

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 Merrimac

is authorized to discharge from the facility located at

**Merrimac Wastewater Treatment Facility
50 Federal Way
Merrimac, MA 01860**

to receiving water named

Merrimack River (Segment MA84A-05)

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

This permit will become effective on the date of signature.

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

This permit supersedes the permit issued on October 30, 2006.

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

Signed this 22nd day of October, 2015

/S/SIGNATURE ON FILE

Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

/S/SIGNATURE ON FILE

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 serial number 001 to Merrimack River. Such discharges shall be limited and monitored as specified below.							
<u>EFFLUENT CHARACTERISTIC</u>	<u>EFFLUENT LIMITS</u>				<u>MONITORING REQUIREMENTS</u> ³		
<u>PARAMETER</u>	<u>AVERAGE MONTHLY</u>	<u>AVERAGE WEEKLY</u>	<u>AVERAGE MONTHLY</u>	<u>AVERAGE WEEKLY</u>	<u>MAXIMUM DAILY</u>	<u>MEASUREMENT FREQUENCY</u>	<u>SAMPLE TYPE</u>
EFFLUENT FLOW ²	*****	*****	0.45 mgd	*****	*****	CONTINUOUS	RECORDER
EFFLUENT FLOW ²	*****	*****	Report mgd	*****	Report mgd	CONTINUOUS	RECORDER
BOD ₅ ⁴	113 lb/day	169 lb/day	30 mg/l	45 mg/l	Report mg/l ¹	1/WEEK	24-HR COMP ⁵
TSS ⁴	113 lb/day	169 lb/day	30 mg/l	45 mg/l	Report mg/l ¹	1/WEEK	24-HR COMP ⁵
pH RANGE ¹	6.5 - 8.5 S.U. (SEE PERMIT PARAGRAPH I.A.1.b.)					1/DAY	GRAB
FECAL COLIFORM ^{1,6}	*****	*****	88 cfu/100 ml	*****	260 cfu/100 ml	1/WEEK	GRAB
ENTEROCOCCI ^{1,6}	*****	*****	35 cfu/100 ml	*****	104 cfu/100 ml	1/WEEK	GRAB
WHOLE EFFLUENT TOXICITY ^{7, 8, 9, 10}	Acute LC ₅₀ ≥ 50%					1/YEAR	24-HR COMP ⁵
Hardness ¹⁰	*****	*****	*****	*****	Report mg/l	1/YEAR	24-HR COMP ⁵
Ammonia Nitrogen as N ¹⁰	*****	*****	*****	*****	Report mg/l	1/YEAR	24-HR COMP ⁵
Total Recoverable Cadmium ¹⁰	*****	*****	*****	*****	Report mg/l	1/YEAR	24-HR COMP ⁵
Total Recoverable Copper ¹⁰	*****	*****	*****	*****	Report mg/l	1/YEAR	24-HR COMP ⁵
Total Recoverable Nickel ¹⁰	*****	*****	*****	*****	Report mg/l	1/YEAR	24-HR COMP ⁵
Total Recoverable Lead ¹⁰	*****	*****	*****	*****	Report mg/l	1/YEAR	24-HR COMP ⁵
Total Recoverable Zinc ¹⁰	*****	*****	*****	*****	Report mg/l	1/YEAR	24-HR COMP ⁵

Sampling Location: after UV disinfection, before discharge

Footnotes:

1. Required for State Certification.
2. Report annual average, monthly average, and the maximum daily flow. The limit is an annual average, which shall be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months.
3. Effluent sampling shall be of the discharge and shall be collected at the point specified on page 2. 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.
6. Fecal coliform and enterococci monitoring shall be conducted year-round. Fecal coliform discharges shall not exceed a monthly geometric mean of 88 colony forming units (cfu) per 100 ml, nor shall they exceed 260 cfu per 100 ml as a daily maximum. Enterococci discharges shall not exceed a monthly geometric mean of 35 colony forming units (cfu) per 100 ml, nor shall they exceed 104 cfu per 100 ml as a daily maximum.
7. The permittee shall conduct acute toxicity tests once per year during the same week of July each year. The permittee shall test the Mysid shrimp only. The test results shall be submitted by the last day of the month following the completion of the test (*i.e.*, August 31st). The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.
8. The LC₅₀ is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 50% limit means that a sample of 50% effluent shall cause no more than a 50% mortality rate.
9. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in **Attachment A (Toxicity Test Procedure and Protocol) Section IV., DILUTION WATER** in order to

obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance, which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of *NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA Region I web site at

<http://www.epa.gov/Region1/enforcementandassistance/dmr.html>. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A**. Any modification or revocation to this guidance will be transmitted to the permittees. However, at any time, the permittee may choose to contact EPA-Region 1 directly using the approach outlined in **Attachment A**.

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

Part I.A.1. (Continued)

- a. The discharge shall not cause a violation of the water quality standards of the receiving waters.
 - b. The pH of the effluent shall not be less than 6.5 or greater than 8.5 at any time.
 - c. The discharge shall not cause objectionable discoloration of the receiving waters.
 - d. The effluent shall not contain a visible oil sheen, foam, or floating solids at any time.
 - e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand. The percent removal shall be based on monthly average values.
 - f. The 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, 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 or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

5. Numerical Effluent Limitations for Toxicants

EPA or 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 listed in Part I.A.1 in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at <http://www.mass.gov/eea/agencies/massdep/service/approvals/sanitary-sewer-overflow-bypass-backup-notification.html>.

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

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

1. Maintenance Staff

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

2. Preventive Maintenance Program

The permittee shall maintain an ongoing preventive maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges. Plans and programs to meet this requirement shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

3. Infiltration/Inflow

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

4. Collection System Mapping

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

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

5. Collection System O&M Plan

The permittee shall develop and implement a Collection System O&M 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 (0.36 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 works¹ 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.

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

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

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

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

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>

8. The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* “EPA Region 1 - NPDES Permit Sludge Compliance Guidance”). Reports shall be submitted to the address contained in the reporting section of the permit. If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:
 - a. Name and address of contractor(s) responsible for sludge preparation, use or disposal
 - b. Quantity of sludge (in dry metric tons) from the POTW that is transferred to the sludge contractor(s), and the method(s) by which the contractor will prepare and use or dispose of the sewage sludge

E. 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 DMRs to EPA and MassDEP either in hard copy form, as described in Part I.E.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.E.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.E.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. Transfer of permit notice
- B. Request for changes in sampling location
- C. Request for reduction in testing frequency
- 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. Reports and DMRs submitted prior to the use of NetDMR
- D. Sludge monitoring reports

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

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

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

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

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

**MassDEP – Northeast Region
Bureau of Water Resources
205B Lowell Street
Wilmington, MA 01887**

Copies of toxicity tests only shall be submitted to:

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

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-SMR)
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 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 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.
2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.
3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only

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

ATTACHMENT 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 chlorine¹ (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.
(July 2012)

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° 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 TEST¹

1. Test type	48hr Static, non-renewal
2. Salinity	25ppt \pm 10 percent for all dilutions by adding dry ocean salts
3. Temperature (°C)	20°C \pm 1°C or 25°C \pm 1°C, temperature must not deviate by more than 3°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, <u>\leq 24 hours age range</u>
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 <u>Artemia</u> 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	\geq 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 TEST¹

1. Test Type	48 hr Static, non-renewal
2. Salinity	25 ppt \pm 10 % by adding dry ocean salts
3. Temperature	20°C \pm 1°C or 25°C \pm 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 <u>Artemia</u> 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 \geq 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.

<u>Parameter</u>	<u>Effluent</u>	<u>Diluent</u>	<u>Minimum Level for effluent^{*1} (mg/L)</u>
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
<u>Total Metals</u>			
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-Kärber
- Trimmed Spearman-Kärber
- 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. <u>Duty to Comply</u>	2
2. <u>Permit Actions</u>	2
3. <u>Duty to Provide Information</u>	2
4. <u>Reopener Clause</u>	3
5. <u>Oil and Hazardous Substance Liability</u>	3
6. <u>Property Rights</u>	3
7. <u>Confidentiality of Information</u>	3
8. <u>Duty to Reapply</u>	4
9. <u>State Authorities</u>	4
10. <u>Other laws</u>	4
B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS	
1. <u>Proper Operation and Maintenance</u>	4
2. <u>Need to Halt or Reduce Not a Defense</u>	4
3. <u>Duty to Mitigate</u>	4
4. <u>Bypass</u>	4
5. <u>Upset</u>	5
C. MONITORING AND RECORDS	
1. <u>Monitoring and Records</u>	6
2. <u>Inspection and Entry</u>	7
D. REPORTING REQUIREMENTS	
1. <u>Reporting Requirements</u>	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. <u>Signatory Requirement</u>	9
3. <u>Availability of Reports</u>	9
E. DEFINITIONS AND ABBREVIATIONS	
1. <u>Definitions for Individual NPDES Permits including Storm Water Requirements</u>	9
2. <u>Definitions for NPDES Permit Sludge Use and Disposal Requirements</u>	17
3. <u>Commonly Used Abbreviations</u>	23

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS

(January, 2007)

- (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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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

NPDES PART II STANDARD CONDITIONS

(January, 2007)

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

NPDES PART II STANDARD CONDITIONS

(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

- 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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS

(January, 2007)

- (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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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

NPDES PART II STANDARD CONDITIONS

(January, 2007)

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).

NPDES PART II STANDARD CONDITIONS (January, 2007)

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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS

(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS

(January, 2007)

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,

NPDES PART II STANDARD CONDITIONS (January, 2007)

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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS (January, 2007)

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 of 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 of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal 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.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS (January, 2007)

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.)

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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

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

FACT SHEET

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

NPDES PERMIT NO: MA0101150

DATE OF PUBLIC NOTICE: August 7, 2015 - September 5, 2015

NAME AND ADDRESS OF APPLICANT:

**Town of Merrimac
4 School Street
Merrimac, Massachusetts 01860**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Merrimac Wastewater Treatment Facility
50 Federal Way
Merrimac, Massachusetts 01860**

RECEIVING WATERS: Merrimack River (Segment MA84A-05)

RECEIVING WATERS CLASSIFICATION(S): SB– Shellfishing and CSO

TABLE OF CONTENTS

I.	Proposed Action, Type of Facility and Outfall Locations	3
A.	Proposed Action, Type of Facility and Discharge Location	3
B.	Wastewater Treatment Facility and Collection System Description	3
II.	Description of Discharge	3
III.	Limitations and Conditions.....	3
IV.	Permit Basis and Explanation of Effluent Limitation Derivation.....	3
A.	Overview of Federal and State Regulations	3
B.	Water Quality Standards and Designated Uses.....	4
C.	Effluent Flow.....	5
D.	Available Dilution	6
E.	Conventional Pollutants	7
1.	BOD ₅ and TSS.....	7
2.	pH	7
3.	Fecal Coliform and Enterococcus.....	7
F.	Non-Conventional Pollutants	8
1.	Metals	8
G.	Whole Effluent Toxicity.....	9
V.	Sludge	10
VI.	Anti-degradation	11
VII.	Essential Fish Habitat	11
VIII.	Endangered Species.....	12
IX.	Sewer System Operation and Maintenance	13
X.	Monitoring and Reporting.....	13
XI.	State Certification Requirements	15
XII.	Public Comment Period, Public Hearing, and Procedures for Final Decision	15
XIII.	EPA and State Contact	15
	Attachment A – Map of Facility, Receiving Water and Outfall	16
	Attachment B – Discharge Monitoring Report Summary	17

I. Proposed Action, Type of Facility and Outfall Locations**A. Proposed Action, Type of Facility and Discharge Location**

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for the reissuance of its NPDES permit to discharge to the Merrimack River through Outfall 001. The facility is engaged in the collection and treatment of domestic wastewater. A figure showing the wastewater treatment facility and outfall location is included as **Attachment A**.

B. Wastewater Treatment Facility and Collection System Description

The Merrimack Wastewater Treatment Facility (WWTF) is a 0.45 million gallons per day (mgd) secondary wastewater treatment plant serving approximately 6,300 people in Merrimack. The WWTF includes the following major components: headworks with two 24-inch screw pumps, a manually cleaned grit channel, a comminutor with waste auger, an oxidation ditch treatment system with three concentric channels with disk aerators, two center-feed/peripheral-discharge 30-foot diameter, 14-foot deep clarifiers, an UV disinfection system that has been installed in the original chlorine contact chamber, a 3,000 foot long effluent sewer, and a 300 foot long outfall pipe into the Merrimack River.

A pump building houses return and waste activated sludge pumps and the effluent flow meter. Sludge dewatering is accomplished using a single centrifuge. Approximately 450 tons of dewatered sludge is produced annually. Sludge is hauled away and disposed of under contract with Agresource, Inc. in Amesbury, MA.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on recent discharge monitoring reports (DMRs) from May 2010 through April 2015 may be found in **Attachment B** of this fact sheet.

III. Limitations and Conditions

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

IV. Permit Basis and Explanation of Effluent Limitation Derivation**A. Overview of Federal and State Regulations**

Pursuant to 40 CFR § 122.44 (d), permittees must achieve water quality standards established under Section 303 of the Clean Water Act (CWA), including state narrative criteria for water quality. Additionally, under 40 CFR § 122.44 (d)(1)(i), "Limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." When determining whether a discharge causes, or has the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numeric criterion, the permitting authority shall use procedures which account for existing controls on point and

non-point sources of pollution, and where appropriate, consider the dilution of the effluent in the receiving water.

A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA. EPA's anti-backsliding provisions generally restrict the relaxation of permit limits, standards, and conditions. Therefore effluent limits in the reissued permit generally must be at least as stringent as those of the previous permit. Effluent limits based on technology, water quality, and state certification requirements must meet anti-backsliding provisions found under Section 402 (o) and 303 (d) of the CWA, and in 40 CFR 122.44 (1).

In accordance with regulations found at 40 CFR §131.12, MassDEP has developed and adopted a statewide antidegradation policy to maintain and protect existing in-stream water quality. The Massachusetts Antidegradation Policy is found at 314 CMR 4.04. No lowering of water quality is allowed, except in accordance with the antidegradation policy. All existing uses of the Merrimack River must be protected. This draft permit is being reissued with allowable discharge limits as, or more, stringent than those in the current permit and with the same parameter coverage. There is no change in the outfall locations. The public is invited to participate in the antidegradation finding through the permit public notice procedure.

Under Section 301(b)(1) 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 §133.102. In addition, Section 301(b)(1)(C) of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water.

B. Water Quality Standards and Designated Uses

The Merrimack WWTF discharges to the Merrimack River Segment MA84A-05. Segment MA84A-05 runs from the confluence with Little River, Haverhill to the confluence with Indian River, West Newbury/Amesbury (1.83 square miles).

The Merrimack River has been designated as a Class SB– Shellfishing and CSO water:

Class SB - The Massachusetts Surface Water Quality Standards (MA SWQS), 314 Code of Massachusetts Regulations (CMR) 4.05(4)(b) states that Class SB waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. In certain waters, habitat for fish, other aquatic life and wildlife may include, but is not limited to, seagrass. Where designated in the tables to 314 CMR 4.00 for shellfishing, these waters shall be suitable for shellfish harvesting with depuration (Restricted and Conditionally Restricted Shellfish Areas). These waters shall have consistently good aesthetic value.

Shellfishing - Shellfishing waters, in accordance with 314 CMR 4.06(1)5, are subject to more stringent regulation in accordance with the rules and regulations of the Massachusetts Division of Marine Fisheries pursuant to M.G.L. c. 130, § 75. These

include applicable criteria of the National Shellfishing Sanitation Program.

CSO – In accordance with 314 CMR 4.06(1)10, these waters are identified as impacted by the discharge of combined sewer overflows; however, a long term control plan has not been approved or fully implemented for the CSO discharges.

Segment MA84A-05 of the Merrimack River is classified in the State's 2012 Integrated List of Waters (and proposed 2014 Integrated List of Waters) as Category 5, as not in attainment and requiring a total maximum daily load (TMDL). The listed impairments for this segment are PCBs in fish tissue and Enterococcus.

C. Effluent Flow

Sewage treatment plant discharge is encompassed within the definition of “pollutant” and is subject to regulation under the CWA. The CWA defines “pollutant” to mean, *inter alia*, “municipal . . . waste” and “sewage...discharged into water.” 33 U.S.C. § 1362(6).

EPA may use design flow of effluent both to determine the necessity for effluent limitations in the permit that comply with the Act, and to calculate the limits themselves. EPA practice is to use design flow as a reasonable and important worst-case condition in EPA's reasonable potential and water quality-based effluent limitations (WQBEL) calculations to ensure compliance with water quality standards under Section 301(b)(1)(C). Should the effluent discharge flow exceed the flow assumed in these calculations, the instream dilution would decrease and the calculated effluent limits may not be protective of WQS. Further, pollutants that do not have the reasonable potential to exceed WQS at the lower discharge flow may have reasonable potential at a higher flow due to the decreased dilution. In order to ensure that the assumptions underlying the Region's reasonable potential analyses and derivation of permit effluent limitations remain sound for the duration of the permit, the Region may ensure its “worst-case” effluent wastewater flow assumption through imposition of permit conditions for effluent flow. Thus, the effluent flow limit is a component of WQBELs because the WQBELs are premised on a maximum level of flow. In addition, the flow limit is necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQS.

Using a facility's design flow in the derivation of pollutant effluent limitations, including conditions to limit wastewater effluent flow, is consistent with, and anticipated by NPDES permit regulations. Regarding the calculation of effluent limitations for POTWs, 40 C.F.R. § 122.45(b)(1) provides, “permit effluent limitations...shall be calculated based on design flow.” POTW permit applications are required to include the design flow of the treatment facility. *Id.* § 122.21(j)(1)(vi).

Similarly, EPA's reasonable potential regulations require EPA to consider “where appropriate, the dilution of the effluent in the receiving water,” 40 C.F.R. § 122.44(d)(1)(ii), which is a function of *both* the wastewater effluent flow and receiving water flow. EPA guidance directs that this “reasonable potential” analysis be based on “worst-case” conditions. EPA accordingly is authorized to carry out its reasonable potential calculations by presuming that a plant is operating at its design flow when assessing reasonable potential.

The limitation on sewage effluent flow is within EPA's authority to condition a permit in order to carry out the objectives of the Act. *See* CWA §§ Sections 402(a)(2) and 301(b)(1)(C); 40 C.F.R. §§ 122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to protect EPA's WQBEL and reasonable potential calculations is encompassed by the references to "condition" and "limitations" in 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including antidegradation. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of wastewater effluent is consistent with the overall structure and purposes of the CWA.

In addition, as provided in Part II.B.1 of this permit and 40 C.F.R. § 122.41(e), the permittee is required to properly operate and maintain all facilities and systems of treatment and control. Operating the facilities wastewater treatment systems as designed includes operating within the facility's design effluent flow. Thus, the permit's effluent flow limitation is necessary to ensure proper facility operation, which in turn is a requirement applicable to all NPDES permits. *See* 40 C.F.R. § 122.41.

The design flow of the plant is 0.45 mgd. During the period from May 2010 to April 2015 (Attachment B), the long term monthly average plant flow was 0.33 mgd (average of the monthly averages for the review period), with a maximum daily average flow of 0.44 mgd (average of the maximum daily flows each month for the review period). The rolling 12-month average ranged from 0.30 to 0.42 mgd.

The effluent flow limit for the discharge from Outfall 001 is 0.45 mgd as measured at the plant's influent flow meter, and will be reported as an annual average flow, using monthly average flows from the previous eleven months and the reporting month. Monthly average and maximum daily flow for each outfall will also be required to be reported on the facility's monthly discharge monitoring report (DMR).

D. Available Dilution

The 7Q10, or the 7-day mean stream low flow with 10-year recurrence interval, is the base flow used to calculate the effluent limits in NPDES permits (314 CMR 4.03(3)(a)).

The 7Q10 flow in the Merrimack River at the point of the Merrimack WWTF discharge is calculated using the 7Q10 value at the USGS gaging station at Lowell, MA. The 7Q10 is determined to be 611 mgd, the same as in the 2006 permit.

The dilution factor for Outfall 001 is based upon the 7Q10 and the design flow of the WWTF (0.45 mgd). The dilution factor is therefore:

$$\begin{aligned} & (7Q10 \text{ \{river\}} + \text{effluent design flow}) / \text{effluent design flow} = \\ & (611 + 0.45) / 0.45 = \mathbf{1,360} \end{aligned}$$

Hence, the dilution factor of 1,360 (the same as in the 2006 permit) is used in the subsequent analyses in the development of the draft permit. EPA notes that although the receiving water is tidally influenced, this dilution factor does not account for tidal dilution. EPA considers this a

conservative assumption which is acceptable in this case given the relatively small size of the discharge and high dilution afforded through the non-tidal 7Q10 flow.

E. Conventional Pollutants

1. BOD₅ and TSS

The draft permit includes average monthly and average weekly limits for biochemical oxygen demand (BOD₅) and total suspended solids (TSS) and average monthly percent removal which are based on the secondary treatment requirements in 40 CFR 133.102(a); 40 CFR 133.102(b); and 40 CFR 122.45 (f). The draft permit includes average monthly and average weekly concentration limits of 30 mg/l and 45 mg/l respectively, and mass monthly average and weekly average limitations. The draft permit also includes maximum daily reporting requirements based on state water quality certification requirements. The calculations for the mass-based limits are shown below. The frequency of monitoring for BOD₅ and TSS are set at 1/week.

BOD₅ and TSS mass-based limit calculations:

Mass limit [lb/day] = flow [mgd] x limit [mg/l] x 8.34 [conversion factor]

Flow = 0.45 mgd

Limit = 30 mg/l [average monthly] and 45 mg/l [average weekly]

Mass limits [Outfall 001 and 002] = 0.45 x 30 x 8.34 = 113 lb/day [average monthly]

Mass limits [Outfall 001 and 002] = 0.45 x 45 x 8.34 = 169 lb/day [average weekly]

The provisions of 40 CFR § 133.102(a)(3) and 133.103(b)(3) require that the 30 day average percent removal for BOD₅ and TSS be not less than 85%. These limits are maintained in the draft permit.

2. pH

The pH limits for Outfall 001 are 6.5 to 8.5 standard units (S.U.) in accordance with state water quality standards found at 314 CMR 4.05(4)(b)(3), with daily monitoring required. During the review period, there were no violations of the daily minimum or maximum limits.

3. Fecal Coliform and Enterococcus

The fecal coliform limits in the 2006 permit are based on MA SWQS found at 314 CMR 4.05(4)(b)(4)(a), which states that waters designated for shellfishing shall not exceed a fecal coliform median or geometric mean MPN of 88 organisms per 100 ml, nor shall more than 10% of the samples exceed an MPN of 260 per 100 ml. These limits are carried forward in the draft permit with monitoring once per week to maintain this designated shellfishing use. During the review period, there were no violations of these limits (See Attachment B).

The 2006 permit also requires monthly monitoring of enterococcus bacteria for primary contact recreational purposes. The criteria set forth in MA SWQS found at 314 CMR 4.05(4)(b)(4)(b) state that for bathing beaches no single enterococci sample taken during the bathing season shall exceed 104 colonies per 100 ml and the geometric mean of the five most recent samples taken within the same bathing season shall not exceed 35 enterococci colonies per 100 ml.

Accordingly, the draft permit includes average monthly (35 colonies/100 ml) and maximum daily (104 colonies/100 ml) limits for enterococcus bacteria with sampling frequency of once per week, as described in the draft permit.

During the review period, the maximum single enterococci sample was 43 cfu/100 ml (well below 104) and the maximum average of five consecutive samples was 26.8 cfu/100 ml (below 35).

F. Non-Conventional Pollutants

EPA typically considers various non-conventional pollutants (e.g., total residual chlorine, nitrogen, various metals) in evaluating a permit reissuance for this type of facility. As noted above, the facility utilizes UV disinfection so no limitations are necessary for total residual chlorine.

1. Metals

Dissolved fractions of certain metals in water can be toxic to aquatic life. Therefore, 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 facility's effluent was used to determine reasonable potential for effluent discharges to cause exceedances of the water quality criteria for aluminum, cadmium, copper, lead, nickel and zinc. Sampling data within the draft permit review period was taken from Whole Effluent Toxicity test reports for this analysis (see Attachment B).

Metals may be present in both dissolved and particulate forms in the water column with extensive studies suggesting 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, and as a result, water quality criteria are established in terms of dissolved metals. *See* Water Quality Standards Handbook: Second Edition, Chapter 3.6 and Appendix J, EPA 1994 [EPA 823-B-94-05a], updated March 2012 [EPA 823-B-12-002], at <http://water.epa.gov/scitech/swguidance/standards/handbook/chapter03.cfm>

However, many inorganic components of 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. As the effluent mixes with the receiving water the partitioning between the particulate and dissolved fractions, often results in a transition from the particulate to dissolved form. *See The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*, EPA 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 exceptions, that metals limits in NPDES permits be expressed as total recoverable metals. The following table presents the acute and chronic total recoverable criteria for each metal.

Metal	Dissolved Criteria		Conversion Factor (CF)	Total Recoverable Criteria	
	Acute (CMC) (ug/L)	Chronic (CCC) (ug/L)	Dissolved Criteria / CF = Total Rec. Criteria	Acute (CMC) (ug/L)	Chronic (CCC) (ug/L)
Cadmium	40.0	8.8	0.994	40.2	8.9
Copper	4.8	3.1	0.830	5.8	3.7
Lead	210.0	8.1	0.951	220.8	8.5
Nickel	74.0	8.2	0.990	74.7	8.3
Zinc	90.0	81.0	0.946	95.1	85.6

In order 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, the maximum effluent value for each metal (see Attachment B) is divided by the dilution factor and compared to the criteria above. This analysis is shown in the table below.

Metal	Maximum Effluent Conc.	Dilution Factor	In-Stream Conc.	Total Recoverable Criteria	
	ug/l	--	ug/l	Acute (CMC) (ug/L)	Chronic (CCC) (ug/L)
Cadmium	0.	1,360	0.000	40.2	8.9
Copper	51.	1,360	0.038	5.8	3.7
Lead	4.	1,360	0.003	220.8	8.5
Nickel	4.	1,360	0.003	74.7	8.3
Zinc	118.	1,360	0.087	95.1	85.6

As indicated in the table above, based on the maximum measured effluent concentrations there is no reasonable potential (for either acute or chronic conditions) that the discharge of cadmium, copper, nickel, lead or zinc will cause or contribute to an exceedance of the applicable water quality criteria. Based primarily on the high dilution factor, the criteria are orders of magnitude larger than the potential in-stream concentrations caused by this discharge. Hence, EPA has determined that it is not necessary for the draft permit to include any limits or increased monitoring for these metals. Monitoring and reporting for all metals will continue to be required as part of the annual WET tests (see section IV.G below).

G. Whole Effluent Toxicity

National studies conducted by the Environmental Protection Agency have demonstrated that

domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents and aromatic hydrocarbons, among others.

Based on the potential for toxicity resulting from domestic and industrial contributions, and in accordance with EPA regulation and policy, the draft permit includes acute toxicity limitations and monitoring requirements. (See, e.g., Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants, 50 Fed. Reg. 30,784 (July 24, 1985); see also, EPA's Technical Support Document for Water Quality-Based Toxics Control). EPA Region 1 has developed a toxicity control policy which requires wastewater treatment facilities to perform toxicity bioassays on their effluents. The Region's current policy is to include toxicity testing requirements in all municipal permits, while Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts.

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

In order to evaluate the potential toxicity of the effluent and in conformance with EPA and MassDEP policy, the permittee is required to conduct acute (LC50) toxicity testing. The LC50 testing for Outfall 001 will be required once per year, in the third calendar quarter (July through September) in order to capture the worst-case conditions when the receiving water would most likely be closer to the 7Q10 flow. The LC50 limit is $\geq 50\%$, in accordance with the MassDEP toxicity policy for dischargers with dilution factors greater than 100. All toxicity testing shall be done using a single species, the *Mysid shrimp*.

Results from tests during the 2010-2015 review period are shown in Attachment B. All toxicity results for both outfalls were in compliance with 2006 limits. Given this record of compliance, an increase in monitoring frequency is not necessary and the monitoring frequency of once per year has been carried forward in the draft permit.

V. Sludge

Section 405(d) of the CWA requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations were signed on November 25, 1992, published in the Federal Register on February 19, 1993, and became effective on March 22, 1993. Domestic sludge that is land applied, disposed of in a surface disposal unit, or fired in a sewage sludge incinerator is subject to Part 503 technical standards. Part 503 regulations have a self-implementing provision, however, the CWA requires implementation through permits. Domestic sludge which is disposed of in municipal solid waste landfills are in compliance with Part 503 regulations provided the sludge meets the quality criteria of the landfill and the landfill meets the requirements of 40 CFR §258.

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards. In addition, EPA-Region 1 has prepared a

72-page document entitled “EPA Region I NPDES Permit Sludge Compliance Guidance” for use by the permittee in determining their appropriate sludge conditions for their chosen method of sewage sludge use or disposal practices. This guidance document is available upon request from EPA Region 1 and may be found at:

<http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf>. The permittee is required to submit an annual report to EPA and MassDEP, by February 19th each year, containing the information specified in the Sludge Compliance Guidance document for their chosen method of sewage sludge use or disposal practices.

VI. Anti-degradation

This draft permit is being reissued with an allowable waste-load identical to, or more stringent than, the current permit and there has been no change in outfall location. Since there are no new or increased discharges being proposed with this permit reissuance the MassDEP is not required to conduct an antidegradation review regarding this permit reissuance.

VII. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with National Marine Fisheries Service (NMFS) if EPA’s action or proposed actions that it funds, permits, or undertakes, “may adversely impact any essential fish habitat.” 16 U.S.C. § 1855(b). The Amendments broadly define “essential fish habitat” (EFH) 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 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g. loss of prey, reduction in species’ fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

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

Only Atlantic salmon is believed to be present within the EFH Area, which encompasses the existing discharge site. No “habitat areas of particular concern”, as defined under §600.815(a)(9) of the Magnuson-Stevens Act, have been designated for this site. Although EFH has been designated for this general location, EPA has concluded that this activity is not likely to adversely affect EFH or its associated species for the following reasons:

- This is a reissuance of an existing permit;
- The flow limit of the discharge from the WWTF is 0.45 mgd monthly average;
- Effluent receives secondary treatment with extended aeration process;
- Effluent is discharged into the Merrimack River with a high dilution factor of 1,360;
- Chlorine is not used for disinfection of the effluent;
- Acute toxicity tests will be continued on Mysid shrimp once per year. Present toxicity test results are in compliance with the permit limits;
- The permit will prohibit any violation of state water quality standards.

Accordingly, EPA has determined that a formal EFH consultation with NMFS is not required. If adverse impacts to EFH are detected as a result of this permit action, NMFS will be notified and an EFH consultation will be promptly initiated.

VIII. Endangered Species

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

Based on EPA’s review of federally-listed species information for New England waters, it appears that shortnose sturgeon (*Acipenser brevirostrum*) is the only species that may be present in the vicinity of the Merrimac WWTF’s discharge. Therefore, there does not appear to be any listed species present that are under the purview of the USFWS. According to the Final Recovery Plan for the Shortnose Sturgeon (*Acipenser brevirostrum*), dated December 1998, there is a small known population in the lower Merrimack River. The location of the facility’s outfall is approximately 100 feet from the north bank of river and submerged at a depth of approximately 4 feet during low tide.

It is EPA’s opinion that the operation of the Merrimac WWTF, as governed by the reissuance of this NPDES permit, is not likely to adversely affect shortnose sturgeon, or its critical habitat. The following information supports this determination:

- This is a permit reissuance for an existing discharge with no increase in flow or lowering of water quality;
- The constituents of the discharge are typical of municipal wastewater treatment facilities. No major industries are authorized to contribute to the waste stream;
- The high dilution factor of the receiving water (1,360) combined with strong tidal currents (up to 1.5 knots), result in rapid dispersion of the effluent after it is discharged through the outfall pipe.
- EPA has structured the permit to be sufficiently stringent to assure that state water quality standards will be met for Class SB waters. The effluent limitations in this permit ensure the protection of aquatic life and maintenance of the receiving water as an aquatic habitat. The permit limitations in the draft permit are at least as stringent as those in the 2006 permit.

EPA is seeking concurrence from NMFS and the USFWS on these opinions through informal consultation.

IX. Sewer System Operation and Maintenance

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

EPA regulations also specify a standard condition to be included in all NPDES permits that specifically imposes on permittees a "duty to mitigate." *See* 40 CFR § 122.41(d). This condition is specified in Part II.B.3 of the draft permit and it requires permittees to take all reasonable steps – which in some cases may include operations and maintenance work - to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment.

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. There is presently estimated to be approximately 0.1 mgd of I/I in the sewer system. EPA and MassDEP maintain that an I/I removal program is an integral part of ensuring permit compliance.

Therefore, specific permit conditions have been included in Parts 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. According to the April 2011 permit reapplication, the Town of Merrimac performs periodic construction projects to repair I/I sources at pipe segments and manholes identified from internal inspection video tapes.

X. 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 report monitoring results obtained during each calendar month in the Discharge Monitoring Reports (DMRs) no later than the 15th day of the month following the completed reporting period.

The draft permit includes new provisions related to electronic DMR submittals to EPA and the State. The draft permit requires that, no later than six months after the effective date of the permit, the permittee submit all DMRs to EPA using NetDMR, unless the permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports (“opt-out request”).

In the interim (until six months from the effective date of the permit), the permittee may either submit monitoring data to EPA in hard copy form, or report electronically using NetDMR.

NetDMR is a national web-based tool for regulated Clean Water Act 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>.

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To learn more about upcoming trainings, please visit the EPA Region 1 NetDMR website <http://www.epa.gov/region1/npdes/netdmr/index.html>.

The draft permit also includes an “opt-out” request process. Permittees who believe they cannot use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA and MassDEP at least sixty (60) days prior to the date the facility would otherwise be required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the permittee must submit DMRs to EPA using NetDMR, unless the permittee submits a renewed opt-out request sixty (60) days prior to expiration of its opt-out, and such a request is approved by EPA and MassDEP.

In most cases, reports required under the permit shall be submitted to EPA as an electronic attachment through NetDMR, subject to the same six month time frame and opt-out provisions as identified for NetDMR. Certain exceptions are provided in the permit such as for providing written notifications required under the Part II Standard Permit Conditions. Once a permittee begins submitting reports to EPA using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

Until electronic reporting using NetDMR begins, or for those permittees that receive written approval from EPA to continue to submit hard copies of DMRs, the draft permit requires that submittal of DMRs and other reports required by the permit continue in hard copy format. Hard

copies of DMRs must be postmarked no later than the 15th day of the month following the completed reporting period.

XI. State Certification Requirements

EPA may not issue a permit unless MassDEP with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate MA SWQS. The staff of MassDEP have 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.

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

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and a supporting material for their arguments in full by the close of the public comment period, to Michael Cobb, U.S. EPA, MA Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and MassDEP for a public hearing to consider the draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston Office. Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

XIII. EPA and State Contact

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

Michael Cobb
Municipal Permits Branch
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP 06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1369
E-Mail: cobb.michael@epa.gov

Jennifer Wood
MA Department of Environmental Protection
Surface Water Permitting Program
1 Winter Street, 5th Floor
Boston, MA 02108
Telephone: (617) 654-6536
E-Mail: jennifer.wood@state.ma.us

Date

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

Attachment A – Map of Facility, Receiving Water and Outfall



(Aerial view obtained from maps.google.com)

Attachment B – Discharge Monitoring Report Summary

Monitoring Period End Date	BOD5						pH		Flow		
	30, MG/L	45, MG/L	1137, LB/D	169, LB/D	Mon, MG/L	85, %	6.5, SU	8.5, SU	Mon, MGD	Mon, MGD	0.45, MGD
	MO AVG	WKLY AVG	MO AVG	WKLY AVG	DAILY MX	MO MIN	MIN	MAX	DAILY MX	MO AVG	12MO AVG
5/31/2010	10.33	10.5	30.5	36.5	11.6	95.	6.56	6.98	0.4077	0.3494	0.3846
6/30/2010	13.65	14.	33.	50.1	18.43	94.	6.53	7.06	0.3413	0.283	0.3801
7/31/2010	7.46	5.	15.4	17.5	8.99	96.	6.59	8.1	0.3341	0.2588	0.3683
8/31/2010	10.64	7.8	23.6	29.7	14.05	95.	7.07	7.56	0.348	0.2598	0.3629
9/30/2010	10.09	10.1	20.5	23.6	11.61	94.	7.15	7.47	0.305	0.2438	0.3599
10/31/2010	10.2	7.4	22.1	27.3	11.78	94.	7.19	7.52	0.3206	0.2502	0.3568
11/30/2010	10.9	10.9	25.6	32.8	13.96	94.	7.06	7.73	0.3354	0.2816	0.3515
12/31/2010	8.7	8.5	21.	24.5	9.8	96.	6.96	7.25	0.4371	0.2885	0.3425
1/31/2011	8.5	10.5	24.5	31.5	9.45	93.	6.76	7.9	0.368	0.2807	0.3207
2/28/2011	8.63	7.55	20.7	24.3	11.16	94.	6.85	7.2	0.4703	0.3287	0.333
3/31/2011	8.89	8.2	35.3	41.1	10.05	96.	6.79	7.4	0.78	0.5178	0.3187
4/30/2011	8.89	7.8	27.6	31.6	10.05	94.	6.82	7.01	0.5703	0.4228	0.3138
5/31/2011	10.3	10.3	32.2	36.	11.75	96.	6.86	7.15	0.435	0.3759	0.316
6/30/2011	9.38	9.5	25.2	26.8	11.31	95.	6.79	7.15	0.4026	0.3186	0.3189
7/31/2011	10.07	9.4	21.7	30.1	13.74	94.	6.92	7.37	0.4167	0.2775	0.3205
8/31/2011	8.89	6.5	19.1	20.7	9.83	94.	6.85	7.58	0.391	0.2985	0.3237
9/30/2011	7.27	7.	17.2	22.4	9.35	96.	6.78	7.22	0.3423	0.3281	0.2964
10/31/2011	2.89	3.8	12.9	17.3	5.	98.	6.71	7.06	0.6444	0.4122	0.3416
11/30/2011	2.95	3.	9.9	13.5	4.32	98.	6.82	6.98	0.4897	0.3933	0.3509
12/31/2011	3.5	3.6	11.6	16.5	4.18	98.	6.8	7.05	0.492	0.3907	0.3594
1/31/2012	3.74	3.6	10.4	12.1	4.29	98.	6.83	7.09	0.4288	0.3496	0.3652
2/29/2012	2.43	2.42	6.4	7.4	2.81	99.	6.72	7.04	0.3766	0.3169	0.3642
3/31/2012	3.18	3.2	3.2	10.7	3.64	98.	6.63	7.03	0.4179	0.3533	0.3505
4/30/2012	4.13	4.1	4.1	20.5	7.82	97.	6.75	7.37	0.4111	0.3182	0.3418
5/31/2012	2.43	2.1	2.1	7.	2.92	98.	6.66	6.96	0.4099	0.3321	0.3381
6/30/2012	3.05	3.	5.7	8.5	3.6	98.	6.71	6.94	0.3793	0.3134	0.3377
7/31/2012	2.75	2.9	6.2	6.7	2.9	99.	6.65	7.1	0.2946	0.2651	0.3366
8/31/2012	2.65	2.7	5.9	7.	2.91	98.	6.78	7.07	0.3361	0.262	0.3336
9/30/2012	3.28	3.04	6.4	10.6	5.76	98.	6.9	7.17	0.3011	0.3526	0.33
10/31/2012	2.86	2.76	5.9	6.7	3.04	98.	6.89	7.23	0.3083	0.256	0.3169
11/30/2012	2.8	2.9	6.6	7.9	150.4	98.	6.71	6.97	0.3268	0.2687	0.3066
12/31/2012	2.48	2.2	6.	7.1	3.34	98.	6.87	7.27	0.6478	0.3217	0.3008

1/31/2013	3.52	4.	9.9	12.6	4.03	98.	7.02	7.28	0.4255	0.3446	0.3004
2/28/2013	3.29	3.9	10.9	21.	4.05	98.	6.94	7.32	0.6212	0.336	0.302
3/31/2013	2.96	2.8	10.5	11.8	3.13	98.	6.69	7.11	0.5868	0.4557	0.3105
4/30/2013	2.79	2.8	8.6	9.9	3.1	98.	6.58	7.09	0.443	0.3665	0.3145
5/31/2013	2.87	3.	8.1	11.9	3.45	98.	6.87	7.27	0.4643	0.3392	0.3151
6/30/2013	3.25	3.2	11.	16.3	3.44	98.	6.91	7.17	0.6277	0.418	0.3018
7/31/2013	3.	3.1	8.3	11.5	3.43	98.	6.86	7.06	0.4698	0.3188	0.3283
8/31/2013	2.7	2.7	5.7	6.4	2.84	99.	6.7	7.04	0.3068	0.2541	0.3277
9/30/2013	2.92	2.8	5.7	7.6	3.95	99.	6.84	7.12	0.328	0.2467	0.3272
10/31/2013	3.44	3.4	6.7	7.7	4.06	99.	6.84	7.73	0.2791	0.2371	0.3256
11/30/2013	4.59	4.6	9.1	13.1	7.	99.	6.62	7.15	0.2894	0.2396	0.3232
12/31/2013	2.86	2.7	6.1	7.1	3.44	99.	6.58	7.42	0.3325	0.2661	0.3185
1/31/2014	3.35	3.3	9.7	13.7	4.11	99.	6.52	6.82	0.4362	0.3519	0.3191
2/28/2014	5.	4.9	13.4	15.5	5.58	98.	6.54	6.87	0.4408	0.3271	0.3038
3/31/2014	6.3	5.8	20.1	27.8	8.27	97.	6.57	7.72	0.9	0.4168	0.4168
4/30/2014	7.8	5.3	28.2	36.	10.	96.	6.54	6.79	0.6743	0.4517	0.3223
5/31/2014	5.41	5.4	15.8	24.8	8.15	98.	6.66	7.07	0.4434	0.352	0.3233
6/30/2014	3.6	3.7	8.7	11.5	4.54	99.	6.7	7.08	0.3585	0.2852	0.3122
7/31/2014	3.	2.9	6.3	9.5	4.54	99.	6.54	7.05	0.2984	0.2616	0.3075
8/31/2014	3.77	3.9	8.2	12.4	4.72	99.	6.54	7.35	0.3155	0.2522	0.3073
9/30/2014	3.3	3.	5.95	7.2	3.97	99.	6.97	7.19	0.3438	0.2382	0.3066
10/31/2014	3.03	2.5	6.3	7.1	3.17	99.	6.87	7.25	0.3389	0.307	0.307
11/30/2014	3.02	2.9	6.6	8.5	3.51	99.	6.87	7.3	0.3272	0.2753	0.3105
12/31/2014	3.57	3.6	13.9	17.8	4.8	99.	6.59	7.14	0.8282	0.4614	0.3268
1/31/2015	4.81	4.3	12.4	20.3	6.1	98.	6.54	7.5	0.5095	0.3481	0.3264
2/28/2015	3.2	3.	7.3	8.	3.48	98.	6.86	6.97	0.3746	0.2908	0.3234
3/31/2015	9.21	9.6	30.5	43.6	10.23	96.	6.7	7.08	0.5487	0.3802	0.3204
4/30/2015	7.36	7.2	29.2	39.2	8.4	96.	6.64	7.05	0.6266	0.4892	0.3235
Maximum	13.65	14.	35.3	50.1	150.4	99.	7.19	8.1	0.9	0.5178	0.4168
Minimum	2.43	2.1	2.1	6.4	2.81	93.	6.52	6.79	0.2791	0.2371	0.2964
Average	5.36	5.11	14.03	18.43	9.06	97.18	6.77	7.22	0.44	0.33	0.33
# of Violations	0.	0.	0.	0.	N/A	0.	0.	0.	N/A	N/A	0.

Monitoring Period End Date	TSS						Fecal Coliform		Enterococcus
	30, MG/L	45, MG/L	113, LB/D	169, LB/D	Mon, MG/L	85, %	88, CFU/100mL	260, CFU/100mL	Mon, CFU/100mL
	MO AVG	WKLY AVG	MO AVG	WKLY AVG	DAILY MX	MO MIN	MO GEO	DAILY MX	DAILY MX
5/31/2010	2.	2.	5.8	9.4	3.4	99.	21.	57.	21.
6/30/2010	5.	4.9	11.5	15.6	7.8	99.	22.	73.	18.
7/31/2010	2.6	14.4	5.3	10.1	5.	99.	13.	17.	2.
8/31/2010	4.5	3.4	10.3	13.9	6.	98.	21.	52.	12.
9/30/2010	7.4	7.4	15.	38.6	19.	98.	43.	63.	24.
10/31/2010	12.1	6.1	18.	39.3	18.8	97.	32.	47.	43.
11/30/2010	5.7	5.7	13.4	17.8	8.2	98.	12.	25.	7.
12/31/2010	5.2	5.	12.5	23.3	10.	98.	7.	22.	18.
1/31/2011	5.	7.5	17.5	27.5	10.	98.	5.	13.	2.
2/28/2011	6.6	6.	16.4	27.6	11.2	98.	12.	17.	5.
3/31/2011	4.12	4.	17.2	51.5	11.2	98.	5.	11.	17.
4/30/2011	4.12	3.2	11.4	17.1	11.2	99.	4.	9.	10.
5/31/2011	3.1	2.9	9.5	14.	4.4	99.	7.	23.	16.
6/30/2011	1.5	1.5	4.1	6.6	2.4	99.	43.	56.	24.
7/31/2011	6.7	6.3	14.5	26.6	12.8	99.	21.	37.	7.
8/31/2011	11.4	10.	24.8	37.2	18.4	97.	20.	31.	4.
9/30/2011	2.7	2.6	6.4	8.5	3.8	99.	30.	65.	17.
10/31/2011	2.6	2.4	8.4	17.4	5.4	99.	60.	70.	26.
11/30/2011	1.4	1.5	4.8	11.1	3.	99.	55.	3.	35.
12/31/2011	2.1	2.	6.6	10.	3.2	99.	11.	63.	21.
1/31/2012	2.7	2.6	7.6	16.9	2.6	99.	4.	7.	7.
2/29/2012	2.1	2.	5.2	6.2	2.6	99.	3.	6.	4.
3/31/2012	4.7	4.1	4.1	16.7	5.7	98.	3.	3.	3.
4/30/2012	7.	7.	7.	36.1	13.8	97.	4.	12.	11.
5/31/2012	3.6	1.	1.	18.6	7.8	99.	5.	12.	15.
6/30/2012	2.8	2.6	8.9	19.8	4.2	99.	77.	10.	8.
7/31/2012	2.8	2.8	6.4	8.8	3.8	99.	3.	6.	3.
8/31/2012	3.1	1.7	3.7	5.9	3.8	99.	5.	16.	13.
9/30/2012	8.8	8.16	17.2	26.	13.6	98.	2.	3.	2.
10/31/2012	1.9	1.8	3.8	8.5	4.2	99.	2.	3.	3.
11/30/2012	2.2	2.1	4.6	7.9	3.6	99.	4.	4.	3.
12/31/2012	2.	1.9	5.1	7.7	2.6	99.	3.	7.	5.
1/31/2013	5.5	6.2	15.5	27.	9.2	98.	2.	2.	6.
2/28/2013	3.95	4.	11.3	25.6	10.	99.	4.	7.	20.

3/31/2013	3.9	3.5	13.2	31.	9.6	98.	7.	9.	16.
4/30/2013	2.4	2.4	7.4	10.5	3.2	99.	2.	3.	22.
5/31/2013	4.4	3.7	10.6	20.7	6.	99.	2.	2.	17.
6/30/2013	3.5	3.7	11.4	16.6	6.4	99.	3.	4.	24.
7/31/2013	2.68	2.8	7.4	12.4	4.	99.	4.	8.	28.
8/31/2013	2.1	2.1	4.7	5.6	2.6	99.	3.	5.	43.
9/30/2013	2.35	2.2	4.6	7.3	3.8	99.	3.	5.	11.
10/31/2013	1.6	2.3	3.2	4.4	2.2	99.	4.	10.	15.
11/30/2013	6.75	7.	13.9	30.9	14.6	99.	2.	4.	15.
12/31/2013	6.65	6.4	14.3	24.4	10.6	98.	7.	16.	17.
1/31/2014	4.6	4.5	13.2	16.8	6.	98.	5.	7.	17.
2/28/2014	4.8	4.7	12.9	16.7	6.4	98.	3.	4.	10.
3/31/2014	8.	7.4	25.6	41.9	12.8	96.	3.	5.	5.
4/30/2014	10.1	6.8	38.2	51.	13.	95.	4.	8.	17.
5/31/2014	5.9	5.8	16.9	20.6	7.2	98.	3.	5.	17.
6/30/2014	5.1	5.	12.1	15.7	6.4	99.	3.	4.	26.
7/31/2014	5.4	5.2	11.3	20.8	10.	99.	3.	4.	10.
8/31/2014	5.75	1.	9.	14.6	8.	99.	8.	20.	42.
9/30/2014	3.8	3.5	7.	8.6	4.2	99.	26.	69.	23.
10/31/2014	4.18	3.6	9.2	10.7	6.2	99.	3.	5.	9.
11/30/2014	4.3	4.1	9.3	14.8	7.2	99.	4.	8.	9.
12/31/2014	6.36	6.9	26.4	57.3	16.	98.	8.	12.	19.
1/31/2015	4.35	4.3	12.6	18.7	5.6	99.	9.	31.	14.
2/28/2015	3.75	3.5	8.5	11.3	3.8	99.	10.	13.	--
3/31/2015	9.1	8.5	26.9	41.8	17.2	98.	16.	19.	20.
4/30/2015	7.16	6.8	26.9	41.8	14.4	97.	5.	7.	17.
Maximum	12.1	14.4	38.2	57.3	19.	99.	77.	73.	43.
Minimum	1.4	1.	1.	4.4	2.2	95.	2.	2.	2.
Average	4.63	4.41	11.53	20.36	7.84	98.47	11.92	18.98	15.17
# of Violations	0.	0.	0.	0.	N/A	0.	0.	0.	N/A

WET Test Results

Monitoring Period End Date	LC50 Acute Mysid. Bahia	Cadmium	Copper	Lead	Nickel	Zinc
	50, %	mg/l	mg/l	mg/l	mg/l	mg/l
	DAILY MN	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX
7/31/2010	100.	0.	0.051	0.004	0.002	0.043
7/31/2011	100.	0.	0.017	0.	0.004	0.063
7/31/2012	100.	0.	0.015	0.	0.004	0.081
7/31/2013	100.	0.	0.0114	0.	0.0014	0.033
7/31/2014	83.5	0.	0.042	0.	0.004	0.118
Median	100.	0.	0.017	0.	0.004	0.063
Maximum	100.	0.	0.051	0.004	0.004	0.118
# of Violations	0.	N/A	N/A	N/A	N/A	N/A