system.

The tidal range in this area is approximately 7 feet. A review of Discharge Monitoring Report (DMR) data from January 2009 through January 2014 shows the reported annual average flow from the facility has achieved compliance with the flow limit of 1.3 mgd (2.01 cfs). Stream flow in the tidal creek during the summer months may be minimal on occasion such that during low flow, low tide conditions, the effluent may discharge to a wetland. Under these conditions there

[9] Kieffer and Kynard, 1993.
[10] Jessica Pruden to John H. Nagle, 4 February 2011, in possession of John H. Nagle.

is no creek flow to provide dilution. Based on this periodic tidal occurrence, a conservative dilution factor of 1 in the unnamed creek is used to calculate water quality based effluent limits in the draft permit. It is not likely that the two sturgeon species would enter this minor tidal creek. EPA believes that any contact of the WWTP discharge with the protected species would occur after the discharge mixed in the mainstem of the Merrimack River.

Hydrographic studies were performed in the Merrimack River in May and June of 1997 as part of the Newburyport WWTP permit renewal process. The studies confirm a high-energy tidal flux of water moving in and out of the river, with average tidal velocities from 0.74 knots to 1.53 knots. A 7Q10 flow or other low flow estimate for this section of the Merrimack River is not appropriate because it is tidally influenced. The average Merrimack River flow during the hydrographic study was estimated to be approximately 5000 cubic feet per second (cfs).

Because of the high energy tidal movement of water in this reach of the Merrimack River, it is difficult to pinpoint a meaningful zone of influence or discharge plume in the river resulting from the effluent. However, descriptive information regarding the outfall and the river in the vicinity of the facility may provide a general assessment of the influence of the discharge. For example, the maximum permitted flow from the facility outfall is 2.01 cfs (1.3 mgd). This is less than 1% of the average Merrimack River flow of approximately 5000 cfs in the area. Under these hydrologic conditions, the minimal discharge plume from the creek mixes rapidly with the Merrimack River along the north bank under most tidal conditions. Even during the brief slack tides (approximately 40 minutes), when the discharge plume from the creek may experience a relatively low energy initial mixing, this condition is likely confined to a small area along the north bank. As the tidal influence increases, the effluent completely mixes with the river water.

Pollutant Discharges Permitted

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Clean Water Act (CWA), see 40 CFR 125 Subpart A. For publicly owned treatment works (POTWs), technology-based requirements are effluent limitations based on secondary treatment as defined in 40 CFR Part 133.

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

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

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that caused, 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 concentrations exceed the applicable criterion. The effluent limits in the draft permit are at least as stringent as those of the previous permit. EPA has further reviewed the

discharges and effluent limits to ensure that they are specifically protective of shortnose sturgeon and Atlantic sturgeon. Specific pollutants, criteria and effluent limits are discussed below.

As each permitted limit is evaluated for potential impacts to shortnose and Atlantic sturgeon, it must be pointed out that the proposed permit limits are conservative in that they assume no dilution with the tidal creek at the point of the facility discharge (dilution factor of 1). As described above, once the effluent flows down the tidal creek and reaches the expected habitat of the protected sturgeon species, significant mixing with river water will have taken place.

Total Suspended Solids

Total Suspended Solids (TSS) can affect aquatic life directly by killing organisms or reducing growth rate or resistance to disease, by preventing the successful development of fish eggs and larvae, by modifying natural movements and migration, and by reducing the abundance of available food[11]. These effects are caused by TSS decreasing light penetration in the water column and by burial of the benthos in the sediment. Eggs and larvae are most vulnerable to increases in solids.

The draft permit proposes the same TSS concentration limitations as in the existing permit, a monthly average concentration of 5 mg/L and a weekly average concentration of 7 mg/L. These limits, based on the 1979 facility plan and subsequent environmental impact report that were prepared when the facility was designed, are significantly more stringent than secondary requirements found at 40 CFR Part 133.

Studies on the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected[12]. The studies reviewed by Burton demonstrated lethal effects to fish at concentrations of 580 mg/L to 700,000 mg/L depending on species. Sublethal effects have been observed at substantially lower turbidity levels. For example, prey consumption was significantly lower for striped bass larvae tested at concentrations of 200 and 500 mg/L compared to larvae exposed to 0 and 75 mg/L[13]. Studies with striped bass adults showed that pre-spawners did not avoid concentrations of 954 to 1,920 mg/L to reach spawning sites[14]. While there have been no directed studies on the effects of TSS on shortnose sturgeon, shortnose sturgeon juveniles and adults are often documented in turbid water. Dadswell[15] reports that shortnose sturgeon are more active under lowered light conditions, such as those in turbid waters. As such, shortnose sturgeon are assumed to be as least as tolerant to suspended sediment as other estuarine fish such as striped bass. Atlantic sturgeon juveniles and adults are assumed to generally mirror this tolerance to TSS.

As noted above, shortnose sturgeon eggs and larvae are less tolerant to sediment levels than juveniles and adults. Several studies have examined the effects of suspended solids on fish

[11] US EPA Red Book 1976, Quality Criteria for Water. EPA 440976023.
[12] Burton, G.A., Jr. 1993. Assessing the quality of life for aquatic biota. In, Proceedings 1992 International Symposium on Environmental Dredging, A Solution to Contaminated Sediments?. Erie County Environmental Education Institute, Inc. Buffalo, NY.
[13] Breitburg, D. L. 1988. Effects of turbidity on prey consumption by striped bass larvae. Transactions of American Fisheries Society. 117:72-77, referenced in Burton, 1993.
[14] Combs, D.L. 1979. Striped Bass Spawning in the Arkansas River Tributary of Keystone Reservoir, Oklahoma. Proc. Ann. Conf. S.E. Assoc. Fish Wildl. Agencies 33:371-383, referenced in Burton, 1993.
[15] Dadswell, M.J., B.D. Taubert, T.S. Squiers, D. Marchettee and J. Buckley. 1984. Synopsis of biological data on shortnose sturgeon (Acipenser brevirostrum, LeSueur 1818). NOAA Tech, Rept. NMFS 14. 45 p., referenced in correspondence from Patricia A. Kurkul, NMFS to John H. Nagle, US EPA regarding Montague POTW Section 7 Consultation. September 10, 2008.

larvae. Observations in the Delaware River indicated that larval populations may be negatively affected when suspended material settles out of the water column[16]. Larval survival studies conducted by Auld and Schubel[17] showed that striped bass larvae tolerated 50 mg/l and 100 mg/l suspended sediment concentrations and that survival was significantly reduced at 1000 mg/L. According to Wilber and Clarke[18], hatching is delayed for striped bass and white perch eggs exposed for one day to sediment concentrations of 800 and 1000 mg/L, respectively.

In a study on the effects of suspended sediment on white perch and striped bass eggs and larvae performed by the Army Corp of Energy (ACOE)[19], researchers found that sediment began to adhere to the eggs when sediment levels of over 1000 parts per million (ppm) were reached. No adverse effects to demersal eggs and larvae have been documented at levels at or below 50 mg/L. This is above the highest level authorized for the WWTP by this permit. Based on this information, it is likely that the discharge of sediment from the WWTP in the concentrations allowed by the draft permit will have an insignificant effect on shortnose sturgeon. Since Atlantic sturgeon spawning has not been documented in the Merrimack River, egg and larval stages are not expected to be present in the action area.

Carbonaceous Biological Oxygen Demand

The carbonaceous biological oxygen demand (CBOD) water test measures oxygen consumed by aerobic microorganisms from the decomposition of organic matter in the water.. If these aerobic bacteria use too much of the dissolved oxygen in the water there will not be enough oygen available for the fish, insects, and other organisms that rely the water body. CBOD has the potential to affect dissolved oxygen (DO) concentrations in the vicinity of and downstream from a wastewater treatment plant's outfall.

The draft permit for the WWTP proposes the same $CBOD_5$ concentration limits as in the current permit, a monthly average $CBOD_5$ concentration of 5 mg/L and a weekly average concentration of 7 mg/L. These limits, based on the 1979 facility plan and subsequent environmental impact report that were prepared when the facility was designed, are significantly more stringent than secondary requirements found at 40 CFR Part 133. A review of DMR data from January 2009 through January 2014 indicates that the permit limits for $CBOD_5$ and DO have been consistently achieved.

While information regarding the impact of DO levels on Atlantic sturgeon specifically are not available, the related species, shortnose sturgeon, are known to be adversely affected by DO levels below 5 mg/l. Based on this data, the dissolved oxygen concentration in the water near the outfall and in the mainstem of the river will remain above 5 mg/L to support fish, insects and other organisms. No adverse affects are expected to occur to shortnose sturgeon or Atlantic sturgeon.

---

[16] Hastings, R.W. 1983. A study of the shortnose sturgeon Acipenser brevirostrum population in the upper tidal Delaware River: Assessment of impacts of maintenance dredging. Final Report to the U.S. Army Corps of Engineers, Philadelphia District. Rutgers University. 129 pp.
[17] Auld, A.H. and J.R. Schubel. 1978. Effects of suspended sediment on fish eggs and larvae: a laboratory assessment. Estuarine and Coastal Marine Science 6: 153-164.
[18] Wilbur, D.H., and Clarke, D.G., 2001. Biological effects of suspended sediments: A review of suspended sediment impacts on fish and shellfish with relation to dredging activities in estuaries. North American Journal of Fisheries Management 21(4): 855-875, as referenced in NMFS Montague POTW letter, September 10, 2008.
[19] Raymond P. Morgan, II, V. James Rasin, Jr., Linda A. Noe, 1973. Hydrographic and ecological effects of enlargement of the Chesapeake and Delaware Canal. Effects of suspended sediments on the development of eggs and larvae of striped bass and white perch. National Resources Institute, Chesapeake Biological Laboratory, University of Maryland, Center for Environmental and Estuarine Studies, 15, [12] p. ill., map; 28 cm. (NRI ref.; no 73-110), as referenced in NMFS Montague POTW Letter, September 10, 2008.

Dissolved Oxygen (DO)
A dissolved oxygen limitation in the draft permit shall not be less than 6.0 mg/l to ensure that the discharge does not cause or contribute to a violation of the Massachusetts Surface Water Quality Standards, 314 CMR 4.05 (4)(b)(1). The limit is the same as in the current permit, and a monitoring frequency of once per day is also carried forward in the draft permit. A review of data submitted on the monthly discharge monitoring reports demonstrates compliance with the permit limit for dissolved oxygen from January 2009 through January 2014.

As discussed above, shortnose sturgeon are known to be adversely affected by DO levels below 5 mg/l. The limit of 6.0 mg/l is expected to protective of both species of sturgeon and no adverse affects are expected to occur.

pH
The draft permit requires that the discharge maintain a pH of 6.5 – 8.3. A pH of 6.0 – 9.0 is harmless to most marine organisms and is within the normal range of pH for freshwater. A review of discharge monitoring report data (DMR) submitted over the last five years shows a violation of the pH limit in September 2009 reported at 6.4 standard units. As such, no adverse affects to shortnose sturgeon and Atlantic sturgeon are likely to occur as a result of the discharge into the tidal creek and the Merrimack River.

Bacteria
The Massachusetts Water Quality Standards include criteria for two bacterial indicators for Class SA waters. Fecal coliform bacteria are applicable in water designated for shellfishing and enterococci criteria have been established to protect recreational uses. Criteria for enterococci were first promulgated for Massachusetts coastal waters by EPA on November 16, 2004 (see 40 CFR 131.41). Massachusetts subsequently adopted enterococci criteria for marine waters into its water quality standards that were approved by EPA on September 19, 2007. The current permit limits for fecal coliform and enterococci have been achieved consistently and have been carried forward in the draft permit. Fecal bacteria are not known to be toxic to marine finfish and are expected to have no direct effect on shortnose sturgeon and Atlantic sturgeon.

Nutrients
The draft permit has seasonal effluent limitations for ammonia-nitrogen from May 1 through October 31 (average monthly limit of 5.0 mg/l; average weekly limit of 7.0 mg/l; and maximum daily limit of 10.0 mg/l) and ammonia-nitrogen monitoring and reporting are required the rest of the year. The permit also requires year round monitoring of total nitrogen, total Kjeldahl nitrogen and nitrate + nitrite.

The National Estuarine Eutrophication Assessment Update[20] (an update to"The National Estuarine Eutrophication Assessment Report", 1999, a report published by NOAA which assessed the scale, scope and characteristics of nutrient enrichment and eutrophic conditions in the nations estuaries) was reviewed but did not have data available for the assessment of the Merrimack River. It did, however, identify Plum Island Sound, south of the Salisbury WWTP, as experiencing a moderate

[20] 2007, Bricker, S., B. Longstaff, W. Dennison, A. Jones, K. Boicourt, C. Wicks, and J. Woerner, 2007.

high level of overall eutrophication. The Sound is characterized by high chlorophyll-a and moderate nuisance /toxic blooms.

Plum Island Sound is not expected to be shortnose sturgeon habitat. As stated previously, the majority of the population is expected to resided upstream of the sound, between RKM 7 and 3221.However the limits proposed in the draft permit are designed to meet water quality standards and should not contribute to increased eutrophication or depressed dissolved oxygen values in the sound. The nutrient limits and monitoring requirements are designed to ensure that the discharge will have no negative effect on shortnose sturgeon and Atlantic sturgeon.

Other toxic pollutants

As discussed fully in the fact sheet, EPA reviewed analytical data submitted with the facility's NPDES permit application to determine whether the facility discharges toxic pollutants in amounts that have a reasonable potential to cause or contribute to water quality violations. These data included expanded effluent testing data for over one hundred pollutants, including metals, VOCs and other toxic pollutants. The treatment plant's Whole Effluent Toxicity Test reports provide additional data for potentially toxic metals and reasonable potential analyses for these metals were completed as part of the permit renewal process. Copper and nickel showed reasonable potential to exceed their respective applicable water quality criteria and the draft permit includes limits for both metals. There is not reasonable potential to exceed water quality criteria for cadmium, lead and zinc and limits have not been included in the draft permit. The draft permit requires continued monitoring and reporting requirements for these metals.

Copper

The existing permit has a monthly average copper limit of 3.1 ug/l and a maximum daily copper limit of 4.8 ug/l based on the marine water quality criteria, as recommended in the EPA 2002: National Recommended Water Quality Criteria for Copper.

The copper concentrations routinely achieved through treatment were determined using a statistical analysis of data reported in the whole effluent toxicity tests for the period of March 2008 through September 2013. The analysis was based on the methodology set forth in the "Technical Support Document for Water Quality based Toxics Control, Appendix E", published in March 1991, EPA/505/2-90-001. Using the facility' whole effluent toxicity test data in the statistical analysis, as shown in Attachment D, Reasonable Potential Analyses, it was determined that reasonable potential for the discharge to exceed the acute and chronic water quality criteria exists and permit limits are necessary.

The maximum daily limit for dissolved copper based on the acute water quality criterion is 4.8 ug/l and the average monthly limit for dissolved copper, based on the chronic criterion, is 3.1 ug/l. As stated above, EPA's regulations require that permit limits be based on total recoverable rather than dissolved metals. The recommended conversion factor for acute and chronic copper criteria, 0.83, was used to arrive at the copper limits in the draft permit.

Chronic criterion is 3.1 ug/l (dissolved) Acute criterion is 4.8 ug/l (dissolved)

[21] Kieffer and Kynard, 1993.

Chronic criterion is (3.1/0.83) 3.7 ug/l Acute criterion is (4.8/0.83) 5.8 ug/l

$C_d = (Q_r * C_r) – (Q_s * C_s)/Q_d$

(2.01 cfs *5.8 ug/l)/(2.01 cfs) = 5.8 ug/l
(2.01 cfs * 3.7 ug/l)/ (2.01 cfs) = 3.7 ug/l

Very few toxicity tests have been conducted with protected sturgeon species. In the absence of species-specific chronic and acute toxicity data, EPA has identified the EPA aquatic life criteria as the best available scientific information in this case. The draft permit is designed to ensure that the Salisbury WWTP discharge will not cause or contribute to conditions exceeding these criteria in the tidal creek and the Merrimack River. As such, the discharge of the permitted concentrations is likely to have an insignificant effect on shortnose sturgeon and Atlantic sturgeon.

Nickel
As fully described in the fact sheet, there is reasonable potential that the discharge will exceed the chronic criterion of nickel and a monthly average limit has been included in the draft permit.

The chronic water quality criterion for nickel is 8.2 ug/l and the recommended conversion factor of 0.99 is used to achieve a total recoverable monthly average limit of 8.3 ug/l.

$C_d = (Q_r * C_r) – (Q_s * C_s)/Q_d$

(2.01 cfs *8.3 ug/l)/(2.01 cfs) = 8.3 ug/l

As described above, very few toxicity tests have been conducted with protected sturgeon species. In the absence of species-specific chronic and acute toxicity data, EPA has identified the EPA aquatic life criteria as the best available scientific information in this case. The draft permit is designed to ensure that the Salisbury WWTP discharge will not cause or contribute to conditions exceeding these criteria in the tidal creek and the Merrimack River. As such, the discharge of the permitted concentration is likely to have an insignificant effect on shortnose sturgeon and Atlantic sturgeon.

Whole Effluent Toxicity
The Massachusetts Department of Environmental Protection's Division of Watershed Management's toxics policy requires toxicity testing at all major facilities as defined in 40 CFR 122.2. The treatment plant is a major facility with a discharge of 1.3 MGD. In addition, EPA recognizes that toxicity testing is required to assure that the synergetic effect of the pollutants in the discharge do not cause toxicity, even though the pollutants may be at low concentrations in the effluent. Thus, the draft permit includes a whole effluent toxicity limitation requirement for the 001 outfall, to assure that the facility does not discharge combinations of toxic compounds into the unnamed tidal creek in amounts that affect aquatic or human life.

The draft permit carries forward a requirement for quarterly acute and chronic toxicity tests using the specie *Menidia beryllina*. The tests must be performed in accordance with the test procedures and protocols specified in Permit Attachments A and A-1 of the draft permit. The tests will be conducted four times per year.

A review of WET test results are shown in Attachment C, Whole Effluent Toxicity Test Results and Chemistry Data of the fact sheet. The LC50 of ≥ 100% is established by EPA/MassDEP policy for facilities with less than 10:1 dilution. There were two violations of the Chronic No Observed Effects Concentration (C-NOEC) based on a review of the test results from March 2008 through December 2013.

EPA continues to review, on a case-by-case basis, the selection of an additional test species for Whole Effluent Toxicity testing at a particular facility that may be more representative of sturgeon species. Taking into consideration the small relative discharge rate and the estuarine/marine characteristics of the receiving water, the addition of another test species (e.g. fresh water brook trout) in this case was not considered appropriate.

Finding

Based on the above analysis of the location of the discharge, the expected distribution of shortnose sturgeon and Atlantic sturgeon in the Merrimack River, the permit limits and the water quality effects of the permit action, EPA has made the preliminary determination that the proposed reissuance of the NPDES permit for this facility is not likely to adversely affect shortnose sturgeon and Atlantic sturgeon. Therefore EPA has determined that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NMFS regarding this determination through the information in the draft permit, the fact sheet, this attachment to the fact sheet, as well as a letter under separate cover.

Re-initiation of 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.

Scale 1 : 13,085

0 1,000 Feet

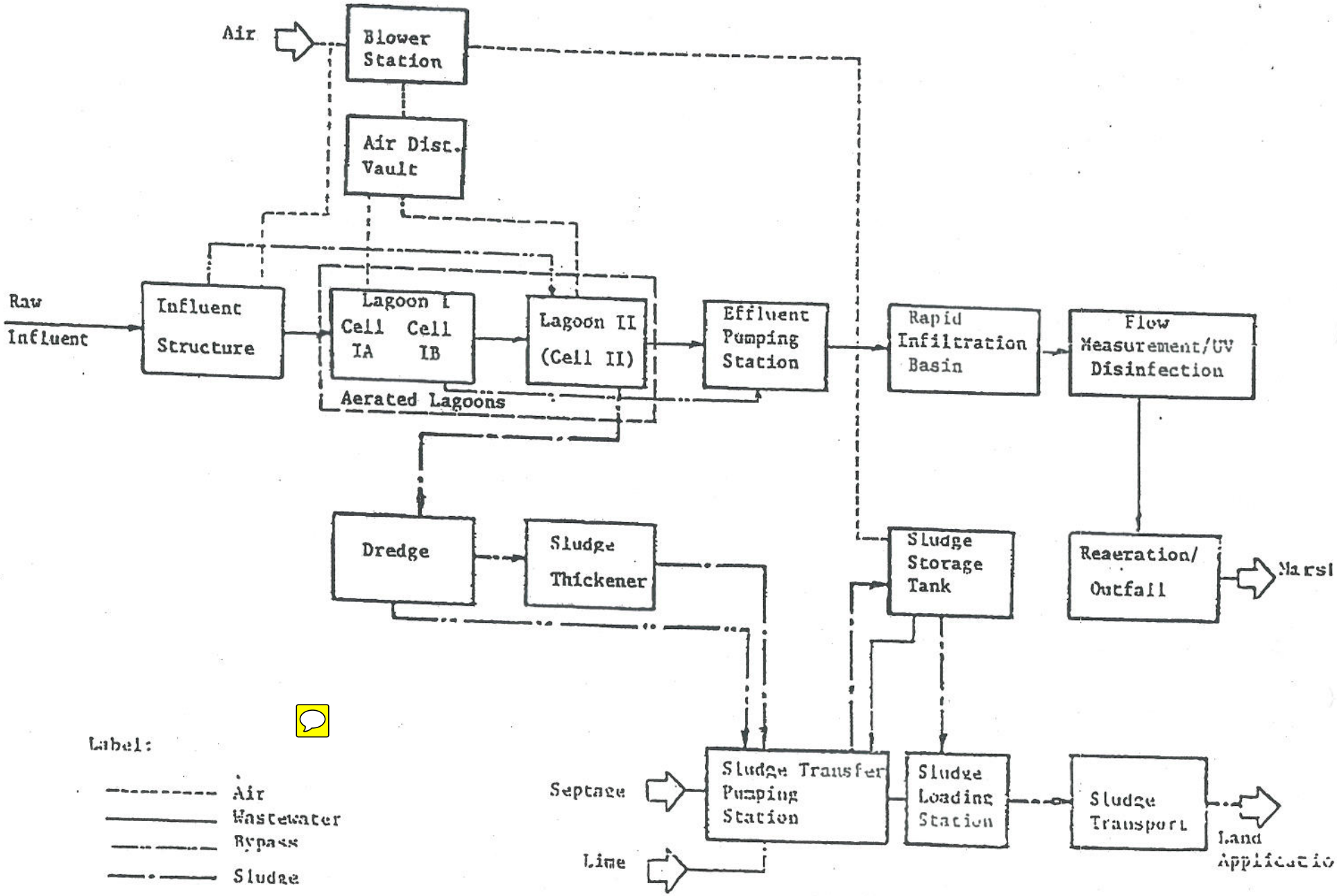
Regulated Facilities: EPA

FIGURE 1
Salisbury WWTP

EPA

4/16/2014

Figure 2. Flow Process Diagram
Salisbury Wastewater Treatment Plant



RESPONSE TO COMMENTS
NPDES PERMIT NO. MA0102873
SALISBURY WASTEWATER TREATMENT PLANT
SALISBURY, MASSACHUSETTS

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES Permit, MA0102873. The response to comments explains and supports the EPA determinations that form the basis of the final permit. From January 14, 2015 through February 12, 2015, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft NPDES permit, MA0102873, developed pursuant to a permit application from the Town of Salisbury, for the reissuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge treated sanitary wastewater from outfall number 001 to an unnamed tidal creek that drains to the Merrimack River in Salisbury, Massachusetts.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing this discharge. The final permit is similar to the draft permit that was available for public comment.

Although EPA's decision-making process has benefitted from the comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however, make minor changes in response to comments. The analyses underlying these changes are explained in the responses to individual comments that follow and the changes are reflected in the final permit.

A copy of the final permit and this response to comment document will be posted on the EPA Region 1 web site: http://www.epa.gov/region1/npdes/permits_listing_ma.html.

A copy of the final permit may also be obtained by writing or calling Betsy Davis, United States Environmental Protection Agency, 5 Post Office Square, Suite 100 (Mail Code: OEP06-1), Boston, Massachusetts 02109-3912; Telephone (617) 918-1576.

Changes from the Draft Permit to the Final Permit

Page 2 of 15: The monitoring frequency for $CBOD_5$ and TSS was decreased from 3 times per week to 2 times per week.

(See Response to Comment # 1.)

Page 12 of 15: The Final Permit includes a permit reopener.

(See Response to Comment # 2.)

Page 4 of 15: The language in footnote 5 has been updated.

(See Response to Comment # 5.)

COMMENTS FROM CHRIS PERKINS, WESTON&SAMPSON ON BEHALF OF THE TOWN OF SALISBURY

COMMENT #1: $CBOD_5$ and TSS Measurement Frequency

It appears that the draft permit includes mass and concentration limits for $CBOD_5$ and TSS that remain unchanged from the 2007 permit. However, the draft permit increases the measurement frequency for both parameters to 3/week from 2/week. The rationale for this increase is unclear; the wastewater treatment plant (the plant) has been reporting data for a number of years, the current measurement frequency allows for representative sample and results, and EPA already has a sizable database of information upon which to rely. Conducting another round of 24-hour composite sampling every week therefore presents an additional operational burden to staff without obvious benefit.

Accordingly, the town request that the final permit include a measurement frequency for $CBOD_5$ and TSS be modified to 2/week.

RESPONSE TO COMMENT #1

A review of $CBOD_5$ and TSS data from recent discharge monitoring and the MassDEP monthly operating reports indicates the limits for $CBOD_5$ and TSS are consistently achieved. The final permit includes a monitoring frequency of 2/week for these parameters.

COMMENT #2: Effluent Nickel Limit

The draft permit includes a new average monthly numerical limit for Total Nickel based on the results of the reasonable potential analysis in relation to the chronic criterion. This is primarily due to the dilution factor. This is a comparable rationale to that of Total Copper and Total Ammonia as Nitrogen. These two pollutants have been the subject of an Administrative Order Docket No. 11-012 (the AO) and have associated interim limits while compliance issues achieve long term resolution. These interim limits are also listed in the draft permit Fact Sheet. The goal is to implement a plant modification that approves a tidal discharge, thereby modifying the dilution factor and associated permit limits for these parameters. This approach was addressed in the February 2012 ammonia and January 2013 copper reports, as well as the July 2014 Tidal Discharge Scope of Work report. Total Nickel would fall into this same process and eventual solution.

Therefore, the Town requests that the Total Nickel limit be removed from this permit cycle. Barring that, it is requested that an interim limit into the Fact Sheet for Total Nickel that allows the AO process to advance without permit violations. An interim limit of 40 ug/l is proposed.

RESPONSE TO COMMENT #2

EPA agrees with the commenter, that the limited dilution available at the point of discharge is a factor in the stringent effluent limits in this permit. EPA recently sent an approval letter for sections of the proposed scope of work to develop a tidal discharge system to obtain additional dilution when discharging during a limited prescribed period in the tidal cycle. The Agencies will continue to work with the Town moving forward with the treatment plant alternatives to address these water quality-based effluent limits.

Regarding total nickel, the lack of dilution may be a contributing factor in the reasonable potential analysis however, it may not be the only factor. There were other pollutants reviewed in the reasonable potential analysis (based on the same dilution factor) that did not exceed the designated criteria. In accordance with 40 CFR 122.44(d), EPA must include limitations in the permit to control pollutants which EPA determine are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard.

The suggested interim limit of 40 ug/l for nickel has not been included in the Final Permit. There is no explanation, justification or data to support it.

In 2011, EPA issued an Administrative Order (AO) for exceedances of the copper and ammonia nitrogen limits. In a letter sent to the permitttee on April 14, 2015, EPA approved sections of the July 2014 Tidal Discharge Study Scope of Work. This project would change the discharge from continuous to one that operates during high tides only. This approach could provide additional dilution justifying a relaxation of the permit limits. EPA has included a reopener clause in the Final Permit for a permit modification if this approach is adequately demonstrated to be viable. However, until the work has been completed and is in operation, the limits in the Final Permit shall remain the same as in the Draft Permit. Additionally, in EPA's April 14, 2015 letter EPA expressed its willingness to discuss extending the interim limits for copper and nitrogen ammonia in the current Administrative Order as well as adding an interim limit for nickel while the Tidal Discharge Study and any subsequent construction is completed.

COMMENT #3: Total Nitrogen Series Monitoring and Reporting

The draft permit includes an additional requirement for Total Nitrogen reporting. Given the current permit's focus on the nitrogen series (Total Kjeldahl Nitrogen, Total Nitrate-Nitrogen, and Total Nitrite Nitrogen, the addition of Total Nitrogen reporting requirement raises concern that EPA will apply effluent limits to these pollutants in future permit cycles. If future permit cycles were to include a numerical limit for Total Nitrogen, an extremely costly and comprehensive plant upgrade would be required.

Recognizing that the town is prepared to study and potentially implement a costly modification to their discharge approach, the subsequent need to upgrade the plant is troubling. Such incremental changes to the permit reduce the town's ability to cost-effectively improve plant operations.

Further, the focus on nitrogen remains a concern. The plant discharges to segment MA84A-06 of the Merrimack River. The 303(d) list does not indicate nutrient impairment. Therefore, we request that the Total Nitrogen monitoring be removed from the permit. Further, the town requests that EPA formally express its intent and goal of nitrogen series monitoring and reporting for the Merrimack River basin. If the goal is the eventual imposition of a Total Nitrogen numerical limit, the affected communities across the region need to be made aware of this likelihood in a manner that enables all parties to plan in a proactively manner.

RESPONSE TO COMMENT #3

It is conceivable that a future permit may include effluent limits for total nitrogen. For the Salisbury Wastewater Treatment Plant, as well as other NPDES-permitted POTWs, whether or not there is an effluent limit for total nitrogen is dependent on the result of a reasonable potential analysis conducted during the development of a reissued permit. Thus at this time, the Agencies cannot say definitively whether there will be a total nitrogen limit in the Town's subsequent

permit. Conditions at the facility and in the receiving water vary from one permit cycle to the next, and the Agencies consider the information and data that is available during permit development before presenting a draft permit for public comment.

EPA suggests the Town review permits and fact sheets of facilities with total nitrogen limits to better understand conditions that warrant total nitrogen limits. A database of draft and final permits with supporting documentation is available at http://www.epa.gov/region1/npdes.

EPA supports proactive planning on the part of the Town to achieve their permit limits. The Town should keep abreast of new information or changes to the MA SWQS for a Class SA waterbody at 314 CMR 4.05(4) and plan facility upgrades so that the discharge will consistently achieve the requirements of the Clean Water Act and the MA SWQS.

For clarification, the facility discharges to an unnamed tidal creek that drains to segment MA84A-06 of the Merrimack River and the permit limits are based on 7Q10 flow of the unnamed tidal creek rather than the main stem of the Merrimack River.

COMMENT #4: Total Copper

The rationale for copper is based on the acute and chronic copper criteria. However, this is based on the national recommended water quality criteria for copper. In reviewing the toxicity test results, there is no clear link between the plant discharge and the receiving water toxicity.

Accordingly, the town requests a meeting with EPA prior to issuance of the final permit to discuss the merits of the Water Effect Ration analysis. Again, this concept was introduced in the July 2014 tidal discharge scope of work report. Such an analysis could very likely determine the discharged copper loads are in nontoxic form and permit relief can be achieved.

RESPONSE TO COMMENT #4

In EPA's letter dated April 14, 2015, EPA approved sections 2.1 through 2.4 and 3.0 of the July 2014 Tidal Discharge Scope of Work. These sections include establishing the study's goals, collecting the necessary field data for input into the mixing zone model, executing the model, evaluating the alternatives to be implemented at the facility to achieve permit compliance with a tidal discharge system and an implementation schedule.

The April 14, 2015 letter also recommended that the Town submit an independent proposal to MassDEP to pursue the metals translator or the Water Effect Ratio for Metals and Ammonia discussed section 2.5 of the Tidal Discharge Study. Prior to using either approach for an effluent limit in a permit, MassDEP would have had to adopt site-specific criteria for each pollutant, subject to EPA's approval.

The copper limit in the Final Permit is the same limit that was in the Draft Permit, and the fact sheet explains the method used to derive the copper limits. The copper data from the whole effluent toxicity test was used for the statistical analysis to calculate the 95th percentile of the lognormal distribution of the concentration of copper in the effluent. See EPA's, Technical Support Document For Water Quality-based Toxics Control, EPA/505/2-90-001 published by EPA in March 1991 for further details on the statistical analysis. This value was used in the mass balance equation to project the downstream copper concentration in the receiving water.

EPA includes an effluent limit when the projected downstream concentration of a pollutant is greater than the criteria. As shown in Table 3, Reasonable Potential Table of the fact sheet, the copper concentration downstream of discharge in the tidal creek will likely exceed the acute and chronic copper criteria under 7Q10 conditions.

Massachusetts regulation at 314 CMR 4.05(5)(e) states that, "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to human life, 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 MassDEP either establishes a site specific criterion or determines that naturally occurring background concentrations are higher. The State has not determined that the tidal creek has higher background concentration for copper or issued site-specific criteria for copper. Therefore, the water quality criteria that apply are the National Recommended Water Quality Criteria. The total recoverable chronic and acute copper criteria are 3.7 ug/l and 5.8 ug/l respectively, as shown in Table 2, Total Recoverable Metals Criteria of the fact sheet.

COMMENT #5: Daily grab definition

The draft permit does not include a definition for daily grab samples, although such sampling is required for a number of constituents. The town requests that daily grab sample be defined as follows: Daily grab samples are to be collected during regular operating working hours. Regular operating working hours are Monday through Friday, 7:00 am to 3:00 pm.

RESPONSE TO COMMENT #5

The recommended language has been added to footnote 5 of the Final Permit and it now reads,

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

A grab sample is a single sample that represent the composition of the final effluent discharged from Outfall001 and shall be collected during regular operating hours. Regular operating hours are Monday through Friday, 7:00 am to 3:00 pm."

COMMENT #6: AO

Prior AO reports have evaluated both copper (January 2013) and ammonia (February 2012) sources, plant removal efficacy, and potential plant modifications. Subsequent to these AO deliverables, the town commissioned the preparation of, and submittal to EPA and DEP, the July 2014 Tidal Discharge Scope of Work report. Since submittal of these reports, there have been several discussions with EPA representatives indicating these reports have been approved. However, there has been no formal response to these submittals and therefore no advancement of a proposed study and eventual resolution.

Accordingly, the town request that EPA confirm that the town has complied with all AO requirements and also approves the reports and recognizes that all timetables associated with these reports are not bound to the AO and AO compliance.

RESPONSE TO COMMENT #6:

EPA Region 1 Office of Environmental Stewardship has confirmed in a letter to the Town dated April 14, 2015, that it has met the requirements of the AO. The letter approves Sections 2.1, 2.2, 2.3, 2.4 and 3.0 of the 2014 Town of Salisbury Tidal Discharge Scope of Work and adjusts the start date of Task #1 to receipt of the approval letter with subsequent Tasks completed within the duration of the implementation schedule.