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),

Aggregate Industries – Northeast Region, Inc.

is authorized to discharge from a facility located at

Aggregate Industries, Inc.
30 Danvers Road
Swampscott, MA 01907

to receiving waters named

Foster Pond (Outfall 001) & a wetlands system which includes Thompson's Meadow and is adjacent to Forest River (Outfall 002)

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

This permit shall become effective on the first day of the calendar month following sixty (60) days after signature.

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

This permit supersedes the permit issued on May 1, 2008.

This permit consists of 18 pages in Part I including effluent limitations and monitoring requirements, 15 pages in Attachments A (USEPA Region 1 Freshwater Acute Toxicity Procedure and Protocol, February 2011) and B (USEPA Region 1 Freshwater Chronic Toxicity Procedure and Protocol, March 2013), and 25 pages in Part II, the Standard Conditions.

Signed this 21st day of December , 2016

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

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

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge treated process water and stormwater through **Outfall Serial Number 001**[1,2] to Foster Pond.

Effluent characteristic	Units	Discharge Limitation		Monitoring Requirements[3,4]	
		Average monthly	Maximum Daily	Measurement Frequency[5]	Sample Type
Flow	MGD	Report	Report	1/Week	Estimate[6]
pH[7]	S.U.	--	6.5 to 8.3	1/Week	Grab
Total Suspended Solids (TSS)	mg/L	25	45	1/Month	Grab
Turbidity	NTU	8	25	1/Week	Grab
Total Ammonia Nitrogen	µg/L	705[8]	1760[8]	1/Month	Grab
Oil and Grease (O&G)	mg/L	--	15	1/Month	Grab
Total BTEX[9]	µg/L	--	Report	1/Quarter	Grab
Total Nitrate-Nitrite Nitrogen	mg/L	Report	Report	1/Month	Grab
Total Aluminum	µg/L	87[8]	750[8]	1/Month	Grab

See footnotes on pages 6, 7, and 8.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, contd.

Continued. For Whole Effluent Toxicity Testing for **Outfall Serial Number 001**:

Whole Effluent Toxicity[10,11,12,13]	Units	Discharge Limitation		Monitoring Requirements[3]	
		Average monthly	Maximum Daily	Measurement Frequency[5]	Sample Type
Acute LC50	%	Report		Annually	Grab
Chronic C-NOEC	%	Report		Annually	Grab
Effluent Chemistry					
Hardness	mg/L	Report		Annually	Grab
Alkalinity	mg/L	Report		Annually	Grab
pH	S.U.	Report		Annually	Grab
Specific Conductance	µmhos/cm	Report		Annually	Grab
Total Solids	mg/L	Report		Annually	Grab
Total Dissolved Solids	mg/L	Report		Annually	Grab
Total Ammonia Nitrogen	mg/L	Report		Annually	Grab
Total Organic Carbon	mg/L	Report		Annually	Grab
Total Residual Chlorine	mg/L	Report		Annually	Grab
Total Cadmium	mg/L	Report		Annually	Grab
Total Lead	mg/L	Report		Annually	Grab
Total Copper	mg/L	Report		Annually	Grab
Total Zinc	mg/L	Report		Annually	Grab
Total Nickel	mg/L	Report		Annually	Grab
Total Aluminum	mg/L	Report		Annually	Grab

See footnotes on pages 6, 7, and 8.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, contd.

Continued. For Whole Effluent Toxicity Testing for **Outfall Serial Number 001**:

Whole Effluent Toxicity[10,11,12,13]	Units	Discharge Limitation		Monitoring Requirements[3]	
		Average monthly	Maximum Daily	Measurement Frequency[5]	Sample Type
Receiving Water Chemistry					
Hardness	mg/L	Report		Annually	Grab
Alkalinity	mg/L	Report		Annually	Grab
pH	S.U.	Report		Annually	Grab
Specific Conductance	µmhos/cm	Report		Annually	Grab
Total Ammonia Nitrogen	mg/L	Report		Annually	Grab
Total Organic Carbon	mg/L	Report		Annually	Grab
Total Cadmium	mg/L	Report		Annually	Grab
Total Lead	mg/L	Report		Annually	Grab
Total Copper	mg/L	Report		Annually	Grab
Total Zinc	mg/L	Report		Annually	Grab
Total Nickel	mg/L	Report		Annually	Grab
Total Aluminum	mg/L	Report		Annually	Grab

See footnotes on pages 6, 7, and 8.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, cont'd.

2. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge dust control water and stormwater through **Outfall Serial Number 002**[1] only in the event of an episodic discharge[14].

Effluent characteristic	Units	Discharge Limitation		Monitoring Requirements	
		Average monthly	Maximum Daily	Measurement Frequency[5]	Sample Type
Flow	MGD	Report	Report	Once per episodic discharge	Estimate[6]
pH[7]	S.U.	--	6.5 to 8.3	Once per episodic discharge	Grab
Total Suspended Solids (TSS)	mg/L	25	45	Once per episodic discharge	Grab
Oil and Grease (O&G)	mg/L	--	15	Once per episodic discharge	Grab
Total BTEX[9]	µg/L	--	Report	Once per episodic discharge	Grab

See footnotes on pages 6, 7, and 8.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, cont'd.

Footnotes for monitoring at Outfall 001 and 002:

1. Such discharge shall: 1) be limited and monitored by the permittee as specified below; and 2) not cause a violation of the State Surface Water Quality Standards of the receiving water.

2. The Outfall 001 discharge pipe condition shall be inspected weekly during sampling so that an appropriate point source sampling location can be maintained during all seasonal conditions and any future construction activity.

3. Effluent samples shall be representative of the discharge and shall be taken at Outfall 001 during the discharge of effluent to the designated receiving waters. Changes in sampling location must be approved in writing by the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP). Sampling discharges from the facility must yield data representative of the discharge under authority of CWA Section 308(a) and in accordance with 40 Code of Federal Regulations (CFR) §122.41(j), §122.44(i), and §122.48. Samples shall be taken in the event of a discharge. During months when no tests are performed or required, NODI code 9 shall be entered for that month.

4. In accordance with 40 CFR §122.44(i)(1)(iv), the permittee shall use sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapter N or O, for the analysis of pollutants or pollutant parameters limited in this permit (except for WET limits). A method is considered "sufficiently sensitive" when either: (1) the method minimum level (ML) is at or below the level of the effluent limit established in this permit for the measured pollutant or pollutant parameter; or (2) the method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapter N or O for the measured pollutant or pollutant parameter. The ML is not the minimum level of detection, but rather the lowest level at which the test equipment produces a recognizable signal and acceptable calibration point for a pollutant or pollutant parameter, representative of the lowest concentration at which a pollutant or pollutant parameter can be measured with a known level of confidence. For the purposes of this permit, the detection limit is the lowest concentration that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method during routine laboratory operating conditions (i.e., the level above which an actual value is reported for an analyte, and the level below which an analyte is reported as non-detect).

5. Sampling frequency of once per week is defined as the sampling of one (1) discharge event in each calendar week, when discharge occurs. Sampling frequency of once per month is defined as the sampling of one (1) discharge event in each calendar month, when discharge occurs. Sampling frequency of quarterly is defined as once every three months, where sampling is conducted in the first month of every quarter when discharge occurs. Sampling frequency of annually is defined as the sampling of one (1) discharge event in each calendar year, when discharge occurs. The permittee shall submit the results to EPA of any additional testing done to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii).

6. The permittee may record or estimate flow by extrapolation of rainfall data and surface area drainage for Outfall 001 and Outfall 002.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, cont'd.

7. Requirement for State Certification.

8. Effluent limitations for Total Ammonia Nitrogen and Total Aluminum go into effect at the end of the compliance schedule described in Part I.C. Until these effluent limitations go into effect, the permittee is required to sample and report these parameters at the stated frequencies.

9. Benzene, Ethylbenzene, Toluene, and Xylene comprise the BTEX analyte.

10. The permittee shall conduct annual acute and chronic whole effluent toxicity (WET) tests specified in the WET test protocols can be found in Attachments A and B of the permit. The chronic test may not be used to calculate the acute LC50 at the 48 hour exposure interval; as of 2013, modified acute toxicity tests are no longer acceptable under the WET test protocol. The permittee shall test the daphnid, *Ceriodaphnia dubia*, and fathead minnow, *Pimephales promelas*. The WET test results shall be submitted by April 30th following completion of the test in the month of March.

11. The LC_{50} is the concentration of the effluent which causes mortality to 50% of the test organisms. The C-NOEC (chronic no observed effect concentration) is defined as the highest effluent concentration at which there is no statistically-significant adverse effect on the survival of the test organisms when compared with the diluent control survival at the time of observation.

12. *Pimephales promelas* may be tested with a synthetic alternate diluent with hardness similar to that of the receiving water, Foster Pond. *Ceriodaphnia dubia* must be tested as is typical with a receiving water dilution series. That is, for *Ceriodaphnia dubia*, the dilution water sample for the WET tests shall be a **receiving water control** (i.e., 0% effluent) collected from Foster Pond at a point immediately outside of Outfall 001's zone of influence at a reasonably accessible location. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in Attachment A, Section IV: DILUTION WATER, or the Permittee shall follow the Self-Implementing Alternative Dilution Water Guidance found in Attachment G in NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs).

13. The Permittee shall conduct the analyses specified in Attachment A and Attachment B, Part VI. CHEMICAL ANALYSIS, of this permit. **For 100% effluent**, the permittee shall report results for the parameters listed in Part I.A.1., Whole Effluent Toxicity, hardness through aluminum, total recoverable, inclusive, as described in footnote 12. **For the receiving water control** (i.e., 0% effluent) the Permittee shall report results for the parameters listed for 100% effluent, except TRC, total solids, and total dissolved solids, which are not required. Even where an alternate dilution water is permitted, the receiving water control (0% effluent) must still be analyzed. MLs and methods are specified in Attachment A and B, Part VI: CHEMICAL ANALYSIS. Sampling for any parameter required for WET may be used to satisfy any duplicative sampling required for that parameter in this permit, so long as the timing of sampling for WET coincides with the sample timing otherwise required for that parameter within this permit.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, cont'd.

14. An episodic discharge via Outfall 002 is defined as the failure to maintain stormwater and dust control water on-site. EPA and MassDEP shall be notified within 24 hours of an episodic discharge. Weekly inspections of this outfall shall continue to be required under this draft permit to keep stormwater and dust control water on-site even in the absence of a discharge.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, cont'd.

3. Water quality requirements include:

a. Discharges shall neither cause a violation of the water quality standards nor jeopardize any Class B use of Foster Pond or the wetlands complex including Thompson's Meadow that is adjacent to Forest River.

b. Discharges to the receiving waters shall be adequately treated to ensure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum or other visible substances. It shall be adequately treated to ensure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving waters that are not naturally occurring and would render the receiving water unsuitable for its designated uses.

c. The effluent shall not contain any pollutant and/or material or in combinations which are hazardous or toxic to aquatic life or which would impair the uses designated by the classification of the receiving waters.

d. Discharges to the receiving waters shall not result in the dominance of nuisance species or interfere with recreational activities.

e. The pH of the effluent shall not be less than 6.5 or greater than 8.3 at any time unless these values are exceeded as a result of natural causes.

4. EPA may revoke, modify, or reissue this permit in accordance with EPA regulations in 40 Code of Federal Regulations (CFR) §122.62 and §122.63 to incorporate more stringent effluent limitations, increase the frequency of analyses, or impose additional sampling and analytical requirements.

5. All existing manufacturing, commercial, mining and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine basis, of any toxic pollutant which is not limited in the Permit, if that discharge will exceed the highest of the following "notification levels":

i. One hundred micrograms per liter (100 µg/l);

ii. Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrite; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or

iv. Any other notification level established by the Director in accordance with 40 CFR §122.44(f).

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, cont'd.

b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

i. Five hundred micrograms per liter (500 μg/l);

ii. One milligram per liter (1 mg/l) for antimony;

iii. Ten (10) times the maximum concentration value reported for that pollutant in the Permit application in accordance with 40 CFR §122.21(g)(7).

iv. Any other notification level established by the Director in accordance with 40 CFR §122.44(f).

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

6. 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.

7. Prohibitions

The use of blasting agents containing perchlorate, the use of surfactants except for the minimal amount in the current blasting agent, the use or storage of polychlorinated biphenyl transformers on-site, and the discharge of water which collects in the above ground storage tank (AST) containment areas are all prohibited.

Part I.B. STORMWATER POLLUTION PREVENTION PLAN

1. The permittee shall maintain a Stormwater Pollution Prevention Plan (SWPPP) designed to reduce, or prevent, the discharge of pollutants in stormwater to the receiving waters identified in this permit. The SWPPP shall be a written document and consistent with the terms of this permit. The permittee shall comply with the terms of its SWPPP.

2. The SWPPP, including the SWPPP site map, shall be updated and signed by the permittee within 90 days after the effective date of this Permit. The permittee shall certify that the SWPPP has been completed or updated and that it meets the requirements of the permit. The certification shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of this certification and a hardcopy of the SWPPP shall be sent to EPA and MassDEP within thirty (30) days after the certification date.

3. The SWPPP shall be consistent with the general provisions for SWPPPs included in the most current version of the Multi-Sector General Permits for Stormwater Discharges Associated with Industrial Activities. (The current MSGP was effective June 4, 2015 – see https://www.epa.gov/sites/production/files/2015-10/documents/msgp2015_finalpermit.pdf) The SWPPP shall include best management practices (BMPs) for on-site activities that will minimize the discharge of pollutants in stormwater to waters of the United States.

4. The SWPPP shall be prepared in accordance with good engineering practices, identify potential sources of pollution that may reasonably be expected to affect the quality of the stormwater discharges, and describe and ensure implementation of practices which will be used to reduce the pollutants and assure compliance with this permit. Specifically, the SWPPP shall contain the elements listed below:

a. A pollution prevention team responsible for developing, implementing, maintaining, revising and ensuring compliance with the SWPPP.

b. A site description which includes a list of activities at the facility; a site map showing drainage areas and direction of stormwater flows; receiving waters and outfall location; the location of industrial activities, storage, disposal, material handling; and all structural controls.

c. A summary of all pollutant sources which includes all areas where spills have occurred or could occur. For each source, identify the expected drainage and the corresponding pollutant.

d. A description of all stormwater controls, both structural and non-structural. All BMPs shall be properly maintained and be in effective operating conditions. BMPs must be selected and implemented to satisfy non-numeric technology-based effluent limitations in MSGP Part 2.1.2.: BMPs must include good housekeeping measures, preventative maintenance programs, spill and leak prevention and response procedures, erosion and sediment controls, and runoff management practices. The SWPPP shall describe how the BMPs are appropriate for the facility.

Part I.B. STORMWATER POLLUTION PREVENTION PLAN, cont'd.

e. A record of the following information for chemical products that could potentially have an impact to stormwater associated with industrial activity as defined in §122.26(b)(14)(i)-(ix),(xi):

i. Product name, chemical formula, and manufacturer;

ii. Purpose or use of the chemical;

iii. Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical;

iv. The frequency (e.g., hourly, daily), duration (e.g., hours, days), quantity (e.g., maximum and average), and method of application for the chemical; and

v. The vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)), when available.

f. A description of the training to be provided for employees to assure they understand the goals, objectives, and procedures of the BMP plan, the requirements of the NPDES permit, and their individual responsibilities for complying with the goals and objectives of the BMP plan and the NPDES permit.

g. Minimum documentation requirements are as follows:

i. Records of operational and preventive maintenance activities, equipment inspections, procedure audits, and personnel training;

ii. Records of the collection and analysis of samples, including, but not limited to, sample location, any calculations done at the time of sampling, any sampling or analytical methods used for samples analyzed on site, and sample results;

iii. Any records of the collection and analysis of samples, the evaluation of design standards and operational changes, the selection, design, installation, and implementation of control measures, and/or evaluations, identifications, examinations and/or explanations documented in support of the residuals management BMP and/or environmental monitoring program requirement, below; and

iv. All documentation of BMP plan activities shall be kept at the facility for at least three years and provided to EPA or MassDEP upon request.

5. All areas identified in the SWPPP shall be inspected, at least on a quarterly basis. Inspections shall occur beginning the 1st quarter after the effective date of the permit. EPA considers quarters as follows: January to March; April to June; July to September; and October to December.

Part I.B. STORMWATER POLLUTION PREVENTION PLAN, cont'd.

6. The permittee shall amend and update the SWPPP within 14 days for any changes at the facility affecting the SWPPP. Changes which may affect the SWPPP include, but are not limited to, the following activities: a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States; a release of a reportable quantity of pollutants as described in 40 CFR §302; or a determination by the permittee or EPA that the SWPPP appears to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with industrial activity. Any amended or new versions of the SWPPP shall be re-certified by the permittee. Such re-certifications also shall be signed in accordance with the requirements identified in 40 CFR §122.22.

7. The permittee shall certify at least annually that the previous year's inspections and maintenance activities were conducted, results were recorded, records were maintained, and that the facility is in compliance with the SWPPP. If the facility is not in compliance with any aspect of the SWPPP, the annual certification shall state the non-compliance and the remedies which are being undertaken. Such annual certifications also shall be signed in accordance with the requirements identified in 40 CFR §122.22. The permittee shall keep a copy of the current SWPPP and all SWPPP certifications (the initial certification, recertifications, and annual certifications) signed during the effective period of this permit at the facility and shall make it available for inspection by EPA and MassDEP.

8. The permittee shall develop and implement site-specific BMPs; including BMPs to achieve the following:

a. To ensure proper inspection and cleaning of the oil/water separator. The oil/water separator shall be inspected at least quarterly and cleaned at least annually.

b. To require storage of materials and equipment such that contact with stormwater is limited, and avoided whenever possible.

c. To ensure all site stormwater not discharged through Outfalls 001 or 002 remains on-site.

d. To require proper cleanup of any residuals from previous manufacturing processes.

e. To reduce the amount of turbidity in the effluent.

Part I.C. SCHEDULES OF COMPLIANCE FOR TOTAL ALUMINUM AND TOTAL AMMONIA NITROGEN

The permittee shall meet the following schedule for achieving the Total Aluminum and Total Ammonia Nitrogen limitations:

- Within twelve (12) months of the effective date of the permit, the permittee must submit a report containing an evaluation of alternatives to meet the Total Aluminum and Total Ammonia Nitrogen effluent limitations, such as aluminum and ammonia source identification studies, an evaluation of substitute blasting agents, an evaluation of treatment options, and/or an evaluation of options to reduce or eliminate the discharge.

- Within twenty-four (24) months of the effective date of the permit, the permittee must submit a report containing an evaluation of the selected alternative to meet the Total Aluminum and Total Ammonia Nitrogen effluent limitations and begin implementing the selected alternative of the Total Aluminum and Total Ammonia Nitrogen effluent limitations.

- The Total Aluminum and Total Ammonia Nitrogen effluent limitations shall be met within three (3) years of the effective date of the permit.

PART I.D. 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 Reports as NetDMR Attachments

   After the permittee begins submitting DMR reports to EPA electronically using NetDMR, the permittee shall continue to electronically submit all reports to EPA as NetDMR attachments rather than as hard copies, unless otherwise specified in this permit. The permittee shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. 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.

2. 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 EPA's Office Ecosystem Protection (OEP).

   a. Transfer of permit notice
   b. Request for changes in sampling location
   c. Request for reduction in testing frequency
   d. Request for reduction in WET Testing Requirement
   e. Report on unacceptable dilution water/request for alternative dilution water for WET testing

3. Submittal of Requests and Reports to EPA/OEP

   Reports, information, and requests in Part I.D.2 shall be submitted to EPA/OEP electronically at R1NPDES.Notices.OEP@epa.gov.

PART I.D. MONITORING AND REPORTING, contd.

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
c. Reports and DMRs submitted prior to the use of NetDMR

The reports in hard copy form information shall be submitted to EPA/OES at the following address:

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

Massachusetts Department of Environmental Protection
Northeast Regional Office
Bureau of Air and Waste
205B Lowell St.
Wilmington, MA 01887

5. State Reporting

Transfer or termination of permit notices shall be submitted to:

MassDEP
Bureau of Water Resources
Wastewater Management Program
1 Winter Street, 5th Floor
Boston, MA 02108

PART I.D. MONITORING AND REPORTING, contd.

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

Massachusetts Department of Environmental Protection
Northeast Regional Office
Bureau of Air and Waste
205B Lowell Street
Wilmington, MA 01887

Hard copies of Whole Effluent Toxicity tests and reports only shall be submitted to:

Massachusetts Department of Environmental Protection
Bureau of Water Resources
8 New Bond Street
Worcester, MA 01606

6. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA-New England and to MassDEP. This includes verbal reports and notifications notification 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: **(617) 918-1510.**

Part I.E. STATE PERMIT CONDITIONS

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

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

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

USEPA REGION 1 FRESHWATER 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:

- **Daphnid (Ceriodaphnia dubia) definitive 48 hour test.**
- **Fathead Minnow (Pimephales promelas) definitive 48 hour test.**

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

II. METHODS

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

http://water.epa.gov/scitech/methods/cwa/wet/disk2_index.cfm

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 sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for chemical and physical analyses required. The remaining sample shall be measured for total residual chlorine and dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. If dechlorination is necessary, a thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) must also be run in the WET test.

All samples held overnight shall be refrigerated at 1- 6^{o}C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. In the case where an alternate dilution water has been agreed upon an additional receiving water control (0% effluent) must also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. Written requests for use of an alternate dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
5 Post Office Sq., Suite 100 (OEP06-5)
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
5 Post Office Sq., Suite 100 (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/enforcement/water/dmr.html *for further important details on alternate dilution water substitution requests.*

It may prove beneficial to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

V. TEST CONDITIONS

The following tables summarize the accepted daphnid and fathead minnow toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE DAPHNID, CERIODAPHNIA DUBIA 48 HOUR ACUTE TESTS[1]

1.	Test type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1^{o}C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hour light, 8 hour dark
5.	Test chamber size	Minimum 30 ml
6.	Test solution volume	Minimum 15 ml
7.	Age of test organisms	1-24 hours (neonates)
8.	No. of daphnids per test chamber	5
9.	No. of replicate test chambers per treatment	4
10.	Total no. daphnids per test concentration	20
11.	Feeding regime	As per manual, lightly feed YCT and Selenastrum to newly released organisms while holding prior to initiating test
12.	Aeration	None
13.	Dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC
15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution

		series.
16.	Effect measured	Mortality-no movement of body or appendages on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection.
19.	Sample volume required	Minimum 1 liter

Footnotes:

1. Adapted from EPA-821-R-02-012.
2. Standard prepared dilution water must have hardness requirements to generally reflect the characteristics of the receiving water.

EPA NEW ENGLAND TEST CONDITIONS FOR THE FATHEAD MINNOW (PIMEPHALES PROMELAS) 48 HOUR ACUTE TEST[1]

1.	Test Type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1 ^{o} C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hr light, 8 hr dark
5.	Size of test vessels	250 mL minimum
6.	Volume of test solution	Minimum 200 mL/replicate
7.	Age of fish	1-14 days old and age within 24 hrs of each other
8.	No. of fish per chamber	10
9.	No. of replicate test vessels per treatment	4
10.	Total no. organisms per concentration	40
11.	Feeding regime	As per manual, lightly feed test age larvae using concentrated brine shrimp nauplii while holding prior to initiating test
12.	Aeration	None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.)
13.	dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC

15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection.
19.	Sample volume required	Minimum 2 liters

Footnotes:

1. Adapted from EPA-821-R-02-012
2. Standard dilution water must have hardness requirements to generally reflect characteristics of the receiving water.

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, oxygen, hardness, alkalinity and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour intervals in all dilutions. The following chemical analyses shall be performed on the 100 percent effluent sample and the upstream water sample for each sampling event.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3]	x		0.02
Alkalinity	x	x	2.0
pH	x	x	--
Specific Conductance	x	x	--
Total Solids	x		--
Total Dissolved Solids	x		--
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Metals			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 2340B (hardness by calculation)
     - Method 2340C (titration)
2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 4500-CL E Low Level Amperometric Titration
     - Method 4500-CL G DPD Colorimetric Method
3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

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

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6^{o} C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

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

IV. DILUTION WATER

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

The test dilution water must be used to determine whether the test met the applicable 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 an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

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

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

Director
Office of Ecosystem Protection (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

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. 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.1. Use of Reference Toxicity Testing

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

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.

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.1.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 IC25 values and ≥ two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
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
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 2340B (hardness by calculation)
  -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 4500-CL E Low Level Amperometric Titration
  -Method 4500-CL G DPD Colorimetric Method
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  -Method 330.5

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://water.epa.gov/scitech/methods/cwa/ . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value**,** for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

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

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

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

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
  - Facility name
  - NPDES permit number
  - Outfall number
  - Sample type
  - Sampling method
  - Effluent TRC concentration
  - Dilution water used
  - Receiving water name and sampling location
  - Test type and species
  - Test start date
  - Effluent concentrations tested (%) and permit limit concentration
  - Applicable reference toxicity test date and whether acceptable or not
  - Age, age range and source of test organisms used for testing
  - Results of TAC review for all applicable controls
  - Test sensitivity evaluation results (test PMSD for growth and reproduction)
  - Permit limit and toxicity test results
  - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

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

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PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

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

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete “Duty to Comply” regulations.

2. Permit Actions

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

3. Duty to Provide Information

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

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee;
(2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

8. Duty to Reapply

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

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
(3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.
ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

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

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

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

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

e. Twenty-four hour reporting.

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

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

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

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

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

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

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

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

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

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

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

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

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

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

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

EPA means the United States "Environmental Protection Agency".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Commonly Used Abbreviations

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

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

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
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 PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: **MA0001830**

PUBLIC NOTICE START AND END DATES: August 11, 2016 – September 9, 2016

NAME AND MAILING ADDRESS OF APPLICANT:

Aggregate Industries – Northeast Region, Inc.
1715 Broadway
Saugus, MA 01906

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Aggregate Industries
30 Danvers Road
Swampscott, MA 01907

RECEIVING WATERS: Foster Pond (Outfall 001); a wetlands system which includes Thompson's Meadow and is adjacent to Forest River (Outfall 002)

CLASSIFICATION: Class B

SIC CODE: 1429 (Crushed and Broken Stone)

LATITUDE: 42.48 LONGITUDE: -70.92

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LIST OF ATTACHMENTS

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1.0 PROPOSED ACTION, TYPE OF FACILITY AND DISCHARGE LOCATION

1.1 Proposed Action

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for the re-issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge commingled process water and stormwater into the designated receiving waters. The permit, which was issued to Aggregate Industries - Northeast Region, Inc. (AINER) on May 1, 2008, became effective on July 1, 2008 and expired on June 30, 2013. EPA received a permit renewal application from AINER on April 4, 2013. Since the permit renewal application was deemed timely and complete by EPA, the permit has been administratively continued.

1.2 Type of Facility and Discharge Location

AINER is located at 30 Danvers Road in Swampscott, MA and operates a rock quarry and associated stone crushing operations, a maintenance garage, and supporting activities at the facility (See Attachment A for an aerial photo). Rock from the quarry is harvested by first blasting the rock and subsequently crushing the rock to various sizes in two crushing plants located on the quarry floor. Previously, AINER operated a Ready-Mix Concrete (RMC) plant in the northeastern portion of the site. The RMC plant was closed in 2007 and removed in 2014. AINER also historically operated a granules plant and an asphalt plant, both formerly located on the eastern part of the site. AINER dismantled and removed the granules plant in 2012. In the granules plant operations, manufactured sand was washed to remove chipped particles used to manufacture granules. The chipped particles were coated with mineral oil to form the crushed concrete granules product. The asphalt plant, where hot mix asphalt was combined and stored, was dismantled and removed prior to 2005. The following AINER products are sold externally and used internally: 1½" dense grade aggregate, 1" dense grade aggregate, dust, pond silt, 12" stone, 2-4" stone, 1 ½" stone, ¾" stone, ½" stone, and ⅜" stone.

The quarry operation involves the use of explosives to blast stone from the quarry walls and benches. Blasting is performed by a contractor approximately fifty (50) times per year using water resistant ammonium nitrate. The contractor takes excess blasting materials and other equipment off-site after blasting is completed. No blasting agents containing perchlorate are currently used. The rock fragments from blasting are fed into various crushing and processing operations, both wet and dry, to produce a variety of construction grade aggregates (stone and sand). These aggregates are then screened, segregated, and stored according to fragment size on the quarry floor.

The wash plant located on the quarry floor processes dry stone dust after crushing. The wash plant runs most days per week, all year round, unless on-site water required for washing is frozen. A majority of stone sand produced on-site is washed stone dust recovered from this wash process. The remaining stone sand is discharged into the wash plant settling pond which is excavated and stockpiled on-site as a saleable product.

Within the quarry, there are three treatment ponds used to manage process dust and to promote settling of solids: a smaller Settling Pond by the wash plant, the larger Northern Pond, and Southern Pond. A fourth and final treatment pond for on-site process water, the Holding Lagoon, is located outside of the quarry wall and discharges to Foster Pond (Outfall 001). A process diagram for the facility is included in Attachment B.

Supporting operations for the site include dust control, truck fueling and maintenance, and oil storage. Dust control for crushing operations and truck transport is performed in all areas of the site. Truck fueling occurs at the maintenance garage or throughout the site using a mobile truck. The location and contents of oil and fuel containers (drums and Above-ground Storage Tanks, or ASTs) are stored on-site. Dielectric oil (non-polychlorinated biphenyl) transformers that are not in use and other canisters containing water are kept near the maintenance garage. Locations of transformers, ASTs, and other storage tanks are noted in the Stormwater Pollution Prevention Plan (SWPPP).

Additionally, a quarry wall slip failure in the northern portion of the site has been fenced off for safety reasons.

2.0 RECEIVING WATER DESCRIPTION

2.1 Classification

The receiving water for Outfall 001, freshwater Foster Pond, is designated as Class B. Class B 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. Class B waters must also maintain “good aesthetic value”, as directed in 314 Code of Massachusetts Regulations (CMR) 4.05(3)(b). The pond is approximately 4.6 acres large, abuts a number of residential properties with private access, is managed and maintained by AINER, and is regulated under Massachusetts Article 97: Land Disposition Policy[1]. Foster Pond is within 100 feet of the MassDEP’s wetland buffer zone and development impacting Foster Pond is overseen by the Swampscott Conservation Commission.

Section 303(d) of the Clean Water Act (CWA) requires states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such, require the development of Total Maximum Daily Loads (TMDLs). Foster Pond is listed as impaired for dichlorodiphenyltrichloroethane (DDT), and requires a TMDL, as noted in the Final Massachusetts Year 2014 Integrated List of Waters.

The Final Massachusetts Year 2014 Integrated List of Waters states that Forest River, which receives flow from Outfall 002 via Thompson’s Meadow, is listed as impaired due to dissolved oxygen saturation and requires a TMDL. Thompson’s Meadow is in a wetlands complex that is bordered by woodlands on most sides, except for train tracks that border the complex on the

[1] Open Space and Recreation Plan 2013-2020: Town of Swampscott. December 2013.

southeasterly edge. The Dilisio Brothers Golf Range borders the other side of Forest River on the northwesterly edge of the wetlands complex. Highland Park and Olde Salem Greens Golf Course is found further to the north.

2.2 Water Quality Assessment

Foster Pond is currently under a fish consumption advisory, with the hazard designated as DDT[2]. The original water impairment designation and fish advisory resulted from DDT data collected during MassDEP's 2002 Fish Toxics Monitoring[3] conducted by public request. However, although samples from the 2002 monitoring included detected concentrations of DDT, the report concluded that there was no evidence of an ongoing source of DDT contamination. DDT in Foster Pond may have originated from historical pesticide use on residential property surrounding the pond. The Massachusetts Department of Public Health (MDPH) currently recommends that the general public, including children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers, should not eat American Eel from Foster Pond due the potential of DDT accumulating in eel lipid.

A Department of Public Works representative cited in the Swampscott Open Space and Recreation Plan[1] noted a sign-posted warning about the dangers of fish consumption at Windsor Avenue adjacent to the pond. The representative also noted there has been no action taken by the town with regards to the DDT contamination. The Open Space and Recreation plan also categorizes Foster Pond's main activities as "passive recreation" and the pond's condition for residents is rated as "fair".

Forest River is connected to the Thompson's Meadow wetlands complex to the west and east. A portion of Forest River's designated uses were assessed for quality in 2014 as part of the Integrated Waters listing. The aesthetic value, primary and secondary contact recreation uses were given a status of "good", the shellfish harvesting use was not assessed, and aquatic life and wildlife use was assessed as "impaired".

Additionally, state-wide safe eating guidelines from MDPH include the recommendation that pregnant women, women who may become pregnant, nursing mothers and children under 12 years old should not eat freshwater fish caught in any streams, rivers, lakes, and ponds in Massachusetts (including Foster Pond and Forest River) due to concerns about contaminants such as mercury and polychlorinated biphenyls (PCBs)[4]. Maps of Foster Pond and Forest River in relation to the facility are contained in Attachment C.

[2] Freshwater Fish Consumption Advisory List. Massachusetts Department of Public Health: Bureau of Environmental Health. August 2013.
[3] 2002 Fish Toxics Monitoring Public Request and Year 2 Watershed Surveys. Massachusetts Department of Environmental Protection: Divisions of Watershed Management and Environmental Analysis. July 2004.
[4] Fish Consumption Advisory for Marine and Fresh Water Bodies. Massachusetts Department of Public Health. 2009.

3.0 PERMIT BASIS: STATUTORY AND REGULATORY AUTHORITY

3.1 General Background

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. The draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable State regulations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. In this permit EPA considered (a) technology-based requirements, (b) water quality-based requirements, and (c) all limitations and requirements in the current/existing permit, when developing the permit limits.

3.2 Technology-Based Requirements

Subpart A of 40 CFR §125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated effluent limitations and case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA.

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (see 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically available (BAT) for toxic and non-conventional pollutants. In general, technology-based effluent guidelines for non-POTW facilities must have been complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989. *See* 40 CFR §125.3(a)(2). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit. In the absence of published technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using best professional judgment (BPJ). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit.

EPA has promulgated technology-based National Effluent Limitation Guidelines (ELGs) for Mineral Mining and Processing Point Source Category. Specifically, both the Crushed Stone and Construction Sand and Gravel ELGs limit the pH range to 6.0-9.0 SU. Discharge of stormwater from the facility is currently covered under this individual permit but will be informed by the Multi-Sector General Permit (MSGP). Subsector J1 (Sand and Gravel Mining) in the MSGP includes a benchmark monitoring of 0.68 mg/L for Nitrate plus Nitrite Nitrogen.

3.3 Water Quality-Based Requirements

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. This is necessary when technology-based limitations would interfere with the attainment or maintenance of water quality in the receiving water. Under Section 301(b)(1)(C) of the CWA and EPA regulations, NPDES permits must contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water quality standards.

Water quality standards consist of three parts: (1) beneficial designated uses for a waterbody or a segment of a waterbody; (2) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (3) anti-degradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards, found at 314 CMR 4.00, include these elements. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site specific criterion is established.

3.3.1 Reasonable Potential Analysis

The draft permit must limit any pollutant or pollutant parameter (conventional, non-conventional, and toxic) that is or may be discharged at a level that causes or has the "reasonable potential" to cause or contribute to an excursion above any water quality standard. *See* 40 CFR §122.44(d). An excursion occurs if the projected or actual in-stream concentration exceeds an applicable water quality criterion. In determining "reasonable potential", EPA considers: (1) existing controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from the permit's re-issuance application, monthly discharge monitoring reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the indicator species used in toxicity testing; (4) known water quality impacts of processes on waste waters; and (5) where appropriate, dilution of the effluent in the receiving water.

3.3.2 Antidegradation

Federal regulations found at 40 CFR §131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water. The Massachusetts Antidegradation Regulations, found at 314 CMR 4.04, apply to any new or increased activity that would lower water quality or affect existing or designated uses, including increased loadings to a waterbody from an existing activity. All existing instream uses and the level of water quality necessary to protect the existing uses of the receiving waters shall be maintained and protected.

This draft permit is being reissued with allowable effluent limits as stringent as or more stringent than the previous permit and accordingly will continue to protect the existing uses of Foster Pond and Thompson's Meadow. Therefore, MassDEP is not required to conduct an antidegradation review regarding this permit reissuance.

3.4 Antibacksliding

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 antibacksliding requirements of the CWA [see Sections 402(o) and 303(d)(4) of the CWA and 40 CFR §122.44(l)(1 and 2)]. EPA's antibacksliding provisions prohibit the relaxation of permit limits, standards, and conditions except under certain circumstances. Effluent limits based on BPJ, water quality, and state certification requirements must also meet the antibacksliding provisions found at Section 402(o) and 303(d)(4) of the CWA. All proposed permit conditions are at least as stringent as those found in the current permit. Therefore, the draft permit complies with the antibacksliding requirements of the CWA.

4.0 DESCRIPTION OF OUTFALLS AND INTAKE STRUCTURE

4.1 Outfall 001

AINER primarily draws water from Northern Pond for use in aggregate washing operations. Water from Northern Pond is pumped to the top of a wet screen tower where it is used to wash aggregate material. The wastewater is conveyed from the wet screen tower via a sluiceway and discharged into the Settling Pond, where the majority of solids settle out. The pond is dredged annually. No flocculants are used to promote settling in the Settling Pond, although a granular flocculant is used in the wash plant. Water from the Settling Pond is pumped to the Southern Pond, where further settling occurs. A pump connecting Southern Pond and Northern Pond in order to recycle process water, or discharge directly to the Holding Lagoon, is rarely used.

The discharge to Southern Pond includes water from the maintenance garage area, where truck washing occurs, after treatment by an underground oil/water separator. No surfactants are used in vehicle washing or anywhere on the site. Catch Basin #1 (CB1) is located in front of the maintenance garage where it collects wash water and is connected to a series of dry wells. The dry well system is connected to an underground oil/water separator by a PVC pipe. The discharge from the separator is routed to two bore holes that are drilled through the eastern quarry rock face and outlet into Southern Pond. Sources of potential pollutants used in the maintenance garage are engine and transmission oils, lubricant for servicing vehicles/equipment, solvents used for cleaning, vehicle brake dust, and fuel oil; however, all floor drains located within the maintenance garage have been blocked.

In addition to water pumped from the Settling Pond, water in Southern Pond also includes a minimal amount of groundwater that passively seeps through the quarry walls. No water is drawn via an in-ground well from the quarry. Water from Southern Pond is pumped over the quarry wall, from an elevation of approximately 40 feet below sea level to an elevation of

approximately 110 feet above sea level (over the quarry wall) and into the Holding Lagoon, at approximately 90 feet above sea level, when necessary.

The Holding Lagoon is located on the southwest corner of the property. The Holding Lagoon discharges water through Outfall 001[5], via gravity flow, through a plastic pipe in a stone weir located at the eastern end of Foster Pond. The outfall was recently built into a more discernible point source in 2010 to better allow for representative sampling of the discharge. Additional modifications in the Holding Lagoon for the purpose of reducing turbidity in the discharge to Foster Pond are planned for 2016 and required prior local approval. A chain link fence surrounds the Holding Lagoon to prevent fishing or other incidental contact activities with the final treatment pond.

The final discharge at Outfall 001 to Foster Pond consists of treated process water and stormwater, as well as a contribution from minimal groundwater seepage from the quarry walls that flows into Southern Pond. Foster Pond flows by gravity to Jackson Brook and the brook leads to the Valley Road/Manson Street headwall. From the headwall, the water flows via a concrete pipe to the Lynn Storm Sewer System, which drains to King's Beach in Lynn and into the Atlantic Ocean. Neil Johnson, an engineer at Lynn Water and Sewer Commission, confirmed this flow path on February 23, 2016, via telephone.

Sampling is performed at the outfall to Foster Pond, at a representative point close to a plastic pipe that channels water by gravity flow over a stone berm. The discharge pipe condition shall be inspected weekly during sampling so that an appropriate point source sampling location can be maintained during all seasonal conditions and any future construction activity.

4.2 Outfall 002

A stormwater holding area is located on the eastern portion of the site, adjacent to Danvers Road, and nearby the former granules and RMC plant locations. The area includes a catchment basin, Catch Basin #4 (CB4), and a well connecting the area to Thompson's Meadow to the east of the road. There are small water holding tanks used for dust control located nearby the road. A well previously located in the former granules plant area from which water was pumped for use on-site and to supply non-potable water to the toilets and sinks in the office building was removed when the granules plant was removed in 2012.

The stormwater discharge at Outfall 002 was formerly covered under the Stormwater Multi-Sector General Permit (MSGP). AINER sought and received coverage for both process water and stormwater discharges under a single individual permit and filed the appropriate Notice of Termination with regard to MSGP coverage in 2009. Stormwater coverage shall continue under this individual permit.

There has been no discharge from Outfall 002 in the past several years. In the event of a discharge, the discharge from Outfall 002 would consist of dust control water and stormwater runoff. The stormwater consists of runoff from the former RMC plant area, the former granules

[5] The outfall is named 003 in the monitoring record and in Attachment E.

plant area, and a fueling area. AINER constructed modifications to the area around Outfall 002, including an earthen berm and improved catch basin design, to allow for safer stormwater handling and a more accessible sampling point. AINER has installed an inflatable balloon plug in a well adjacent to CB4 to keep stormwater on-site and has monitored the condition and operation of the plug to verify its proper function.

The discharge through Outfall 002 collects at CB4. In the case of a discharge, the flow from CB4 would empty into the Thompson's Meadow wetlands complex adjacent to Forest River. Forest River flows to Salem Harbor, which empties into the Atlantic Ocean. See Attachment D for a map of the wetlands system.

In the event of an episodic discharge, a sample representative of the stormwater discharge through Outfall 002 shall be taken at CB4 (located near the former granules plant area), at a location where all stormwater runoff which flows through Outfall 002 collects prior to discharge.

5.0 PROPOSED EFFLUENT LIMITATIONS, CONDITIONS

A monitoring data summary report for Outfalls 001 and 002 is included in Attachment E. Outfall 001 is denoted in the DMR and in Attachment E as Outfall 003. Regular water quality monitoring for Outfall 001 and 002 is identified by outfall codes 003A and 002A, respectively, and WET test results at Outfall 001 is identified by DMR outfall code 003T. DMR entries with "no discharge" codes for Outfall 002 were removed for clarity. For WET testing data, only the required annual WET testing entries under outfall code 003T, the code denoting the WET testing entries in the DMR data included in Attachment E, were retained.

5.1 Outfall 001

AINER modified Outfall 001[6] to a more discernible point source in 2010. The plans for this modification and a photograph of the outfall taken in January 2016 can be found in Attachment F. A weekly inspection of stormwater outfalls is required as specified by the SWPPP in Section 5.3.1 below. Outfall 001 contains both process water and stormwater, as these commingle on-site. Weekly inspections shall continue under this draft permit.

5.1.1 Flow

The current permit requires the permittee to estimate and report the maximum daily and average monthly flow for Outfall 001. Up until January 2012, the monthly average flow was estimated and substituted in for maximum daily flow. The average estimated flow from January 2012 to the end of February 2016 was 0.439 MGD. The maximum daily flow from January 2012 to February 2016 was 6.081 MGD. AINER may continue to estimate flow by extrapolation of rainfall data and surface area drainage in the event of a discharge.

[6] This outfall is named 003 in the monitoring record and in Attachment E.

5.1.2 pH

The pH limitation range of 6.5-8.3 standard units (SU) has been retained in the draft permit in accordance with anti-backsliding requirements found in 40 CFR §122.44(l). The pH limits are based on the Massachusetts Surface Water Quality Standards (Massachusetts SWQSs), 314 CMR, for Class B waters at 4.05 (3)(b)3, and are also retained as they are more stringent than the ELG-based pH limitation of 6.0 to 9.0 SU. These standards require that the pH of the receiving water be in the range of 6.5 to 8.3 SU and no more than 0.5 units outside the background range. There shall be no change from background conditions that would impair any use assigned to this Class. The water quality criteria have been adopted as discharge limitations based on certification requirements under Section 401(a)(1) of the CWA, as described in 40 CFR 124.53 and 124.55. The pH limitation range based on the SWQSs is retained in this draft permit due to antibacksliding.

Review of the DMR data reveals that the pH limit range was exceeded on five occasions, but not by more than 0.5 units. The highest exceedance was 8.5 SU and the lowest was 6.1 SU. Based on these monitoring results, the sampling frequency for pH shall remain unchanged as once per week.

5.1.3 Total Suspended Solids (TSS)

In the absence of published technology-based effluent guidelines, the permit writer is authorized under CWA §402(a)(1)(B) to establish effluent limitations on a case-by-case basis using best professional judgment (BPJ). EPA previously conducted a site-specific BPJ analysis to determine the appropriate technology-based effluent limit (TBEL) and based the monthly average TSS limit of 25 mg/L and the daily maximum TSS limit of 45 mg/L on Sector J (Mineral Mining and Dressing) of the MSGP. These limits have been retained in this permit to avoid antibacksliding requirements found in 40 CFR §122.44(l).

Additionally, EPA's Quality Criteria for Water, 1986 (the Gold Book[7]) cites many potential problems associated with high suspended solids and turbidity in a waterbody, including harm to pelagic and benthic organisms; reduced primary production and ecosystem health; and safety issues for swimming and other recreational uses of the waterbody. In addition, pollutants such as toxic metals and phosphorus are likely to be adsorbed onto sediment particles. Based on available information, EPA believes that the discharge of these pollutants will be adequately controlled by limiting the suspended solids and turbidity in the Holding Lagoon discharge.

Water quality-based effluent limits for TSS were determined based on available literature and guidance. National as well as state water quality criteria are narrative for solids and turbidity.

[7] available at:
http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009_01_13_criteria_goldbook.pdf

The Massachusetts water quality standards for Class B waters at 314 CMR 4.05(3)(b)5 require that:

> [t]hese waters shall be free from floating, suspended, and settleable solids in concentrations and combinations that would impair any use assigned to this Class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

The Gold Book proposes the same criteria for solids as EPA's 1972 Water Quality Criteria report[8].

Prescriptive requirements for recreation and aesthetics recommend managing solids with reference to waterbody historical/baseline data; and suspended solids recommendations to provide a high level of protection to aquatic communities is 25 mg/L. A high level of protection is appropriate for the discharge based on the receiving waterbody impairments. Thus a monthly average TSS limit of 25 mg/L or less is sufficient to ensure the discharge does not cause or contribute to a water quality violation.

Review of DMR data reveals that the discharge has not exceeded the current permit's monthly average or maximum daily permit limits for TSS since 2008. Based on these monitoring results, the sampling frequency for TSS will be maintained at once per month in order to assure that the permittee is controlling the release of solids in the discharge.

5.1.4 Turbidity

In accordance with antibacksliding requirements found in 40 CFR §122.44(l), the average monthly limit of 8 NTU and the maximum daily limit of 25 NTU have been retained in the draft permit. The Massachusetts Surface Water Quality Standards under 314 CMR 4.05(3)(b)6 require that Class B waters shall be free from turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class. Turbidity of water is related to the amount of suspended and colloidal material present in the water column. Aside from the aesthetic problems of color that a turbid discharge can create, turbidity reduces water clarity; therefore, the penetration of light into that water column is reduced, negatively impacting the growth and life cycles of various aquatic species (plants and animals).

Review of DMR data reveals that the maximum daily effluent limitation has been exceeded on 2 occasions, and the average monthly limit has been exceeded on 6 occasions. Based on these monitoring results, the sampling frequency for turbidity shall remain unchanged at once per week.

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[8] available at:
http://nepis.epa.gov/Exe/ZyNET.exe/2000XOYT.TXT?ZyActionD=ZyDocument&Client=EPA&Index=Prior+to+1976&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C70thru75%5CTxt%5C00000003%5C2000XOYT.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&Zy PURL

In 2015, the permittee proposed to construct a porous berm in the Holding Lagoon in order to reduce turbidity levels. In November 2015, AINER received a Determination of Applicability from the Town of Swampscott Conservation Commission that no further action under the Massachusetts Wetlands Protection Act (MGL c. 131 §40) is required in order to proceed with the project. See Attachment G for the Determination of Applicability document. The draft permit requires the permittee to develop and implement BMPs, pursuant to the SWPPP, and to implement treatment options in the future, such as the modifications to the Holding Lagoon planned for 2016, in order to reduce the amount of turbidity in the discharge from the facility.

5.1.5 Total Ammonia Nitrogen

The current permit required weekly monitoring and the reporting of the average monthly concentration for Total Ammonia. EPA's current *National Recommended Water Quality Criteria*, freshwater criteria for Ammonia are pH, temperature, and life-stage dependent. According to the procedures described in the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, except possibly where a very sensitive species is important at a site, freshwater aquatic life should be protected if both conditions specified in Appendix C to the Preamble - Calculation of Freshwater Ammonia Criterion are satisfied. The more toxic neutral form of ammonia (chemical formula NH_3), rather than the ammonium ion (chemical formula NH_4^+), is found in the environment at higher concentrations at higher temperatures and higher pH, and thus those conditions are of greater concern. However, the criteria are conveniently expressed in mass of Total Ammonia Nitrogen (mass of nitrogen from both neutral ammonia and the ammonium ion), and can be compared to monitoring data on a Total Ammonia Nitrogen basis.

Assuming salmonid fish are absent and using the maximum pH value of 8.5 SU, the one-hour average concentration of total ammonia nitrogen, expressed as mass of total ammonia in units mg Total Ammonia/L, shall not exceed, more than once every three years on the average, a CMC (the acute criterion) of 4080 µg Total Ammonia Nitrogen/L. Using a temperature range of 5ºC during the winter and 25ºC during the summer, the maximum monitored pH of 8.5, and assuming early life stages of fish are absent, the thirty-day concentration of Total Ammonia Nitrogen shall not exceed, more than once every three years on the average, a CCC (chronic criterion) range of 2570 µg Total Ammonia Nitrogen/L during the winter and of 705 µg Total Ammonia Nitrogen/L during the summer. In addition, the highest four-day average within a 30-day period should not exceed 2.5 times the CCC, or 1760 µg Total Ammonia Nitrogen/L (See Attachment H for the Total Ammonia calculation).

EPA considers the available dilution when determining water quality based limitations in a NPDES permit. Massachusetts SWQSs at 314 CMR 4.03(3)(c), which applies to lakes and ponds, states that "the Department will establish extreme hydrologic conditions at which aquatic life criteria must be applied on a case-by-case basis. In all cases existing uses shall be protected and the selection shall not interfere with the attainment of designated uses." The relatively small size of Foster Pond and low flow to Jackson Brook would afford very little, if any, dilution to this discharge. Therefore, EPA is assuming zero dilution for the Foster Pond receiving water and water quality-based effluent limits (WQBELs) would be set at criteria values.

Review of DMR data reveals that the highest three average monthly concentrations of Total Ammonia were 2440 µg/L (October 2012), 2240 µg/L (January 2009), and 1770 µg/L (October 2011); and the average of all monitored values was 268 µg/L. The CMC was never exceeded. Comparison of these CCC values shows that the chronic criterion at 25ºC (705 µg/L) was exceeded three times between 2009 and 2012, and 2.5 times the CCC (1760 µg/L) was exceeded the same three times. Based on the reported data there is reasonable potential to cause or contribute to an excursion of the chronic water quality criterion for Total Ammonia in Foster Pond. The draft permit includes an average monthly limit of 705 µg/L and a daily maximum limit of 1760 µg/L. The daily maximum limit was based on the restriction that 2.5 times the CCC was never to be exceeded. In addition, the draft permit increases monitoring frequency from monthly to once per week.

5.1.6 Oil and Grease (O&G)

The maximum daily limit for oil and grease is based on The Massachusetts Surface Water Quality Standards. These standards under 314 CMR 4.05(3)(b)7, state:

> These waters shall be free from oil, grease and petrochemicals that produce a visible film in the surface of the water, to impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or became toxic to aquatic life.

An effluent concentration of 15 mg/L, the current permit limit, is recognized as the concentration at which many oils produce a visible sheen and/or cause an undesirable taste in edible fish. The only two detected O&G monitoring results were 7.11 mg/L and 5.94 mg/L (February and October 2009). In accordance with antibacksliding requirements found in 40 CFR §122.44(l), the draft permit retains the maximum daily O&G effluent limitation of 15 mg/L, monitored monthly, to ensure compliance with State water quality standards.

5.1.7 Benzene, Toluene, Ethylbenzene, and Total Xylene (BTEX)

Refined petroleum products contain numerous types of hydrocarbons. Individual components partition to environmental media on the basis of their physical/chemical properties (e.g., solubility, vapor pressure). Rather than attempt to establish effluent limits for every compound found in a petroleum release, limits are typically established for the compounds that would be most difficult to remove as well as which demonstrate the greatest degree of toxicity. Generally, the higher the solubility of a volatile organic compound (VOC) in water, the more difficult it is to remove.

VOCs such as benzene, toluene, ethylbenzene, and the three xylene compounds (BTEX) are normally found at relatively high concentrations in gasoline and light distillate products (e.g., diesel fuel). The traditional approach for limiting effluents contaminated with gasoline or other light distillates is to place limits on the individual BTEX compounds and/or the sum of total BTEX compounds. This approach stems from the petroleum-industry practice of determining the quality of fuels by measuring BTEX, which are highly variable among gasoline products. Based on fueling that occurs outside at the maintenance garage area and elsewhere on-site with the

mobile fueling truck, the permit formerly required monthly monitoring and reporting for Total BTEX, as well as the individual BTEX compounds benzene, toluene, ethylbenzene, and xylene.

Since the start of monitoring for BTEX at this location, there was only one detected incidence of benzene at 1.3 µg/L in May 2013 (Total BTEX was also 1.3 µg/L). To characterize the potential for gasoline and/or light distillates to come in contact with stormwater via product spills during fueling operations, the draft permit includes a monthly monitoring requirement for Total BTEX. Additional reporting for individual BTEX compounds has been eliminated from the draft permit because total BTEX is a sufficiently appropriate indicator of the fuel pollutants of concern. The monitoring frequency for Total BTEX shall also be reduced to quarterly.

5.1.8 Total Nitrate Nitrogen

EPA's current *National Recommended Water Quality Criteria* for nitrates is 10,000 µg/L for human health consumption of water and organisms. One previous monitoring result from the 2013 permit re-application for nitrate of 5.4 mg/L (5,400 µg/L) was below this human health criterion. However, since ammonium nitrate is used as an explosive on-site, there is potential for presence of nitrates in the stormwater at the facility. Therefore, the draft permit shall require the continued monitoring for total nitrate (total nitrate nitrogen) at a frequency of once per month.

The benchmark concentration for nitrate-nitrite nitrogen is 0.68 mg/L (National Urban Runoff Program median concentration, 2015 MSGP Table 8.J-1: Sand and Gravel Mining, SIC codes 1442 and 1446). Benchmarks are the pollutant concentrations above which EPA determined represent a level of concern. The level of concern is a concentration at which a stormwater discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water of fish. Levels below such benchmarks are also viewed by EPA as representing minimal/negligible potential for water quality concern. As such, the benchmarks also provide an appropriate level to determine whether a facility's stormwater pollution prevention measures are successfully implemented. The benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are merely levels which EPA has used to determine if a stormwater discharge from any given facility merits further monitoring to ensure that the facility has been successful in implementing SWPPP. As such these levels represent a target concentration for a facility to achieve through implementation of pollution prevention measures at the facility. However, EPA is not requiring a benchmark concentration for Total Nitrate at this time.

5.1.9 Total Aluminum

AINER blasts approximately fifty times a year using a water-resistant blasting agent composed primarily of ammonium nitrate. However, the blasting agent also contains aluminum, up to 10% by weight. (The granular flocculant used in the wash plant does not contain aluminum. See Attachment I for the blasting agent and flocculant Safety Data Sheets.)

EPA's current National Recommended Water Quality Criteria for Total Aluminum for freshwater aquatic organisms is 750 µg/L for the acute criterion (CMC) and 87 µg/L for the chronic criterion (CCC), where the metal concentration is expressed as total recoverable fraction in the water column. The annual Whole Effluent Toxicity (WET) testing requirement, discussed

in more detail below, includes a reporting requirement for Total Aluminum. The highest reported Total Aluminum concentration reported as part of the previous WET testing for this outfall location was 1.58 mg/L in March 2010. The mean concentration was 0.29 mg/L. Total Aluminum has exceeded the CMC once at the highest reported value and has exceeded the CCC three times between July 2008 and February 2016. The relatively small size of Foster Pond and low flow to Jackson Brook would afford very little, if any, dilution to this discharge. Because zero dilution for Foster Pond is assumed, WQBELs for Total Aluminum would be set at criteria values. Based on these data, and the lack of dilution in Foster Pond, there is reasonable potential to cause or contribute an excursion above the acute and chronic water quality standards for Total Aluminum. Due to the frequency of blasting, the draft permit shall require an average monthly Total Aluminum limit of 87 µg/L and a daily maximum Total Aluminum limit of 750 µg/L at the outfall, monitored at a frequency of once per week.

5.1.10 Whole Effluent Toxicity (WET) Testing

Whole effluent toxicity (WET) testing is conducted to assess whether certain effluents are discharged in a combination which produces a toxic amount of pollutants in the receiving water. Toxicity testing is used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants. Sections 402(a)(2) and 308(a) of the CWA provide EPA and States with the authority to require toxicity testing. Section 308 specifically describes biological monitoring methods as techniques that may be used to carry out objectives of the CWA.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) of the CWA be used as guidance for interpretation of the following narrative criteria:

> All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

The Region typically includes toxicity testing requirements where a combination of toxic constituents may be toxic to humans, aquatic life, or wildlife. Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts. Additionally, NPDES regulations under 40 CFR. §122.44(d)(l)(iv) and (v) require WET effluent limits in a permit when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a State's narrative or numeric criterion within an applicable State water quality standard for toxicity.

Due to the pollutants that may be present in the process water and stormwater discharged from the facility, and potential for toxicity resulting from the combination of pollutants rather than individual pollutants, in accordance with EPA national and regional policy, and in accordance with MassDEP policy, the draft permit includes acute and chronic toxicity monitoring requirements. See Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants, §50 Fed. Reg. 30,784 (July 24, 1985); EPA's "Technical Support Document for Water Quality-Based Toxics Control" on September, 1991; and MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters" (February 23, 1990).

The permittee has conducted annual freshwater acute and chronic WET tests for the daphnid, *Ceriodaphnia dubia*, and fathead minnow, *Pimephales promelas.* The use of an alternate dilution water for annual WET testing was requested and obtained for the *Pimephales Promelas* (fathead minnow) but not for the *Ceriodaphnia Dubia* (daphnid) in May 2012. The ADW may continue to be used (for the fathead minnow species only), as toxicity testing has met acceptable criteria[9] since the ADW was used. There is no reasonable potential for the facility to cause or contribute to an excursion of WET criteria based on the DMR data for 2014 and 2015 and no WET limits are needed at this time.

The draft permit requires that the permittee conduct freshwater acute and chronic WET tests for the Outfall 001 effluent during each year of the permit. The permittee shall test the daphnid, *Ceriodaphnia dubia*, and fathead minnow, *Pimephales promelas* and WET tests must be performed in accordance with test procedures and protocols specified in Attachment A (USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol) and B (USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol) of the permit. As of 2013, modified acute toxicity tests are no longer part of the chronic toxicity testing protocol. The alternate dilution water (ADW) shall have a hardness closely matching that of Foster Pond, which is comprised of moderately hard water. In addition, control samples for Foster Pond and synthetic lab water must be analyzed.

5.2 Outfall 002

There has been no discharge from Outfall 002 for the past several years. The Department of Public Works for the Town of Swampscott currently maintains the drain outlet on the other side of Danvers Road.

A weekly inspection of stormwater outfalls, including Outfall 002 even in the absence of a discharge, is specified by the SWPPP. Weekly inspections shall continue to be required under this draft permit to keep stormwater and dust control water on-site. AINER shall continue to monitor the inflatable balloon plug and ensure that there is no discharge from this outfall during or after rain events. EPA and MassDEP shall be notified within 24 hours of an episodic discharge: an episodic discharge is defined as the failure to maintain stormwater and dust control water on-site, such as a discharge caused by the failure of the balloon plug.

AINER is currently assessing whether the discharge location will continue to be necessary. If the outfall is eliminated, EPA and MassDEP shall also be notified, and the permit will be modified accordingly.

[9] For acute WET testing the TAC (Test Acceptability Criteria) is 90% survival for each species, *Pimephales Promelas* (fathead minnow) and *Ceriodaphnia dubia* (daphnid). For the fathead minnow chronic survival and growth test methods, the TAC is 80% survival and an average minimum of 0.25 mg, respectively. For the daphnid method, the TAC is 80% for survival, and for reproduction, 60% of the surviving females must have 3 broods with an average neonate production minimum of 15 young.

5.2.1 Flow

There has been no discharge from this location for the past several years. AINER may continue to estimate flow by extrapolation of rainfall data and surface area drainage rather than use a flow metering device in the event of a discharge.

5.2.2 pH

The current permit requires an effluent limitation range for pH of 6.5-8.3 SU, based on the Massachusetts Surface Water Quality Standards, 314 CMR, Inland Water, Class B at 4.05 (3)(b)3. These standards require that the pH of the receiving water be in the range of 6.5 to 8.3 standard units and no more than 0.5 units outside the background range. There shall no change from background conditions that would impair any use assigned to this class. The water quality criteria have been adopted as discharge limitations based on certification requirements under Section 401(a)(1) of the CWA, as described in 40 CFR 124.53 and 124.55. The draft permit retains these limits and requires that pH shall be monitored in the event of a discharge.

5.2.3 Total Suspended Solids (TSS)

The monthly average limit of 25 mg/L and the daily maximum limit of 45 mg/L TSS were developed using BPJ and MSGP Sector J (Mineral Mining and Dressing) as guidance. Furthermore, a monthly average TSS limit of 25 mg/L or less is sufficient to ensure the discharge does not cause or contribute to a water quality violation. The draft permit limits for TSS of 25 mg/L as a monthly average and 45 mg/L as a daily maximum have been retained to prevent backsliding.

5.2.4 Oil and Grease (O&G)

The draft permit shall maintain an O&G maximum daily effluent limitation of 15 mg/L, monitored in the event of a discharge, to ensure compliance with State water quality standards, and to prevent backsliding.

5.2.5 Benzene, Toluene, Ethylbenzene, and Total Xylene (BTEX)

Monitoring for BTEX compounds is required in the draft permit based on fueling that occurs outside the maintenance garage area. At Outfall 001, reporting for individual BTEX compounds has been eliminated because Total BTEX is a sufficiently appropriate indicator of fuel pollutants of concern. The monitoring frequency for Total BTEX shall be maintained in the event of a discharge and reporting for individual BTEX compounds will no longer be required.

5.3 Special Conditions

5.3.1 Stormwater Pollution Prevention Plan (SWPPP)

This facility engages in activities which could result in the discharge of pollutants to waters of the United States either directly or indirectly through stormwater runoff. These operations include at least one of the following in an area potentially exposed to precipitation or stormwater: material storage, in-facility transfer, material processing, material handling, or loading and unloading. To control the activities/operations, which could contribute pollutants to waters of the United States, potentially violating the State's Water Quality Standards, the permit requires the facility to implement and maintain a Stormwater Pollution Prevention Plan (SWPPP) containing best management practices (BMPs) appropriate for this specific facility (See Sections 304(e) and 402(a)(1) of the CWA and 40 CFR §125.103(b)). Specifically, at this facility, aggregate storage is an example of material storage operations, stone processing is an example of processing operations, and transporting of crushed stone throughout the site as well as fueling is an example of handling operations that shall continue to be included in the SWPPP.

The goal of the SWPPP is to reduce, or prevent, the discharge of pollutants through the stormwater system. The SWPPP requirements in the permit are intended to provide a systematic approach by which 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 the permit. The SWPPP shall be prepared in accordance with good engineering practices and identify potential sources of pollutants, which may reasonably be expected to affect the quality of stormwater discharges associated with industrial activity from the facility. The SWPPP, upon implementation, becomes a supporting element to any numerical effluent limitations in the permit. Consequently, the SWPPP is as equally enforceable as the numerical limits in this permit.

This process involves the following five main steps:

1) Forming a team of qualified facility personnel who will be responsible for developing and updating the SWPPP and assisting the plant manager in its implementation;

2) Assessing all potential stormwater pollution sources;

3) Selecting and implementing appropriate management practices and controls for these potential pollution sources;

4) Reevaluating, periodically, the effectiveness of the SWPPP in preventing stormwater contamination and in complying with the various terms and conditions of the draft permit; and

5) Developing and implementing of site specific BMPs:

a. To ensure proper inspection and cleaning of the oil/water separator. The oil/water separator shall be inspected at least quarterly and cleaned at least annually.

b. To require storage of materials and equipment such that contact with stormwater is limited, and avoided whenever possible.

c. To ensure all site stormwater not discharged through Outfalls 001 or 002 remains on-site.

d. To require proper cleanup of any residuals from previous manufacturing processes.

e. To reduce the amount of turbidity in the effluent.

There have been major changes to the features of the site (e.g. the removal of the RMC facility and granules plant, and the modifications to the Holding Lagoon) since the last permit was issued and since the 2013 permit reapplication. The draft permit requires the permittee to certify that it has updated its SWPPP site map and overall SWPPP within ninety (90) days of the issuance of this permit and provide a copy of this certification and the updated SWPPP to MassDEP and EPA. With regards to 5(b), the permittee may examine up-to-date Federal Emergency Management Agency reporting of flood hazards in the areas adjacent to and including the site at least every six (6) months in order to specifically assess potential impacts to existing storage and maintenance BMPs.

5.3.2 Compliance Schedule

EPA recognizes that the permittee may not be able to meet the Total Ammonia and Total Aluminum limit upon the effective date of the permit. In these situations EPA would typically issue an Administrative Order to the Permittee with a schedule for compliance with this new effluent limitation. Also, the Massachusetts SWQSs at 314 CMR 4.03(1)(b) authorizes the use of compliance schedules in NPDES permits and may include interim effluent limits as determined by MassDEP. EPA invites comment on the limit, a reasonable compliance schedule, and the means for specifying a compliance schedule through an Administrative Order or in the final permit.

5.4 Prohibitions

The use of blasting agents containing perchlorate, the use of surfactants except for the minimal amount in the current blasting agent, the use or storage of polychlorinated biphenyl transformers on-site, and the discharge of water which collects in the above ground storage tank (AST) containment areas are all prohibited by the draft permit.

6.0 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." *See* 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." *See* 16 U.S.C. §1802(10). Adversely impact means any impact which reduces the quality and/or quantity of essential fish habitat (EFH). *See* 50 CFR §600.910(a). Adverse impacts may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. §1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species.

Foster Pond and Thompson's Meadow are not designated EFH for any federally managed species. The Massachusetts Office of Coastal Zone Management has confirmed that Foster Pond is not part of an anadromous/catadromous fish run in conjunction with the permit reapplication in 2013. However, Thompson's Meadow is adjacent to Forest River, and Forest River is connected to Salem Harbor, where protected species are present. EPA has determined that the limitations and conditions in the draft permit will minimize any adverse impacts to EFH for the following reasons:

- This permit action does not constitute a new source of pollutants. It is the reissuance of an existing NPDES permit;
- The draft permit contains water quality-based limits for pH, total suspended solids, oil and grease, total ammonia, and turbidity;
- The draft permit prohibits the discharge of pollutants or combinations of pollutants in toxic amounts;
- The permit requires annual toxicity testing to ensure that the discharge does not exhibit toxicity.

This finding is based on the amount and frequency of the discharge, as well as effluent limitations and other permit requirements that are identified in this Fact Sheet. EPA believes that the conditions and limitations contained within the draft permit adequately protect all aquatic life, and that further mitigation is not warranted. Therefore, EPA has determined that no EFH consultation with NMFS is required at this time. If adverse effects are detected as a result of this permit action, NMFS will be notified and an EFH consultation will be initiated promptly.

7.0 ENDANGERED SPECIES ACT

Section 7(a) of the Endangered Species Act (ESA) of 1973, as amended (the "Act"), grants authority to and imposes requirements upon federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and the habitats of such species that have been designated as critical ("critical habitat"). The NMFS administers Section 7 consultations for marine species and anadromous fish. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. In consultation with and with the assistance of the Secretary of the Interior, Section 7(a)(2) of the Act requires every federal agency ensure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, will not jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, or plants to see if any such listed species might potentially be impacted by the issuance of this NPDES permit. The review has focused on freshwater aquatic species since the discharge is into Foster Pond and a wetlands system which includes Thompson's Meadow and is adjacent to Forest River. Although shortnose sturgeon and Atlantic sturgeon are listed as endangered and may be found in the Merrimack River in Massachusetts, NMFS has verified that no shortnose sturgeon or Atlantic sturgeon is present in Foster Pond or the wetlands system which includes Thompson's Meadow. Based on this information, EPA expects that there are no Atlantic or shortnose sturgeon in the vicinity of the discharge and that the draft permit will have no effect on endangered species. Therefore, consultation under Section 7 of the ESA is not required at this time. If adverse effects do occur as a result of this permit action, or if new information becomes available that changes the basis for this conclusion, then EPA will notify and initiate consultation with the USFWS and/or NMFS.

8.0 MONITORING AND REPORTING

The permit's monitoring requirements have been established to yield data representative of the facility's pollutant discharges under the authority of Sections 308(a) and 402(a)(2) of the CWA and consistent with 40 CFR §§122.41 (j), 122.43(a), 122.44(i) and 122.48. The monitoring program in the permit specifies routine sampling and analysis which will provide ongoing, representative information on the levels of regulated constituents in the wastewater discharge streams. The approved analytical procedures are found in 40 CFR §136 unless other procedures are explicitly required in the permit.

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

NetDMR is a national web-based tool for regulated CWA permittees to submit DMRs electronically via a secure internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard

copy forms under 40 CFR §122.41 and §403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR can be found on the EPA Region 1 NetDMR website located at http://www.epa.gov/region1/npdes/netdmr/index.html. In most cases, reports required under the permit shall be submitted to EPA as an electronic attachment through NetDMR. Certain exceptions are provided in the permit such as for providing written notifications required under the Part II Standard Permit Conditions. With the use of NetDMR to report DMRs and reports, the permittee is no longer be required to submit hard copies of DMRs or other reports to EPA and is no longer be required to submit hard copies of DMRs to MassDEP. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. State reporting requirements are further explained in the draft permit.

9.0 STATE CERTIFICATION REQUIREMENTS

Under §401 of the CWA, EPA is required to obtain certification from the state in which the discharge is located that all water quality standards or other applicable requirements of state law, in accordance with Section 301(b)(1)(C) of the CWA, are satisfied. EPA permits are to include any conditions required in the state's §401 certification as being necessary to ensure compliance with state water quality standards or other applicable requirements of state law. See CWA Section 401(a) and 40 CFR §124.53(e). Regulations governing §401 certification are set out at 40 CFR §§124.53 and 124.55. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d).

The MassDEP has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality and continue to meet the requirements of the anti-degradation policy. EPA has requested permit certification by the State pursuant to 40 CFR §124.53 and expects the draft permit will be certified. The draft permit includes, in part, non-numeric water quality-based requirements necessary to meet Massachusetts SWQSs in Part I.A.3.

10.0 PUBLIC COMMENT PERIOD, PUBLIC HEARING REQUESTS, AND PROCEDURES FOR FINAL DECISION

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Undine Kipka, U.S. EPA, Office of Ecosystem Protection, Industrial Permits Section, Mailcode OEP 06-01, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912.

Prior to such date, any person may submit a written request for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. EPA will consider any request for a hearing and may decide to hold a public hearing if the criteria stated in 40 CFR §124.12 are satisfied. In reaching a final decision on the draft permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period and any public hearings that may be held, the EPA will issue a final permit decision and forward a copy of the final decision, including responses to any significant comments, to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 CFR §124.19.

11.0 EPA AND MASSDEP CONTACTS

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

Undine Kipka
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP 06-01)
Boston, Massachusetts 02109-3912
kipka.undine@epa.gov
(617) 918-1335

Xiaodan Ruan
Massachusetts Department of Environmental Protection
Bureau of Water Resources
1 Winter Street, Boston, Massachusetts 02108
xiaodan.ruan@state.ma.us
(617) 654-6517

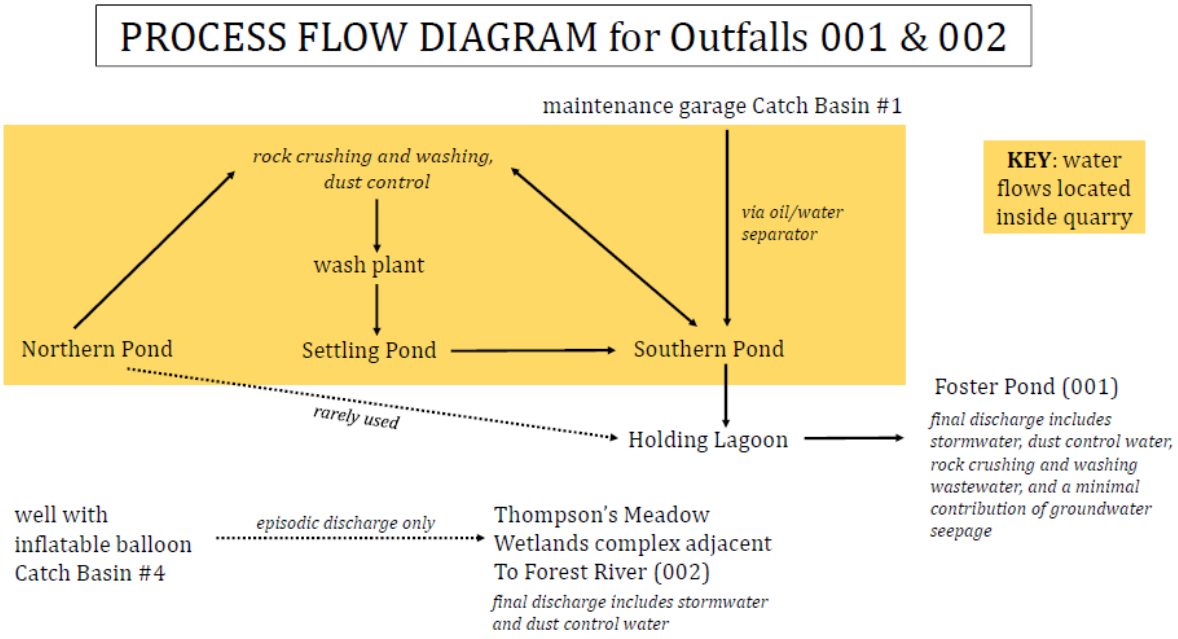
8/4/2016

Ken Moraff, Director
Office of Ecosystem Protection
US Environmental Protection Agency

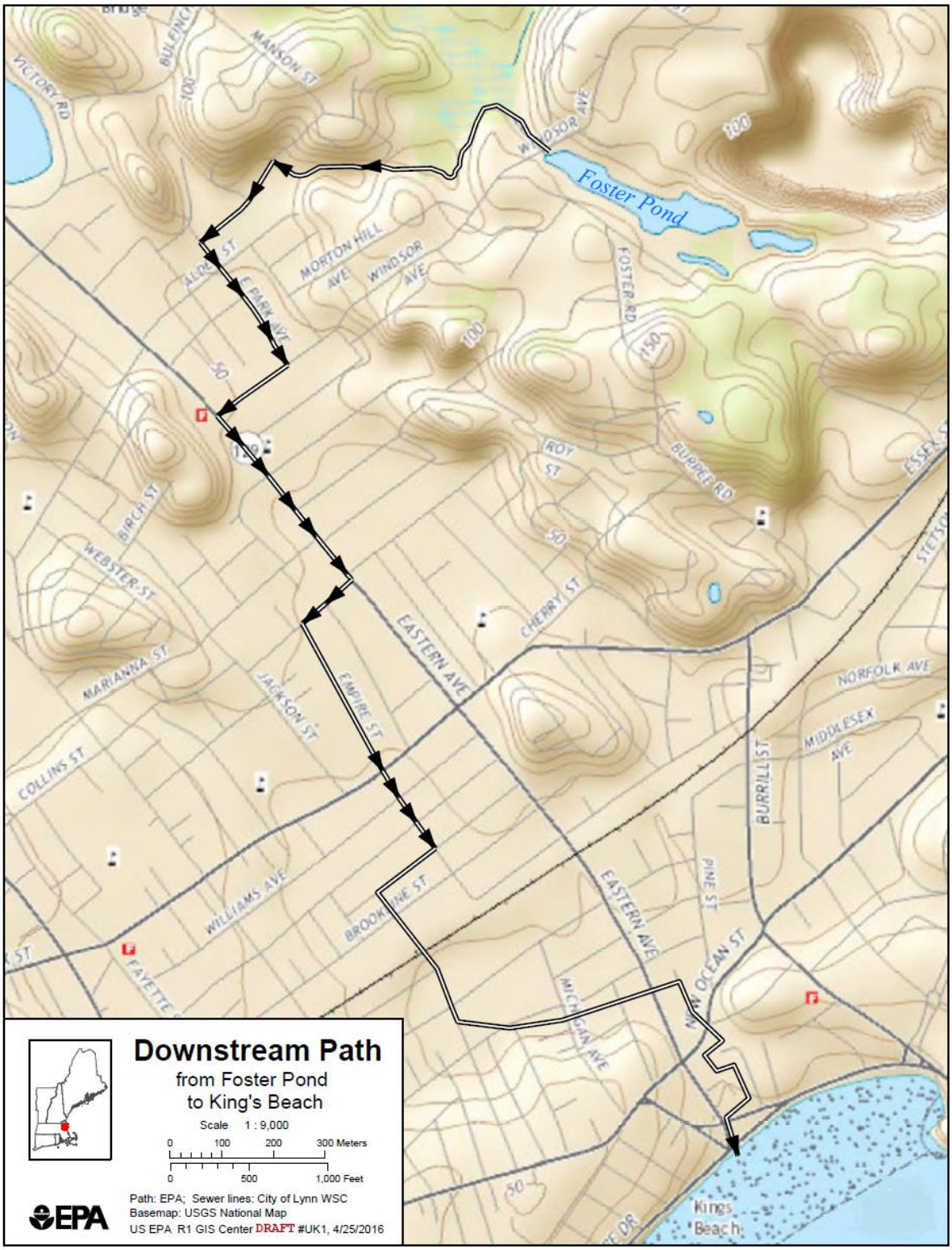
Attachment A: Aerial Photo of Aggregate Industries – Northeast Region (AINER) facility in Swampscott MA

Source: Bing Maps, Microsoft Corporation, 2016.

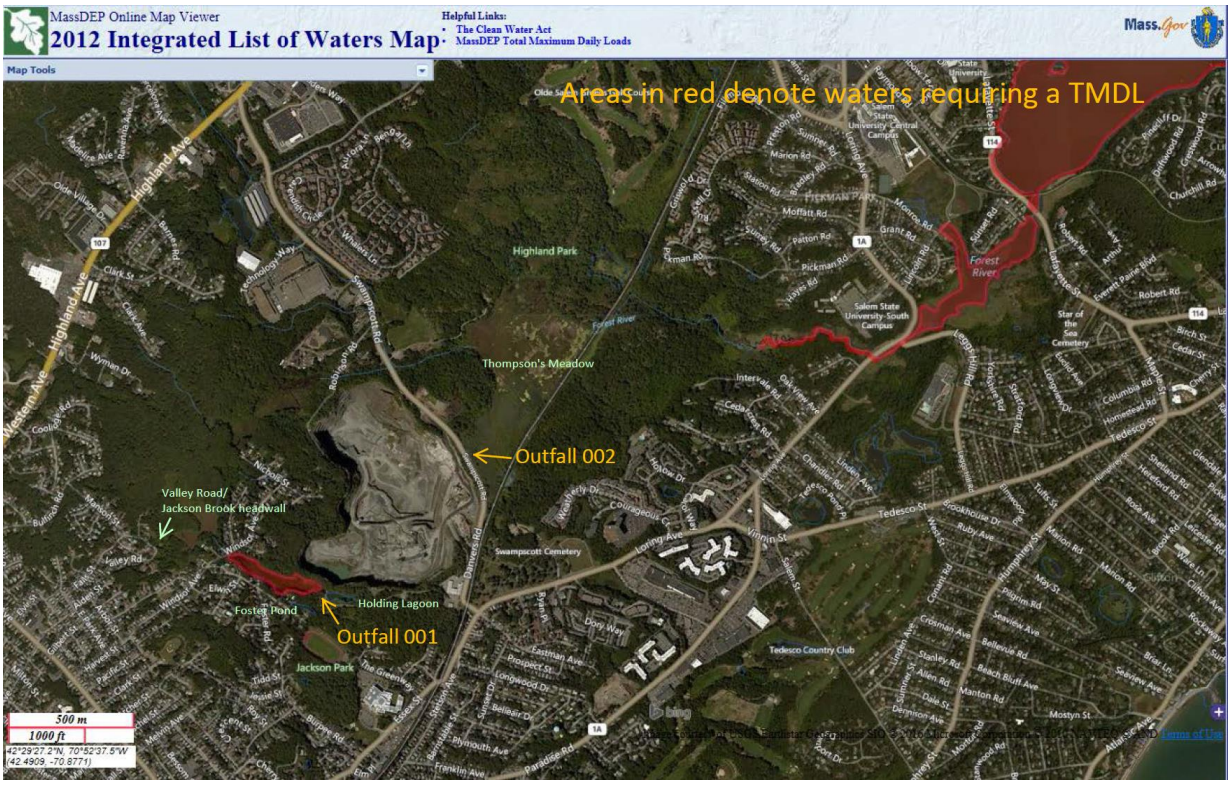
Attachment B: Facility process diagram



Attachment C: Map of Foster Pond and Forest River



Foster Pond to Kings Beach flow path via Eastern Avenue, Lynn, MA.



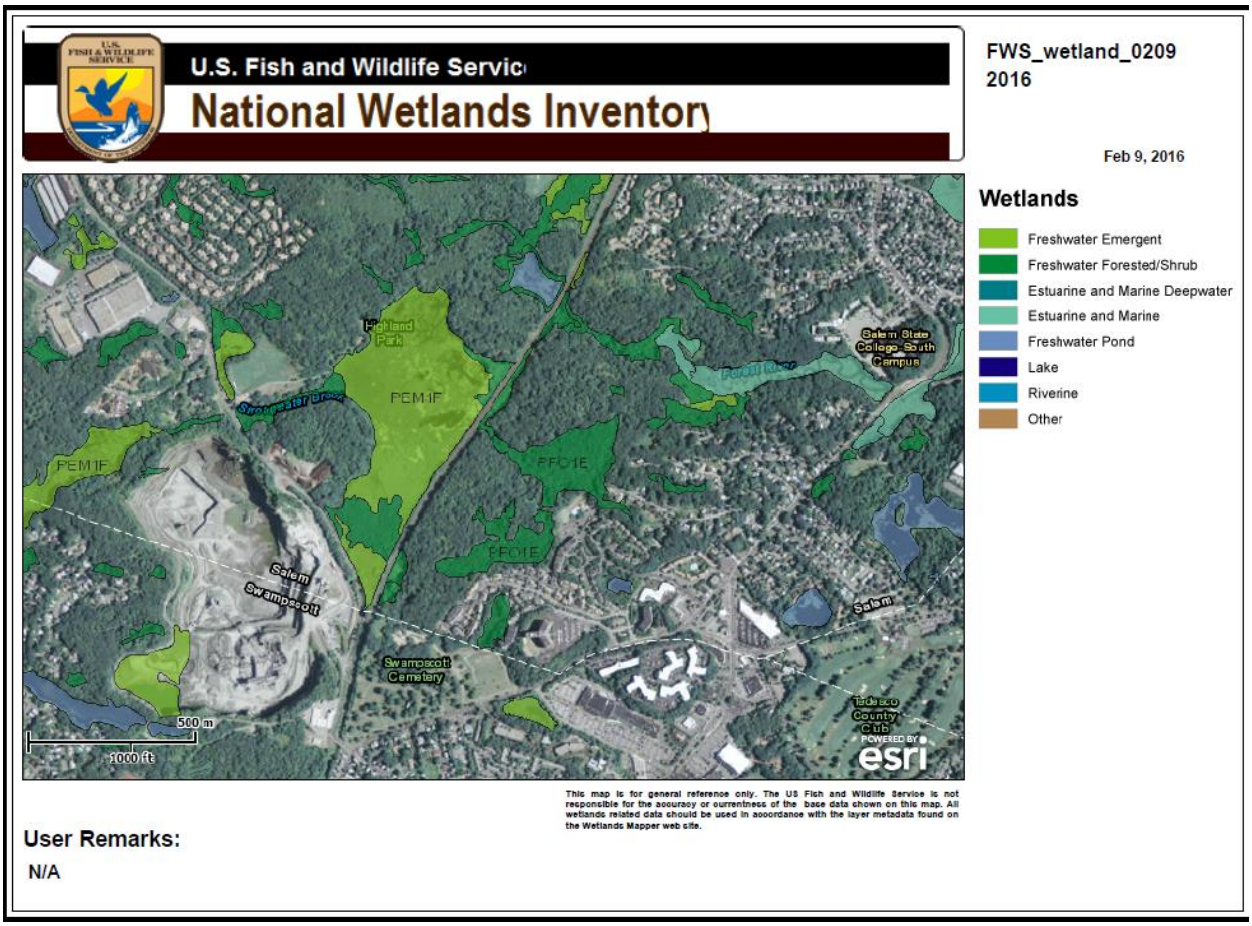
Please note: the 2012 listing does not differ from the 2014 listing for this area. Forest River leading to Salem Harbor is visible to the top right of the image in red above.

Source: 2012 Integrated List of Waters Map Online Viewer.

Manson Street/Valley Road headwall and Jackson Brook. Approximate coordinates: 40.484059, -70.930298, approximate address: 5 Manson Street, Lynn, MA.

Source: Google Street View, 2016.

Attachment D: Map of the Thompson's Meadow Wetlands System



Source: US Fish and Wildlife Service, 2016.

Attachment E: Monitoring Data Summary

NPDES Permit Factsheet Table

Search Criteria: Monitoring Period Range: 07/01/2008 to 04/30/2016 and NPDES Permit ID: MA0001830

Outfall - Monitoring Location - Limit Set: 002A

NO DISCHARGE

Outfall - Monitoring Location - Limit Set: 003A

Monitoring Period End Date	Ammonia & ammonium-total Mon, ug/L MO AVG	BTEX Mon, ug/L DAILY MX	Benzene Mon, ug/L DAILY MX	Mon, ug/L MO AVG	Ethylbenzene Mon, ug/L DAILY MX	Mon, ug/L MO AVG	Flow, in conduit or thru treatment plant Mon, MGD DAILY MX	Mon, MGD MO AVG	Oil & grease 15, mg/L DAILY MX	Solids, total suspended 25, mg/L MO AVG	45, mg/L DAILY MX
7/31/2008	230	NODI: R	NODI: R	NODI: R	NODI: R	NODI: R	0.5	0.5	NODI: R	0	0
8/31/2008	0	0	0	0	0	0	0.51	0.51	0	0	0
9/30/2008	0	0	0	0	0	0	0.33	0.33	0	0	0
10/31/2008	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
11/30/2008	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
12/31/2008	0	0	0	0	0	0	0.78	0.78	0	0	0
1/31/2009	2240	0	0	0	0	0	0.69	0.69	0	0	0
2/28/2009	0	0	0	0	0	0	0.606	0.606	7.11	0	0
3/31/2009	167	0	0	0	0	0	0.655	0.655	0	0	0
4/30/2009	305	0	0	0	0	0	0.64	0.64	0	0	0
5/31/2009	307	0	0	0	0	0	0.386	0.386	0	0	0
6/30/2009	0	0	0	0	0	0	0.482	0.337	0	0	0
7/31/2009	225	0	0	0	0	0	0.449	0.449	0	0	0
8/31/2009	298	0	0	0	0	0	0.422	0.272	0	0	0
9/30/2009	227	0	0	0	0	0	0.284	0.237	0	0	0
10/31/2009	0	0	0	0	0	0	0.534	0.362	5.94	0	0
11/30/2009	161	0	0	0	0	0	0.923	0.282	0	0	0
12/31/2009	200	0	0	0	0	0	0.964	0.392	0	0	0
1/31/2010	357	0	0	0	0	0	0.286	0.24	0	0	0
2/28/2010	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9
3/31/2010	0	0	0	0	0	0	0.648	0.648	0	5.9	5.9
4/30/2010	257	0	0	0	0	0	0.363	0.072	0	0	0
5/31/2010	171	0	0	0	0	0	0.421	0.421	0	0	0
6/30/2010	175	0	0	0	0	0	0.461	0.429	0	0	0
7/31/2010	146	0	0	0	0	0	0.52	0.52	0	0	0
8/31/2010	302	0	0	0	0	0	0.486	0.486	0	0	0
9/30/2010	137	0	0	0	0	0	0.398	0.398	0	0	0
10/31/2010	93	0	0	0	0	0	0.415	0.415	0	0	0
11/30/2010	0	0	0	0	0	0	0.446	0.446	0	0	0
12/31/2010	0	0	0	0	0	0	0.384	0.384	0	0	0
1/31/2011	39	0	0	0	0	0	0.43	0.43	0	0	0
2/28/2011	NODI: E	NODI: E	NODI: E	NODI: E	NODI: E	NODI: E	0.218	0.218	NODI: E	NODI: E	NODI: E
3/31/2011	434	0	0	0	0	0	0.313	0.313	0	0	0
4/30/2011	180	0	0	0	0	0	0.508	0.508	0	0	0
5/31/2011	511	0	0	0	0	0	0.284	0.284	0	0	0
6/30/2011	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	0.37	0.37	NODI: C	NODI: C	NODI: C

7/31/2011		187		0		0		0		0		0.492		0.492		0		0
8/31/2011		84		0		0		0		0		0.372		0.372		0		0
9/30/2011		452	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		0.858		0.858	NODI: C		NODI: C		NODI: C
10/31/2011		1770	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		0.386		0.386	NODI: C		NODI: C		NODI: C
11/30/2011	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		0.77		0.77	NODI: C		NODI: C		NODI: C
12/31/2011	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		0.524		0.524	NODI: C		NODI: C		NODI: C
1/31/2012	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		1.509		0.535	NODI: C		NODI: C		NODI: C
2/29/2012		120	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		3.821		0.263	NODI: C		NODI: C		NODI: C
3/31/2012		122	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		1.656		0.214	NODI: C		NODI: C		NODI: C
4/30/2012		169	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		6.081		0.405	NODI: C		NODI: C		NODI: C
5/31/2012		212	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		0.241		0.241	NODI: C		NODI: C		NODI: C
6/30/2012		75	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		0.209		0.195	NODI: C		NODI: C		NODI: C
7/31/2012		157	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		0.425		0.26	NODI: C		NODI: C		NODI: C
8/31/2012		299	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		0.406		0.315	NODI: C		NODI: C		NODI: C
9/30/2012		84	NODI: B		NODI: B		NODI: B		NODI: B		NODI: B		0.543		0.217	NODI: B		NODI: B		NODI: B
10/31/2012		2440	NODI: B		NODI: B		NODI: B		NODI: B		NODI: B		0.341		0.253	NODI: B		NODI: B		NODI: B
11/30/2012		222	NODI: B		NODI: B		NODI: B		NODI: B		NODI: B		0.42		0.364	NODI: B		NODI: B		NODI: B
12/31/2012	NODI: B		NODI: B		NODI: B		NODI: B		NODI: B		NODI: B		0.161		0.125	NODI: B		NODI: B		NODI: B
1/31/2013		0		0		0		0		0		0.376		0.376		0		0
2/28/2013		416		0		0		0		0		0.4		0.4		0		0
3/31/2013		134		0		0		0		0		0.714		0.714		0		5
4/30/2013		0		0		0		0		0		0.631		0.505		0		0
5/31/2013		515		1.3		1.3		1.3		0		0.217		0.168		0		0
6/30/2013		444		0		0		0		0		0.705		0.705		0		0
7/31/2013		251		0		0		0		0		0.354		0.354		0		0
8/31/2013		0		0		0		0		0		0.259		0.243		0		0
9/30/2013		226		0		0		0		0		0.286		0.143		0		0
10/31/2013		522		0		0		0		0		0.236		0.122		0		0
11/30/2013		593		0		0		0		0		0.17		0.07		0		0
12/31/2013		242		0		0		0		0		0.419		0.379		0		0
1/31/2014		159		0		0		0		0		0.538		0.538		0		0
2/28/2014		78		0		0		0		0		0.807		0.144		0		0
3/31/2014		75		0		0		0		0		0.587		0.397		0		0
4/30/2014		75		0		0		0		0		1.21		1.01		0		0
5/31/2014		130		0		0		0		0		0.847		0.465		0		0
6/30/2014		105		0		0		0		0		0.665		0.199		0		0
7/31/2014		209		0		0		0		0		0.508		0.279		0		0
8/31/2014		254		0		0		0		0		0.2		0.161		0		0
9/30/2014		378		0		0		0		0		0.232		0.178		0		0
10/31/2014		324		0		0		0		0		0.551		0.391		0		0
11/30/2014		574		0		0		0		0		0.7		0.7		0		0
12/31/2014		456		0		0		0		0		0.118		0.367		0		0
1/31/2015	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C	NODI: C		NODI: C		NODI: C
2/28/2015	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C	NODI: C		NODI: C		NODI: C
3/31/2015	NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C		NODI: C	NODI: C		NODI: C		NODI: C
4/30/2015		439		0		0		0		0		1.152		1		0		0
5/31/2015		0		0		0		0		0		1.003		1.003		0		0
6/30/2015		0		0		0		0		0		1.003		0.97		0		0
7/31/2015		0		0		0		0		0		1.003		1.003		0		0
8/31/2015		95		0		0		0		0		1.003		0.744		0		0

9/30/2015	NODI: 8	NODI: 8	NODI: 8	NODI: 8	NODI: 8	NODI: 8	1.008	0.471	NODI: 8	NODI: 8	NODI: 8	
10/31/2015	282	0	0	0	0	0	0.95	0.674	0	0	0	
11/30/2015	339	0	0	0	0	0	0.693	0.601	0	0	0	
12/31/2015	259	0	0	0	0	0	0.766	0.47	0	0	0	
1/31/2016	0	0	0	0	0	0	0.806	0.728	0	0	0	
2/29/2016	82	0	0	0	0	0	1.142	0.591	0	0	0	

Outfall - Monitoring Location - Limit Set: 003A, continued

Monitoring Period End Date	Toluene Mon, ug/L DAILY MX	Mon, ug/L MO AVG	Turbidity 25, NTU DAILY MX	8, NTU MO AVG	Xylene Mon, ug/L DAILY MX	Mon, ug/L MO AVG	pH 6.5, SU MINIMUM	8.3, SU MAXIMUM
7/31/2008	NODI: R	NODI: R	5.4	5.4	NODI: R	NODI: R	7.8	7.8
8/31/2008	0	0	4.41	3.76	0	0	7.7	7.8
9/30/2008	0	0	2.65	2.65	0	0	7.6	7.6
10/31/2008	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
11/30/2008	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
12/31/2008	0	0	17	12.65	0	0	7.2	7.4
1/31/2009	0	0	3.81	3.81	0	0	6.2	6.2
2/28/2009	0	0	8.69	4.3	0	0	7.3	7.5
3/31/2009	0	0	10.6	4.15	0	0	7.3	7.7
4/30/2009	0	0	5.59	5.3	0	0	7.6	7.8
5/31/2009	0	0	4.62	3.42	0	0	7.7	8.2
6/30/2009	0	0	2.89	2.28	0	0	7.4	7.7
7/31/2009	0	0	17.9	6.52	0	0	7.4	7.7
8/31/2009	0	0	1.76	1.67	0	0	7.3	7.4
9/30/2009	0	0	4.4	4.4	0	0	7.7	7.7
10/31/2009	0	0	8.06	6.54	0	0	7.8	7.8
11/30/2009	0	0	6.16	3.58	0	0	6.1	7.7
12/31/2009	0	0	6.58	5.22	0	0	7.3	7.3
1/31/2010	0	0	21	6.51	0	0	7.5	7.8
2/28/2010	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9
3/31/2010	0	0	51	27.15	0	0	7.8	8.2
4/30/2010	0	0	51	26.6	0	0	7.9	8
5/31/2010	0	0	2	1.7	0	0	7	8.1
6/30/2010	0	0	1.4	1.02	0	0	7.7	7.8
7/31/2010	0	0	1.1	0.49	0	0	7.5	8.1
8/31/2010	0	0	1.1	0.84	0	0	7.5	7.8
9/30/2010	0	0	1.7	1.19	0	0	7.7	8.1
10/31/2010	0	0	1.2	1	0	0	7.8	8
11/30/2010	0	0	1.1	0.965	0	0	7.6	8
12/31/2010	0	0	0.8	0.75	0	0	7.8	8
1/31/2011	0	0	5.1	2.43	0	0	7.5	7.7
2/28/2011	NODI: E	NODI: E	1.4	1.11	NODI: E	NODI: E	7.6	7.7
3/31/2011	0	0	2.2	1.68	0	0	7.4	8
4/30/2011	0	0	1.6	1.4	0	0	8.2	8.5
5/31/2011	0	0	1.3	1.18	0	0	7.8	8.1
6/30/2011	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
7/31/2011	0	0	1.1	0.83	0	0	7.5	7.8
8/31/2011	0	0	1.1	0.975	0	0	7.4	7.6
9/30/2011	NODI: C	NODI: C	1.6	0.982	NODI: C	NODI: C	7	8

10/31/2011	NODI: C	NODI: C	3.1	2.46	NODI: C	NODI: C	7.5	7.7	
11/30/2011	NODI: C	NODI: C	1.2	1.06	NODI: C	NODI: C	7.3	7.7	
12/31/2011	NODI: C	NODI: C	2.2	11.624	NODI: C	NODI: C	6.3	8	
1/31/2012	NODI: C	NODI: C	7.3	3.75	NODI: C	NODI: C	6.5	7.9	
2/29/2012	NODI: C	NODI: C	2.5	1.94	NODI: C	NODI: C	7.5	7.8	
3/31/2012	NODI: C	NODI: C	0.4	2.35	NODI: C	NODI: C	7.4	7.8	
4/30/2012	NODI: C	NODI: C	2.7	2.133	NODI: C	NODI: C	7.7	7.8	
5/31/2012	NODI: C	NODI: C	2.9	2.14	NODI: C	NODI: C	7.6	8.4	
6/30/2012	NODI: C	NODI: C	2.7	2.36	NODI: C	NODI: C	7	8.1	
7/31/2012	NODI: C	NODI: C	4.4	2.73	NODI: C	NODI: C	7.6	8.1	
8/31/2012	NODI: C	NODI: C	3.1	2.15	NODI: C	NODI: C	6.9	7.6	
9/30/2012	NODI: B	NODI: B	2.9	2.7	NODI: B	NODI: B	7.7	7.9	
10/31/2012	NODI: B	NODI: B	2.9	2.3	NODI: B	NODI: B	7.6	7.9	
11/30/2012	NODI: B	NODI: B	3	1.89	NODI: B	NODI: B	7.7	8	
12/31/2012	NODI: B	NODI: B	NODI: B	NODI: B	NODI: B	NODI: B	7.9	8	
1/31/2013	0	0	11	5.56	0	0	7.7	8	
2/28/2013	0	0	5.2	3.25	0	0	7.8	7.9	
3/31/2013	0	0	12	7.85	0	0	7.9	8	
4/30/2013	0	0	6	3.53	0	0	7.9	8.1	
5/31/2013	0	0	4.8	3.65	0	0	7.7	8.2	
6/30/2013	0	0	9.7	5.68	0	0	7.5	8	
7/31/2013	0	0	7.4	5.72	0	0	7.7	8.2	
8/31/2013	0	0	6.3	4	0	0	7.8	8	
9/30/2013	0	0	5.4	3.63	0	0	7.8	8	
10/31/2013	0	0	3.3	3.15	0	0	7.7	7.9	
11/30/2013	0	0	2.8	2.8	0	0	7.8	7.8	
12/31/2013	0	0	14	7.94	0	0	7.7	7.9	
1/31/2014	0	0	11	6.9	0	0	7.6	8	
2/28/2014	0	0	8.2	8.2	0	0	7.6	7.6	
3/31/2014	0	0	12	5.8	0	0	7.6	7.9	
4/30/2014	0	0	13	7.1	0	0	7.8	8	
5/31/2014	0	0	2.9	2.85	0	0	7.7	8.1	
6/30/2014	0	0	3.1	2	0	0	7.5	7.9	
7/31/2014	0	0	3.9	3.13	0	0	7.7	8	
8/31/2014	0	0	2.5	2.1	0	0	7.8	8	
9/30/2014	0	0	2.9	2.9	0	0	7.8	7.9	
10/31/2014	0	0	9.9	5.26	0	0	7.7	7.9	
11/30/2014	0	0	8.7	4.45	0	0	7.7	8.2	
12/31/2014	0	0	13	9.65	0	0	7.5	7.9	
1/31/2015	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	
2/28/2015	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	
3/31/2015	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	
4/30/2015	0	0	3.3	2.9	0	0	7.3	8.2	
5/31/2015	0	0	3.5	2.76	0	0	7.9	8.2	
6/30/2015	0	0	4	3.55	0	0	7.5	8.1	
7/31/2015	0	0	7.3	3.08	0	0	7.8	8.1	
8/31/2015	0	0	3.3	2.1	0	0	7.9	8.1	
9/30/2015	NODI: 8	NODI: 8	2.4	1.95	NODI: 8	NODI: 8	7.9	8	
10/31/2015	0	0	3.6	2.1	0	0	7.9	8.1	
11/30/2015	0	0	2.8	2.26	0	0	7.4	7.9	

12/31/2015	0	0	1.7	1.22	0	0	7.6	7.9
1/31/2016	0	0	3.5	1.9	0	0	7.5	7.9
2/29/2016	0	0	8.5	4.85	0	0	7.8	8

Outfall - Monitoring Location - Limit Set: 003T

Monitoring Period End Date	Alkalinity, total (as CaCO3) Mon, mg/L RPT AVG	Aluminum, total (as Al) Mon, mg/L RPT AVG	Ammonia & ammonium-total Mon, mg/L RPT AVG	Cadmium, total (as Cd) Mon, mg/L RPT AVG	Calcium, total (as Ca) Mon, mg/L RPT AVG	Carbon, tot organic (TOC) Mon, mg/L RPT AVG	Chlorine, total residual Mon, mg/L RPT AVG	pH Mon, SU RPT AVG
3/31/2009	115	0.068	0.282	0.001	79.7	3.2	0.2	7.92
3/31/2010	91	1.58	0.367	0.001	43.9	2.5	0.2	7.8
5/31/2011	103	0.02	0.323	0.001	66.9	2.5	0.2	7.5
6/30/2012	105	0.06	0.2	0.005	76.8	4	0.2	7.91
5/31/2013	120	0.146	0.2	0.01	78.8	1.8	0.02	8.06
5/31/2014	110	0.094	0.1	0.0005	59	3.4	0.002	7.93
5/31/2015	110	0.061	0.1	0.0005	56	3.2	0.02	8.03

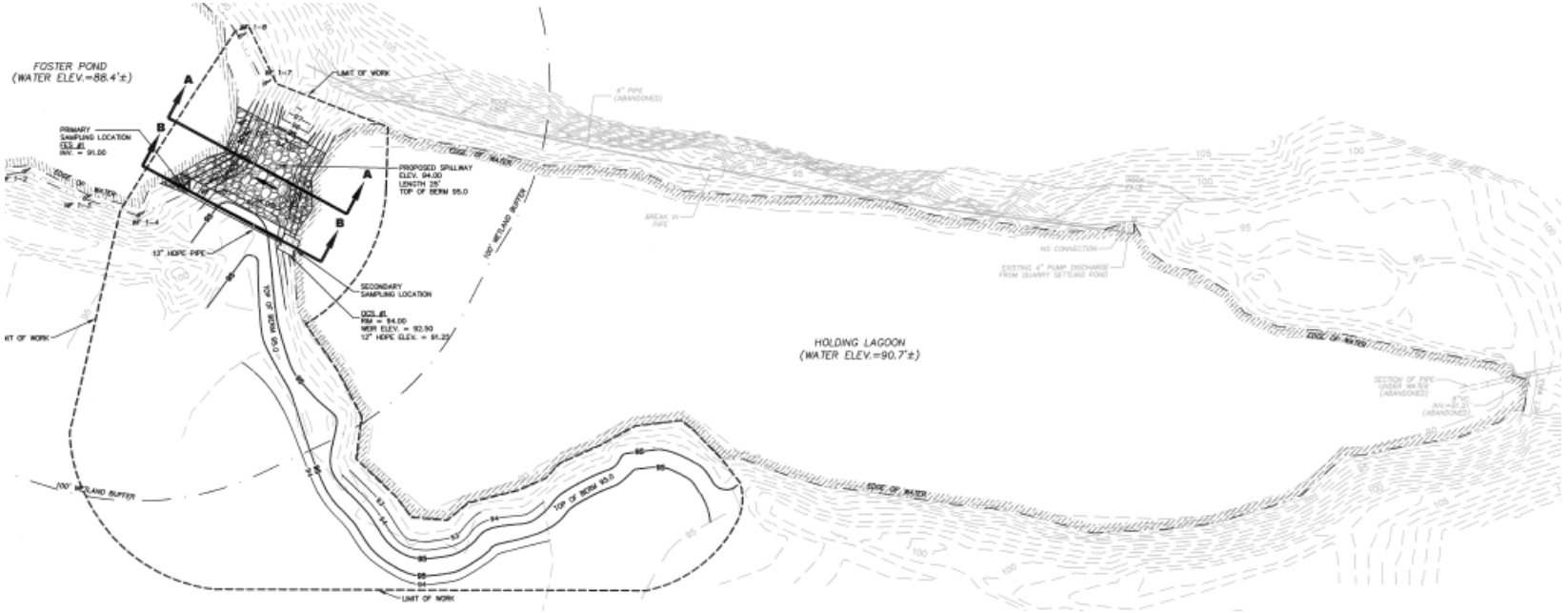
Monitoring Period End Date	Chromium, total (as Cr) Mon, mg/L RPT AVG	Copper, total (as Cu) Mon, mg/L RPT AVG	Hardness, total (as CaCO3) Mon, mg/L RPT AVG	LC50 Static 48Hr Acute Ceriodaphnia Mon, % MO AV MN	LC50 Static 48Hr Acute Pimephales Mon, % MO AV MN	Lead, total (as Pb) Mon, mg/L RPT AVG	Magnesium, total (as Mg) Mon, mg/L RPT AVG
3/31/2009	0.005	0.003	278	100	100	0.005	19.2
3/31/2010	0.005	0.006	154	100	100	0.005	10.7
5/31/2011	0.005	0.005	223	100	100	0.005	13.5
6/30/2012	0.01	0.01	262	100	100	0.01	16.9
5/31/2013	0.01	0.01	262	100	100	0.05	15.8
5/31/2014	0.002	0.004	220	100	100	0.0005	15
5/31/2015	0.002	0.002	200	100	100	0.0005	12

Monitoring Period End Date	Nickel, total (as Ni) Mon, mg/L RPT AVG	Noel Static 7Day Chronic Ceriodaphnia Mon, % MO AV MN	Noel Static 7Day Chronic Pimephales Mon, % MO AV MN	Oxygen, dissolved (DO) Mon, mg/L RPT AVG	Solids, total Mon, mg/L RPT AVG	Specific Conductance Mon, um/sec RPT AVG	Zinc, total (as Zn) Mon, mg/L RPT AVG
3/31/2009	0.004	100	100	7.6	520	754	0.004
3/31/2010	0.004	50	100	9.87	390	535	0.012
5/31/2011	0.004	100	6.25	9.87	410	591	0.014
6/30/2012	0.01	6.25	25	8.4	510	780	0.021
5/31/2013	0.01	50	100	10.8	4	805	0.01
5/31/2014	0.002	100	100	9.8	510	772	0.004
5/31/2015	0.006	100	100	9.6	360	641	0.005

DMR No Data Indicator (NODI) Codes

C: No discharge
9: Conditional monitoring – not required this period
E: Analysis not conducted – no sample
B: Below detection limit/no detection

Attachment F: Outfall 001 Plans for 2010 Holding Lagoon Modification and January 2016 Photographs



Source: AINER, January 2016. Drawing excerpt by BSC Group for AINER, 2008 (for permitting and not for construction).

Holding Lagoon (Foster Pond is off to the left of the photograph). Source: site visit, 2016.

Outfall 001, Foster Pond. Source: site visit 2016.

Attachment G: Town of Swampscott Conservation Commission Determination on Proposed Holding Lagoon Modification

TOWN OF SWAMPSCOTT

CONSERVATION COMMISSION

ELIHU THOMSON ADMINISTRATION BUILDING
22 MONUMENT AVENUE, SWAMPSCOTT, MA 01907

MEMBERS
MARK MAHONEY, CHAIR
TOM RUSKIN, VICE CHAIR
MARC ANDLER
TONIA BANDROWICZ
NELSON KESSLER
ROBERT SALTER
MONICA TAMBORINI

APPLICANT: Aggregate Industries – Northeast Region, Inc.
1715 Broadway
Saugus, MA 01906
PROJECT LOCATION: 30 Danvers Road, Swampscott (Parcel 12-99)
DATE OF ISSUANCE: November 13, 2015

Dear Applicant:

Enclosed is the Determination of Applicability for your project. The Conservation Commission has made a **negative** determination – no further action under the Wetlands Protection Act is required by the applicant. Please take a moment and read it over.

If you have any questions about any part of your Determination, please contact the Planning Department at781-596-8829.

Sincerely,

Mark Mahoney, Chair

Enclosure: Form 2 – Determination of Applicability
CC: MassDEP, Town Clerk, ConCom File,
Building Inspector (letter only), Board of Health (letter only), DPW (letter only)

Attachment H: Calculations Total Ammonia Effluent Limitation

Ammonia (Lognormal distribution, ND)

Daily Maximum Effluent Derivation (some measurements < detection limit)		
Detection Limit** =		
u_y = Avg of Nat. Log of daily Discharge (mg/L) =	5.44	
S $(y_i - u)^2$ =	38.5	
k = number of daily samples =	79	
r = number of non-detects =	16	
s_y^2 = estimated variance = $(S[(y_i - u_y)^2]) / (k-r-1)$ =	0.622	
s_y = standard deviation = square root s_y^2 =	0.788	
δ = number of nondetect values/number of samples =	0.203	
z 99th percentile=z-score[(0.99-δ)/(1-δ)] =	2.24	
z 95th percentile=z-score[(0.95-δ)/(1-δ)] =	1.53	
Daily Max = exp (u_y + z-score*s_y)		
99th Percentile Daily Max Estimate=	**1349**	**ug/L**
99th Percentile Daily Max Estimate including dilution factor=	**1349**	**ug/L**
95th Percentile Daily Max Estimate =	**772**	**ug/L**
95th Percentile Daily Max Estimate including dilution factor=	**772**	**ug/L**

** Detection limit here is the detection limit that resulted in the greatest number of Non Detects in the dataset

National Acute Criteria for Freshwater Aquatic Life

Salmonid species absent, CMC units in mg Total Ammonia Nitrogen/L (mg ammonia and ammonium per liter)

$$CMC = \frac{0.411}{1 + 10^{7.204 - pH}} + \frac{58.4}{1 + 10^{pH - 7.204}}$$

National Chronic Criteria for Freshwater Aquatic Life

Early life stages absent, CCC units in mg Total Ammonia Nitrogen/L (mg ammonia and ammonium per liter)

$$\left(\frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}}\right) \times 1.45 \times 10^{0.028(25 - MAX(T,7))}$$

Notes: pH is in standard units (S.U.) and temperature T is in degrees Celcius.

Calculation

CMC, salmonid species absent, using first formula above:

pH	CMC mg Total Ammonia N/L
8.5	4.08

CCC, early life stages absent, using second formula on previous page:

at 25°C:

pH	CCC Equation Part 1	CCC multiplier	CCC final mg Total Ammonia N/L
6.1	2.43	1.76	4.48
8.5	0.382	1.76	0.705

at 5°C:

pH	CCC Equation Part 1	CCC multiplier	CCC final mg Total Ammonia N/L
6.1	2.43	5.26	16.3
8.5	0.382	5.26	2.57

Reference

1999 Update of Ambient Water Quality Criteria for Ammonia, U.S. Environmental Protection Agency, Office of Water, Office of Science and Technology, Washington, D.C., Office of Research and Development, Mid-Continent Ecology Division, Duluth, Minnesota; EPA-822-R-99-014, December 1999

Attachment I: Blasting Agent and Wash Plant Flocculant Safety Data Sheets

Maine Drilling & Blasting

Safety Data Sheet

P240 - Ground/bond container and receiving equipment. Consult manufacturer for detailed guidance on appropriate grounding/bonding.
P260 - Do not breathe dust, mist, vapors.
P264 - Wash hands, forearms and exposed areas thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear eye protection, protective clothing, protective gloves.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P370+P378 - In case of fire: Do NOT attempt to fight fire.
P370+P380 - In case of fire: Evacuate area.
P372 - Explosion risk in case of fire.
P373 - DO NOT fight fire when fire reaches explosives.
P401 - Store as defined in the Explosives Act of Canada and the provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR Part 555..
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product identifier	% (w/w)	Ingredient Classification (GHS-US)
Ammonium nitrate	(CAS No) 6484-52-2	65 - 90	Ox. Sol. 3, H272 Eye Irrit. 2A, H319
Fuel oil / mineral oil blend	(CAS No) 68476-30-2	3 - 9	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Carc. 2, H351 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 3, H402 Aquatic Chronic 2, H411
Aluminum	(CAS No) 7429-90-5	0.1 - 10	Comb. Dust Flam. Sol. 1, H228 Water-react. 2, H261
Polymeric Surfactant	NA	0.5 – 2	Not available

More than one of the ranges of concentration prescribed by Controlled Products Regulations has been used where necessary, due to varying composition.
Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in deminimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

SECTION 4 - FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

Note: Only the first page is included, as it relates to chemical composition relevant to potential Total Ammonium, Total Nitrate, and Total Aluminum pollutant sources for the facility.

Source: AINER blasting contractor, 2016.

NALCO
An Ecolab Company

SAFETY DATA SHEET

OPTIMER® 83949

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	OPTIMER® 83949
Other means of identification	:	Not applicable.
Recommended use	:	FLOCCULANT
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198 USA TEL: (630)305-1000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	04/24/2014

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS Label element

Precautionary Statements : **Prevention:**
Wash hands thoroughly after handling.
Response:
Specific measures: consult MSDS Section 4.
Storage:
Store in accordance with local regulations.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

No hazardous ingredients

Section: 4. FIRST AID MEASURES

In case of eye contact	:	Rinse with plenty of water. Get medical attention if symptoms occur.
In case of skin contact	:	Wash off with soap and plenty of water. Get medical attention if symptoms occur.
If swallowed	:	Rinse mouth. Get medical attention if symptoms occur.
If inhaled	:	Get medical attention if symptoms occur.
Protection of first-aiders	:	In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders.Use personal protective equipment as required.

Note: Only the first page is included, as it relates to chemical composition relevant to potential pollutant sources for the facility. No effluent limit monitoring requirement resulted from the use of this product.

Source: AINER blasting contractor, 2016.

Attachment J: WET Testing Procedures and Protocols

(not included 06/02/2016 draft as it's standard language)

RESPONSE TO COMMENTS
REISSUANCE OF NPDES PERMIT NO. MA0001830

AGGREGATE INDUSTRIES
30 DANVERS ROAD
SWAMPSCOTT, MA 01907

In accordance with the provisions of 40 C.F.R. §124.17, this document presents the United States Environmental Protection Agency's (EPA's) and the Massachusetts Department of Environmental Protection's (MassDEP) responses to comments received on the Draft NPDES Permit (MA0001830) for the Aggregate Industries' (Aggregate Industries – Northeast Region, Inc. or AINER) Swampscott facility. The responses to comments explain and support the EPA and MassDEP determinations that form the basis of the Final Permit. The AINER Swampscott facility Draft Permit public comment period began August 11, 2016 and ended on September 9, 2016. Comments from the permittee regarding the Draft Permit and Fact Sheet were received. Since the Fact Sheet is a final document, no changes were made to that document. Instead, comments on the Fact Sheet are addressed in this document, which supplements the Fact Sheet.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing this discharge. The Final Permit generally takes the same fundamental approach as the Draft Permit that was available for public comment. However, EPA's decision-making process has benefited from the comments submitted by AINER, and EPA has made certain revisions to the permit in response. These improvements and changes are detailed in this document and reflected in the Final Permit. In addition, editorial and formatting changes have been made in places throughout the Final Permit for consistency. A summary of the changes made in the Final Permit is listed below.

Copies of the Final Permit may be obtained by writing or calling Undine Kipka, United States Environmental Protection Agency, 5 Post Office Square, Suite 100 (Mail Code: OEP06-1), Boston, Massachusetts 02109-3912; Telephone (617) 918-1335; Email kipka.undine@epa.gov. Copies may also be obtained from the EPA Region 1 web site at http://www.epa.gov/region1/npdes/index.html.

Summary of Permit Changes

1) The sampling frequency for Total Aluminum and Total Ammonia Nitrogen was changed from weekly to monthly in Part I.A.1. See response to comment #2.

2) In Part I.A.1 the permit has been changed to require Total Nitrate-Nitrite Nitrogen monitoring instead of Total Nitrate Nitrogen monitoring. See response to comment #2.

3) In Part I.A.2 the monitoring frequency for pH at Outfall 002 has been reduced from twice to once per event. See response to comment #3.

4) In Part I.A.1 composite sampling has been changed to grab sampling for all parameters, including Whole Effluent Toxicity. See response to comment #4.

5) The reporting deadline for annual WET testing has been changed to April 30 in Final Permit footnote #10. See response to comment #5.

6) The permit language in Part I.B.4.e has been revised to specify that the SWPPP chemical record keeping requirement only pertains to chemicals "that could potentially have an impact to stormwater associated with industrial activity." Also, the "Notification of proposal to add or replace process chemicals" reporting instructions in Part I.D.2.f of the Draft Permit have been removed. See response to comments #6 and #7.

7) As a new Part I.C, EPA has added a compliance schedule to attain effluent limitations of Total Aluminum and Total Ammonia Nitrogen. Suggested alternative means for the permittee to consider for attaining the permit limitations and interim milestones also have been clarified in Part I.C. See response to comment #17.

Comment 1 (re: permit cover letter)
Swampscott is associated with SIC code 1429 (quarry) rather than SIC code 1442 (sand and gravel).

Response:

The SIC code associated with the facility on the Fact Sheet title page and the electronic compliance system for NPDES permits (ICIS) is 1429 (crushed and broken stone). EPA believes this comment is directed at the public notice document in which EPA and the MassDEP refer to "…Aggregate Industries' Swampscott sand and gravel facility …" The reference to Aggregate Industries as a sand and gravel facility is incorrect. However, EPA correctly identified it in the Fact Sheet using the Standard Industrial Code 1429 - Crushed and Broken Stone category.

Comment 2 (Part I.A.1 Table, page 2, Outfall 001 sampling requirements)

a. The holding time for pH is 15 minutes which cannot be met if analyzed by a laboratory. For this reason and to offset the cost of additional analyses (NH_3 and aluminum), we request that the Permit specifically allow for field-measurements and/or laboratory analysis for pH as well as turbidity.

b. AINER also would like to inquire if other NPDES Individual Permits for similar quarry operations (SIC1429) are required to complete the sampling requirements for NH_3 and aluminum as required in the Draft Permit. AINER contends that if others are not required to sample for NH_3 and aluminum, we should not be held to a higher standard.

c. If other NPDES Individual permit holders for SIC 1429 are required to sample for NH_3 and aluminum, AINER requests that monitoring for NH_3 and aluminum be completed on a monthly basis so that all laboratory work can be consolidated into one sampling event.

d. The Stormwater MSGP benchmark is for "nitrate plus nitrite nitrogen." AINER requests clarification as to whether this is the same chemical as specified in Part 1.A ("total nitrate nitrogen"). If not, then this seems to be comparing two different criteria. AINER request clarification as to what AINER's specific requirement regarding the two sets of data.

Response:

a. It is acceptable to report field measurements of pH and turbidity for this Permit, so long as the procedure is in accordance with 40 CFR Part 136. Because pH (~15 minute) and turbidity (48 hour) holding times are short, EPA expects that samples for these two parameters will be tested at the point of sample collection (e.g. field measurements with a pH meter) or at an onsite laboratory if available[1]. The permit has not been changed.
b. The Massachusetts water quality standards apply (314 CMR 4.00) to all facilities discharging to waters of the United States in Massachusetts. Water quality-based effluent

[1] U. S. Environmental Protection Agency. 1983. Sample preservation. pp.xv-xx. In **Methods for Chemical Analysis of Water and Wastes**, EPA-600/4-79-020. U.S.E.P.A., Cincinnati, Ohio, USA

limitations for toxic pollutants such as ammonia and aluminum that are found in the Draft Permit for this facility are established on an individual basis, as described in Fact Sheet Section 3: Permit Basis: Statutory and Regulatory Authority.

PJ Keating in Acushnet, MA, Brox Industries in Dracut, MA, and Fletcher Granite in Westford, MA, are facilities somewhat similar to AINER's Swampscott facility and have individual NPDES permits issued by EPA. PJ Keating currently has monitoring requirements for Total Ammonia Nitrogen, Nitrate Nitrogen, Nitrite Nitrogen, Total Kjeldahl Nitrogen, and Total Nitrogen due to the type of blasting agent used at the facility. Brox Industries currently has monitoring requirements for Total Ammonia Nitrogen, Nitrate Nitrogen, Nitrite Nitrogen, and Total Kjeldahl Nitrogen also due to the type of blasting agent used at the facility. To date, there has been no determination of reasonable potential to exceed ammonia or nitrogen water quality standards associated with the discharges from these two facilities. Thus, the establishment of water quality-based effluent limits has not been triggered. Total Ammonia Nitrogen limits will be considered for PJ Keating and Brox Industries when the individual NPDES permits are reissued. Fletcher Granite does not use blasting agents in its operation and therefore its existing permit does not monitor for parameters associated with the use of blasting agents. EPA anticipates evaluating monitoring results to determine whether any water quality-based effluent limits (such as for Total Ammonia Nitrogen or Total Aluminum) are appropriate when these permits are re-issued.

More information on industrial facilities covered by NPDES permits may be found here: https://cfpub.epa.gov/dmr/data_explorer.cfm.

In the case of AINER, the discharge was determined to have reasonable potential to exceed water quality standards, triggering the establishment of water quality-based effluent limits.

c. Sampling frequencies for regular monitoring in the Final Permit are selected to sufficiently characterize pollutants in the effluent and ensure compliance. EPA believes that monthly monitoring for Total Aluminum and Total Ammonia Nitrogen is sufficient for these purposes. Therefore, sampling frequency for Total Aluminum and Total Ammonia Nitrogen will be reduced to a frequency of once per month. However, please note that taking only one sample per month means that sample results will be reported for both the average monthly and daily maximum value. Thus an exceedance of the maximum daily limit will also mean an exceedance of the average monthly limit.

d. The intent for the Total Nitrate Nitrogen monitoring requirement in the Draft Permit was to compensate for the lack of monitoring for this parameter during most of the last permit cycle (the last permit reissuance required monitoring for "nitrate compounds" and monitoring for Total Nitrate Nitrogen began in January 2016). However, upon review by EPA, the characterization of the effluent is possible with either parameter (i.e. either Total Nitrate Nitrogen or Total Nitrate-Nitrite Nitrogen). As Total Nitrate-Nitrite Nitrogen is representative of the pollution effects of concern and the analytical procedure is understood to be less expensive, the Final Permit has been changed to require Total Nitrate-Nitrite Nitrogen monitoring instead of Total Nitrate Nitrogen monitoring.

Comment 3 (Part 1.A.2 Table, pg. 5, Outfall 002 sampling requirements)

a. AINER requests the language in the second sentence be revised to " ... dust control *water* and stormwater". The table uses "per event" for sampling frequency which implies a rainfall event. We request that this be revised to "per episodic discharge."

b. If an episodic discharge in Outfall 002 were to occur, it would most likely be due to a failure of the inflatable balloon installed in the inlet to CB-4. The water entering CB-4 consists of rainfall and road runoff and will have little, if any, significant variation in pH. This may have been a factor when the Ready-Mix Concrete (RMC) plant was operating, but the operation has been shut down since 2007 and structures, equipment, etc. removed in 2014. For this reason, AINER requests the frequency of pH sampling be changed from twice to one time per event consistent with the sampling requirements for the other parameters.

Response:

a. The changes to "dust control water" and to specify sampling frequency as "per episodic discharge" have been made in the table in Part 1.A.2.

b. EPA agrees that one pH sample per episodic discharge would be sufficient to characterize the effluent. The sampling frequency for pH has been reduced to once per episodic discharge.

Also, regarding Outfall 002, EPA did not require that Outfall 002 be terminated (and the discharge point to be permanently blocked) in the Draft Permit because EPA was told in January 2016 that AINER was assessing "market conditions" and could potentially decide to alter the use of the property in the vicinity of Outfall 002. Therefore, EPA must be notified if the industrial uses of the area could impact the water quality characteristics of stormwater and subsequent discharge via Outfall 002. If AINER does not expect the use of the property in the vicinity of Outfall 002 to change, AINER may terminate the outfall and notify EPA and MassDEP.

Comment 4 (Part 1.A, pg 7 – Footnote #8)

This footnote is somewhat confusing because it states that composite samples collected during short duration storm events (less than an hour) must consist of a minimum of 4 grab samples collected at 15 minute intervals. Under this requirement, an event less than one hour would not be a qualifying storm event because there would not be time to collect a sufficient number of grab samples. Furthermore, given that the holding lagoon residence time is 40 hours and Foster Pond residence time is estimated at over one week, the need for one hour between receiving water samples for the composite sample is not warranted. This arguably has minimal (or no) bearing on the receiving water chemistry versus collecting it as a grab sample.

Response:

EPA agrees that Draft Permit footnote 8 is somewhat confusing. EPA has reviewed AINER operations and has determined that the phrase "If a discharge at Outfall 001 is of a short duration (approximately or less than an hour), the grab samples shall be collected every 15 minutes with a minimum of 4 grab samples" is unnecessary. Given the operation of the facility and the Final Permit requirement to monitor monthly or annually for most parameters including WET, EPA is not concerned about distinguishing between a "short duration (1 hour)" and a "normal" discharge event. Furthermore, EPA believes collecting grab samples for all parameters listed in Part I.A.1 will yield data representative of the discharge. Therefore, the Final Permit has been changed to require grab samples for all parameters listed in Part I.A.1. This change applies to the Whole Effluent Toxicity testing requirements of the effluent and the receiving water. This change lessens the monitoring burden on AINER while still providing sufficient information to EPA and MassDEP. Draft Permit footnote #8 has been removed in the Final Permit.

Comment 5 (Part I.A, pg. 7 – Footnote #10)

To comply with an annual reporting deadline of March 31st the WET testing samples would have to be collected no later than mid-March. However, there are winters where the pond has been frozen during the month of March. AINER requests a sampling deadline of April 30th and submittal of annual report within 30 days of receipt of the testing report from the laboratory.

Response:

EPA agrees that it should be practical to collect annual WET samples while retaining consistency as to the seasonal timing of sample collection. The reporting deadline for annual WET testing has been changed to April 30th. This is now in Final Permit footnote #10.

Comment 6 (Part 1.B.4e (SWPPP), pg. 12)

The facility has over 120 chemicals on-site. Of these, over 90% consist of housekeeping and/or maintenance products purchased in small quantity containers stored in the garage, office building or trailers, none of which have floor drains. AINER requests that only products that are stored in bulk quantities and/or used in actual production operations (blasting, crushing, screening) that could potentially have an impact on stormwater if released be included in the SWPPP.

Comment 7 (Part 1.C.2.f (SWPPP), pg. 14)

Many of the chemicals used on site (cleaners, lubricants, paints, adhesives) are purchased as needed from local retail stores and available suppliers. It is reasonable that product brand names, and therefore, slightly different chemical ingredients, could change frequently. Similar to Comment #6, it would be more appropriate to report changes in chemicals (not changes in specific brand names) that could have an impact on stormwater quality such as blasting agents, flocculants, new petroleum products, etc. that are stored in bulk quantities on site.

Furthermore, the Draft Permit requires that AINER notify of any proposal to add or replace chemicals which implies EPA/OEP would need to approve any additions and changes. There is no time line included for this approval process nor is the process clearly defined in the Draft Permit. If approval is required from EPA/OEP, delays in approval could significantly impact business operations and put [Aggregate Industries] in an unfair market position. AINER also would like to inquire if other NPDES Individual Permits for similar quarry operations (SIC1429) are required to notify EPA/OEP if they propose to add or replace chemicals, including chemical additives. AINER contends that if others are not required to complete this notification, we should not be held to a higher standard.

Response to Comments #6 and #7:

The permit language to Part 1.B.4.e has been changed to specify that information included in the SWPPP only pertains to chemicals that could potentially have an impact to stormwater associated with industrial activity. Stormwater associated with industrial activity is defined in §122.26(b)(14)(i)-(ix),(xi). Facilities operating under an MSGP permit submit No Exposure Certification forms for any industrial activities and associated materials that are not expected to come into contact with stormwater (e.g. cleaners, lubricants, paints, or adhesives) and if the industrial activity requiring these chemicals is not performed during wet weather and chemicals are stored in a roofed area. (See §122.26(g) for the definition of "no exposure" and the certification requirements). Similarly, for this facility, chemical uses that satisfy the above "no exposure" standard for storage and use (i.e. no exposure to stormwater) are not subject the chemical change record keeping requirements in Part 1.B.4.e.

The "Notification of proposal to add or replace process chemicals" reporting instructions in Part I.D.2.f of the Draft Permit have been removed since there is no corresponding permit requirement in Part I of the permit. However, EPA notes that Part II of the Final Permit (Standard Conditions) requires permittees to give notice of any planned physical alterations or additions to the permitted facility, including when the "… alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged."(see Part II.D.1.a.(2)). This is a standard condition included in all NPDES individual permits. It applies to the addition of new or substitute chemicals. Permit condition Part I.D.4 specifies how such notice and reporting shall be provided. There is no defined "approval" process for such instances – EPA and/or MassDEP address such notifications on a case by case basis, and have the option to determine whether a substitute chemical is consistent with existing permit conditions, or if a permit modification may be warranted.

Comment 8 (Part 1.C.5, pg 16)

The reference to Parts l.D.3 and l.D.4 should be changed to l.C.3 and 1.C.4 in the first paragraph. Also, the Draft Permit states that toxicity testing only be sent to DEP Worcester. AINER requests clarification as to which tests are "toxicity tests". Furthermore, AINER suggests adding the language "Whole Effluent Toxicity" to be consistent with the rest of the document.

Response:

The reference to Parts I.D.3 and I.D.4 have been retained in the Final Permit although AINER is correct about the citation in the Draft Permit. The compliance schedules for Total Ammonia Nitrogen and Total Aluminum are now in Part I.C of the Final permit and Monitoring and Reporting requirements are included in Part I.D of the Final Permit. The reference to reporting "toxicity tests" has also been changed to "Whole Effluent Toxicity tests" for clarification. Whole Effluent Toxicity tests and associated analytical reports for effluent and receiving water chemistry must be sent to both EPA (either electronically or via hardcopy) and MassDEP's Worcester office (via hardcopy). The applicable mailing information for EPA and MassDEP is below:

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

Massachusetts Department of Environmental Protection
Bureau of Water Resources
8 New Bond Street
Worcester, MA 01606

However, as the permittee is using NetDMR, Whole Effluent Toxicity tests and analytical reports for effluent and receiving water chemistry must be submitted electronically to EPA via attachments in NetDMR in accordance with Part I.D.1. Questions on instructions to attach reports in NetDMR may be directed to Undine Kipka at kipka.undine@epa.gov or (617) 918 1335, or Diane Boisclair, at boisclair.diane@epa.gov or (617) 918 1762.

Comment 9. Part 1.D.2, pg 17

This DEP water quality certification applies to dredging and filling projects in navigable waters and is not applicable to this site. AINER requests that it be removed from the Final Permit.

Response:

According to §401(a) of the Federal Clean Water Act, and the regulations in 40 CFR 124.51, a MassDEP water quality certification is required for NPDES permits such as this one (MA0001830). The language in Part I.E.2 (formerly Part I.D.2) has not been changed.

Comments on the Fact Sheet:

General response to comments on the Fact Sheet:

The Fact Sheet is written to explain the conditions and requirements of the Draft Permit and is not rewritten as part of the Final Permit decision. However, the comments that EPA received during the public comment period and EPA responses are part of the permit administrative record and have been considered by EPA. We acknowledge all comments related to the Fact Sheet by restating them in full below and for each comment only explain further any rationale in detail if the Final Permit conditions or limitations were impacted.

Comment 10 (Section 1.2, pg. 5)

Delete the words dust and pond from the last sentence of the first paragraph.

Response: *This comment is noted for the record and does not impact the Final Permit limitations and conditions.*

Comment 11 (Section 1.2, pg. 6 (Truck Fueling))

The second paragraph is incorrect. The facility has a fueling station located near the employee entrance, not the garage.

Response: *This comment is noted for the record and does not impact the Final Permit limitations and conditions.*

Comment 12 (Section 4.1, pp. 10-11 (Outfall 001))

The description in this section as well as Appendix B is not correct. The North Pond is the only pond that discharges to Outfall 001. There is piping in place to pump from the South Pond to Outfall 001, but this is rarely used. The North Pond can also discharge to the South Pond, but water from the South Pond is either pumped to the wash plant or to the secondary plant/truck wheel wash. Process water from the wash operations are returned to the North Pond. Please refer to the attached process flow diagram and replace the first three paragraphs as follows: AINER draws water from the deepest depression in the northern portion of the quarry (the "North Pond") where it is pumped to a depression on the south side of the quarry (the "South Pond") for use in aggregate washing operations, or the water from the "North Pond" water can be pumped out of the quarry into a holding lagoon and discharged to Outfall 001 at Foster Pond. The south depression (the "South Pond") is located approximately 110± feet above the quarry bottom. Water from this depression is pumped to the top of a wet screen tower via a sluiceway and used to wash stockpiled aggregate material. The stockpiles drain to a silt settling basin where the majority of solids settle out and water flows back to the "North Pond". The silt basin is dredged annually. No flocculants are used to promote settling in the settling basin, although a granular flocculant is used in the wash plant. The discharge from the "South Pond" can also be pumped to a secondary plant and used for the wheel wash operation. Wash water from trucks leaving the facility drains back to the "North Pond". The south depression (the "South Pond") also receives

water from the maintenance garage area, where truck washing occurs, after treatment by an underground oil/water separator. No surfactants are used in vehicle washing or anywhere on the site. The "South Pond" also receives water from stockpiles, groundwater infiltration and from Catch Basin #1 (CB-1). CB-1 is located in front of the maintenance garage where it collects wash water and is connected to a series of dry wells. The dry well system is connected to an underground oil/water separator by a PVC pipe. The discharge from the separator is routed to two bore holes that are drilled through the eastern quarry rock face and outlet into southern depression (the "South Pond"). Sources of potential pollutants used in the maintenance garage are engine and transmission oils, lubricant for servicing vehicles/equipment, solvents used for cleaning, vehicle brake dust, and fuel oil; however, all floor drains located within the maintenance garage have been blocked. Water in the south depression (the "South Pond") also includes a minimal amount of groundwater that passively seeps through the quarry walls. No water is drawn via an in-ground well from the quarry. Water from the "South Pond" can be pumped over the quarry wall, from an elevation of approximately 40 feet below sea level to an elevation of approximately 110 feet above sea level (over the quarry wall) and into the Holding Lagoon, at approximately 90 feet above sea level, when necessary.

Response: *This comment is noted for the record and does not impact the Final Permit limitations and conditions. A portion of the comment's content is already included in the Fact Sheet.*

Comment 13 (Section 5.1.2, pg. 13 (pH standard at Outfall 001))

AINER has generally met the pH standard of 6.3 to 8.3 ± 0.5 units. It should be noted that aluminum solubility is lowest in the pH range of 5.5 to 6.5. Therefore, if pH adjustment was required to reduce aluminum concentrations, the current limit is set above the optimal pH range. We request that an allowable pH range of 6.0 to 8.5 be stated in the Permit which is still within the MA surface water requirements. This would not conflict with the anti-backsliding requirement because conditions have changed since the 2009 NPDES permit was issued (aluminum was not a parameter of concern). Furthermore, the sampling location for Outfall 001 is located just before it enters Foster Pond and not in the actual pond itself where the Massachusetts surface water quality criteria apply.

Response:

EPA agrees that the facility has generally met the pH water quality standard of 6.5 to 8.3 standard units. The pH requirement of 6.5 to 8.3 standard units has been retained. pH and aluminum have separate applicable water quality standards that must both be met in the receiving water. Therefore, although aluminum was not a parameter of concern at the time of the last permit reissuance, an exception to backsliding for pH is not supported. EPA also notes that a pH range of 6.0 to 8.5 is not within the allowable MA surface water requirements as the permittee claims.

EPA agrees that Massachusetts pH surface water quality criteria apply to Foster Pond. By setting an end of the pipe limit for pH consistent with Massachusetts water quality criteria, EPA ensures those criteria will be met in-stream.

The choice of applicable treatment for aluminum or, more generally, the method of attaining water quality standards and/or meeting permit effluent limitations and conditions is at the discretion of AINER. If the permittee chooses to adjust pH to reduce aluminum in the effluent prior to discharging (however, EPA does not believe at this time that is guaranteed to be effective as a method of treatment), it still must comply with the permit's effluent limits, including pH and other pollutants that are impacted by pH (such as ammonia).

Comment 14 (Section 5.1.1, pg. 12 (Flow))

AINER requests clarification on how the maximum flow of 6.081 MGD was calculated. Our understanding is that the pumping rate is 2 cfs which is equal to 0.1728 MGD.

Response:

6.081 MGD is the volumetric rate reported by AINER for the daily maximum flow in the DMR for the monitoring period ending April 30th, 2012. It is EPA's current understanding that AINER reports flow based on an extrapolation of rainfall data collected. EPA's understanding is that estimating a representative flow to Foster Pond via an extrapolation of rainfall data is preferred by AINER rather than 1) reporting an adjusted pumping rate to the Holding Lagoon in the DMR or 2) installing a flow monitoring device at a representative location by Foster Pond and reporting this measurement in the DMR. AINER is responsible for reporting representative flow data and notifying EPA of any errors in the DMR (as well as requesting changes to erroneous past entries in the DMR). AINER may report an alternate flow estimate or measurement in the future as there is no permit requirement for a particular method of measuring or reporting flow, except that the units be consistently reported as MGD and that the estimate/measurement is representative of the actual discharge. AINER may also choose to document the flow reporting method by contacting Undine Kipka at kipka.undine@epa.gov.

Comment 15 (Section 5.1.5, pp. 15-16 (Ammonia-Nitrogen))

The current NPDES permit does not have a discharge limit for NH_3, but the Draft Permit establishes an average monthly and daily maximum of 705 and 1,760 µg/L, respectively. Similar to Comment #2, AINER would like to inquire if other NPDES Individual Permits for similar quarry operations have the same limits for NH_3. AINER exceeded the proposed average monthly limit of 705 µg/L three times since July 2008. According to Appendix H of the Fact Sheet, the NH_3 criterion is based on a formula that is pH and temperature dependent resulting in the following variations for continuous chronic criteria (CCC):

Temp, °C	pH	CCC (µg/L)
25	6.1	4,480
	8.5	705
5	6.1	16,300
	8.5	2,570

The samples that exceeded the limit had pH ranges of 6.3 to 7.6 and were collected during January and end of October when temperatures would have been lower, and would not likely have exceeded the adjusted criteria.

AINER contends that a NH_3 discharge limit should not be imposed if similar facilities have no such limit. If this has become standard, AINER requests that the criteria be presented as a range depending on pH and temperature.

Response:

The choice of site-specific pH and temperature values for the Total Ammonia Nitrogen reasonable potential calculation and to determine numeric effluent limits, rather than the criteria themselves, reflect a worst-case scenario and reflect an appropriately conservative assumption for the receiving water conditions. The Total Ammonia Nitrogen permit limit is set to be protective of the receiving water during periods of high pH and high temperature when ammonia toxicity is the greatest. NPDES permit limits, such as the water quality-based effluent limitations for ammonia found in the permit for this facility (MA0001830), are established on an individual basis, as described in Fact Sheet Section 3 (Permit Basis: Statutory and Regulatory Authority). See response to comment #2b regarding developing permit limits for other individual permits for similar quarry operations. No change has been made in the Final Permit.

Comment 16 (Section 5.1.9, pp. 17-18 (Total Aluminum))

EPA set the average monthly total aluminum standard at 87 µg/L which has been exceeded three times between July 2008 and February 2016. This is the same value as the NRWQC because EPA assumes that there is zero dilution in Foster Pond due to its relatively small size. However, WET testing results for receiving water samples collected at the pond outlet between 2014 and 2016 indicate that aluminum concentrations in Foster Pond are 3 to 5 times lower than measured at Outfall 001. We recognize that the dilution will be lower during extreme periods of dry weather, but this is not the normal condition.

We therefore request that the aluminum limit at Outfall 001 be adjusted for dilution in the pond by a factor of two to 174 µg/L.

Response:

EPA's Fact Sheet that accompanied the Draft Permit explained that no allowance for dilution in Foster Pond would be considered when developing effluent limits. EPA maintains that this approach is reasonable given the relatively small size of Foster Pond and the low flow to Jackson Brook. Even if EPA were to consider a dilution factor of two for this discharge, the effluent would still have a reasonable potential to cause or contribute to an in-stream violation of the aluminum criteria. In fact, a dilution factor somewhere on the order of 36 would be necessary to meet the in-stream chronic criterion. To date, the facility has not provided sufficient additional information supporting a specific dilution estimate (e.g. ambient samples are not sufficient to support a dilution estimate). No change has been made in the Final Permit.

Comment 17 (Section 5.3.2, pg. 22 (Compliance Schedule))

AINER requests the following changes regarding the compliance schedule:

• AINER requests that the requirement for a compliance schedule be specified in the NPDES permit instead of an Administrative Order.
• AINER considers one year to be a reasonable compliance schedule to evaluate aluminum concentrations in Foster Pond, the effect of temperature and pH, and the availability of substitute blasting agents.
• AINER requests that an interim aluminum effluent limit of 174 µg/L be set (see Comment #16).

Response:

As requested, EPA has included a Total Aluminum and Total Ammonia Nitrogen compliance schedule in the Final Permit rather than in an Administrative Order. AINER suggested that a one year compliance schedule to "evaluate aluminum concentrations in Foster Pond, the effect of temperature and pH, and the availability of substitute blasting agents." It's unclear from AINER's comment if it considers 1 year to be a reasonable amount of time to meet the numerical limits (i.e., to attain the effluent limitations for Total Aluminum and Total Ammonia Nitrogen in the final permit).

Given the range of potential issues and alternatives that AINER may need to evaluate, and then select and implement, EPA believes that a three year compliance schedule is reasonable in accordance with 40 CFR 122.47. Since the compliance schedule is longer than one year, EPA has included interim annual dates for submitting progress reports to EPA in the Final Permit in Part 1.C. (the first annual progress report shall contain information consistent with the information AINER references in its comment above). EPA has not established interim effluent limits for Total Aluminum or Total Ammonia Nitrogen; there are requirements only to monitor and report Total Aluminum and Total Ammonia Nitrogen (See Final Permit footnote #8) during the first three years of the permit.

Comment 18 (General Comments)

AINER is very concerned with the proposal to use a Stormwater MSGP benchmark as a "reporting requirement" without a specified standard. This seems burdensome and unreasonable. The sampling data will be publicly available, so reporting sampling data with no standard to demonstrate compliance or lack thereof, is highly problematic. Benchmarks are not enforceable standards and should not be incorporated as reportable sampling criteria. AINER propose that these additional reporting requirements be deleted from the permit, or requests that we are provided with specific SIC 1429 permits with this same benchmarking requirements that are not unspecified standards.

Response:

The benchmark was not imposed in the Draft Permit. Monthly monitoring is required for Total Nitrate-Nitrite Nitrogen and the rationale for this monitoring is provided in the Fact Sheet. EPA also notes that monitoring for "nitrate compounds" was required in the last issuance of the permit but not performed until January 2016. No change to the permit has been made.