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),

Boston Sand and Gravel Company
100 N. Washington Street, 2nd Floor
Boston, MA 02114

is authorized to discharge from a facility located at

500 Front Street
Charlestown, MA 02129

to receiving a water named

Unnamed Tributary to the Charles River ("Millers River", Outfall 001)

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 if comments are received.*

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 September 28, 2007.

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 day of , 2017

Arthur V. Johnson III, Acting Director Office of Ecosystem Protection Environmental Protection Agency Boston, MA	Douglas E. Fine, Assistant Commissioner Bureau of Water Resources Department of Environmental Protection Commonwealth of Massachusetts Boston, MA

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

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** to the Unnamed Tributary to the Charles River ("Millers River")[1,2].

Effluent characteristic	Units	Discharge Limitation		Monitoring Requirements[3]	
		Average monthly	Maximum Daily	Measurement Frequency[4]	Sample Type
Flow	GPD	Report	Report	Continuous	Recorder
pH[5]	S.U.	--	6.5 to 8.3	1/Month	Grab
Total Suspended Solids (TSS)	mg/L	20	45	1/Week	Grab
Turbidity	NTU	25	Report	1/Month	Grab
Total Sulfate	mg/L	250	Report	1/Month	Grab
Oil & Grease	mg/L	--	15	1/Month	Grab
Total Petroleum Hydrocarbons (TPH)	mg/L	--	Report	1/Month	Grab
Total Recoverable Copper	µg/L	18	29	1/Month	Grab
Dissolved Chromium (VI)	µg/L	11	16	1/Month	Grab
Total Recoverable Chromium	µg/L	--	Report	1/Month	Grab
Total Recoverable Aluminum	µg/L	87	750	1/Month	Grab
Hardness of Effluent	mg/L as $CaCO_3$	--	Report	1/Month	Grab
Hardness of Receiving Water	mg/L as $CaCO_3$	--	Report	1/Month	Grab
Total Phosphorus	mg/L	--	Report	1/Month	Grab
E. Coli	cfu/100mL	--	Report	1/Month	Grab

See footnotes on pages 5 and 6.

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

For Whole Effluent Toxicity (WET) Testing for **Outfall Serial Number 001**:

Whole Effluent Toxicity[6-9]	Units	Discharge Limitation		Monitoring Requirements[3]	
		Average monthly	Maximum Daily	Measurement Frequency[4]	Sample Type
Acute LC50	%	LC50 ≥ 100%		1/Quarter	Grab
Chronic C-NOEC	%	NOEC ≥ 100%		1/Quarter	Grab
Effluent Chemistry					
Hardness	mg/L	Report		1/Quarter	Grab
Alkalinity	mg/L	Report		1/Quarter	Grab
pH	S.U.	Report		1/Quarter	Grab
Specific Conductance	µmhos/cm	Report		1/Quarter	Grab
Total Solids	mg/L	Report		1/Quarter	Grab
Total Dissolved Solids	mg/L	Report		1/Quarter	Grab
Total Ammonia Nitrogen	mg/L	Report		1/Quarter	Grab
Total Organic Carbon	mg/L	Report		1/Quarter	Grab
Total Residual Chlorine	mg/L	Report		1/Quarter	Grab
Total Recoverable Cadmium	mg/L	Report		1/Quarter	Grab
Total Recoverable Lead	mg/L	Report		1/Quarter	Grab
Total Recoverable Copper	mg/L	Report		1/Quarter	Grab
Total Recoverable Zinc	mg/L	Report		1/Quarter	Grab
Total Recoverable Nickel	mg/L	Report		1/Quarter	Grab
Total Recoverable Aluminum	mg/L	Report		1/Quarter	Grab

See footnotes on pages 5 and 6.

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

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

Whole Effluent Toxicity[6-9]	Units	Discharge Limitation		Monitoring Requirements[3]	
		Average monthly	Maximum Daily	Measurement Frequency[4]	Sample Type
Receiving Water Chemistry					
Hardness	mg/L	Report		1/Quarter	Grab
Alkalinity	mg/L	Report		1/Quarter	Grab
pH	S.U.	Report		1/Quarter	Grab
Specific Conductance	µmhos/cm	Report		1/Quarter	Grab
Total Solids	mg/L	Report		1/Quarter	Grab
Total Dissolved Solids	mg/L	Report		1/Quarter	Grab
Total Ammonia Nitrogen	mg/L	Report		1/Quarter	Grab
Total Organic Carbon	mg/L	Report		1/Quarter	Grab
Total Residual Chlorine	mg/L	Report		1/Quarter	Grab
Total Recoverable Cadmium	mg/L	Report		1/Quarter	Grab
Total Recoverable Lead	mg/L	Report		1/Quarter	Grab
Total Recoverable Copper	mg/L	Report		1/Quarter	Grab
Total Recoverable Zinc	mg/L	Report		1/Quarter	Grab
Total Recoverable Nickel	mg/L	Report		1/Quarter	Grab
Total Recoverable Aluminum	mg/L	Report		1/Quarter	Grab

See footnotes on pages 5 and 6.

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

Footnotes for monitoring at Outfall 001:

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 (314 CMR 4.00) of the receiving water.

2. Effluent samples shall be representative of the discharge and shall be taken from Lagoon 9, as close as practicable to the overflow, during the discharge of effluent to the designated receiving water. Changes in sampling location must be approved in writing by the U.S. Environmental Protection Agency (EPA). 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 when discharging. During months when no tests are performed or required, NODI (no discharge) code 9 shall be entered for that month.

3. 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).

4. 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 1/quarter is defined as the sampling of four (4) discharge events in each calendar year, when discharge occurs. Quarters are defined as the interval of time between the months of: January through March, inclusive; April through June, inclusive; July through September, inclusive; and October through December, inclusive. Quarterly sampling shall be performed concurrently with the monthly monitoring event. 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).

5. Requirement for State Certification. The pH of the effluent shall not be less than 6.5 standard units (SU), nor greater than 8.3 SU at any time, unless these values are exceeded due to natural causes. The pH shall be no more than 0.5 units outside the natural background range.

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

6. WET test samples shall be collected quarterly during the months of January, April, July, and October. The test results shall be submitted by the last day of the month following the completion of the test. The permittee shall conduct acute and chronic WET tests specified in the WET test protocols can be found in Attachments A and B of the permit. The permittee shall test the daphnid, *Ceriodaphnia dubia*.

7. LC50 (lethal concentration to 50 percent) is the concentration of wastewater causing mortality to 50% of the test organisms. The C-NOEC (chronic no observed effect concentration) is 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.

8. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in Attachment A (Toxicity Test Procedure and Protocol) Section IV., DILUTION WATER in order to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance, which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water (see page 4 in https://www3.epa.gov/region1/npdes/permits/generic/Alternatedilutionwaterguidance.pdf).

9. The permittee shall conduct the analyses specified in Attachments A and B, Part VI. CHEMICAL ANALYSIS, of this permit. Even where an alternate dilution water is permitted, the receiving water control (0% effluent) must still be analyzed. MLs and methods are specified in Attachments 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 sampling requirement for WET is equivalent with the sampling requirements otherwise established for that parameter in this permit.

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

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

3. The pH of the effluent shall not be less than 6.5 or greater than 8.3 at any time.

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

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

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

7. 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.

8. 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).

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).

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

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.

9. The results of sampling for any parameter done in accordance with EPA approved methods above its required frequency must also be reported in accordance with 40 CFR §122.41(l)(4)(ii).

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 ninety (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 (MSGP). (The current MSGP was effective June 4, 2015 – see https://www.epa.gov/sites/production/files/2015-10/documents/msgp2015_finalpermit.pdf). However, where any provision that applies to outfalls authorized under this permit differs from the requirements of a SWPPP prepared to meet the requirements of the MSGP, the requirements in this permit shall take precedence.

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 as non-numeric technology-based effluent limitations. 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 all 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 SWPPP, the requirements of the NPDES permit, and their individual responsibilities for complying with the goals and objectives of the SWPPP 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 SWPPP 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 objective 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 them available for inspection by EPA and MassDEP.

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

a. Store materials and equipment indoors such that contact with stormwater is limited and avoided whenever possible.

b. Protect material stockpiles and equipment not stored indoors with weather-resistant covers to minimize exposure to rain and wind.

c. Ensure stormwater not discharged through Outfall 001 remains on-site.

d. Undertake reasonable efforts to control or reduce stormwater runoff volume to allow for proper operation of the WWTF.

e. Ensure for proper cleanup of chemical spills that may come in contact with stormwater.

f. Use vacuum equipment to sweep all paved or impervious areas of its property draining to Outfall 001 where solids deposition may occur, including roads, driveways, parking areas, sidewalks, and loading areas.

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

g. Inspect onsite pollution control measures more frequently following severe weather events or natural disasters when these conditions may result in increased pollutant discharges to the Unnamed Tributary.

Additionally, the permittee shall continue to implement site specific BMPs that are required for Sector E (Glass, Clay, Cement, Concrete, and Gypsum Products) of the current MSGP.

PART I.C. PHOSPHORUS CONTROL PLAN (PCP)

The PCP shall be developed and fully implemented during the permit term to meet the 62% phosphorus load reduction waste load allocation (WLA) set forth in the Lower Charles River TMDL. The permittee is required to develop and implement the following site-specific PCP:

- Within two (2) years of the effective date of the permit, in order to establish baseline conditions, the permittee shall:
    - complete the estimation of the average annual phosphorus load to the permitted outfall using influent and effluent phosphorus data, and
    - complete an evaluation of any additional structural or non-structural BMPs that reduce the phosphorus load to the Unnamed Tributary.

- Within three-and-a-half (3.5) years of the effective date of the permit, the permittee shall:
    - begin construction or implementation of BMPs designed to reduce phosphorus loads, and
    - monitor the effectiveness of those BMPs.

- Within five (5) years of the effective date of the permit, provide to EPA a report including:
    - a summary of phosphorus data analysis and phosphorus load estimation,
    - a description of the evaluation of additional phosphorus reduction BMPs beyond the WWTF (if applicable),
    - an operation, maintenance, and inspection plan of additional phosphorus reduction BMPs (if applicable),
    - a demonstration of the capacity of the entire facility to meet the 62% phosphorus WLA-based reduction target.

PART I.D. SOURCE IDENTIFICATION AND REDUCTION PLAN (SIRP)

Metals

The permittee shall continue to implement the Source Identification and Reduction Plan (SIRP) for copper, chromium (VI), and aluminum. In addition, the permittee shall

- attempt to eliminate, or reduce to the maximum extent possible, the discharge of these pollutants from the facility,
- take additional samples to characterize the concentration and variability of each of the metals in onsite source streams using sufficiently sensitive analytical methods,
- develop BMPs to significantly reduce or eliminate the pollutant loading(s) to the receiving water in the event the source(s) of these metals cannot be eliminated, and evaluate whether site-specific stormwater BMPs can be used in conjunction with commingled stormwater and process water treatment options (e.g. pH adjustment, flocculation, and/or coagulation in the Wastewater Treatment Facility) to reduce metals identified as contributing to or causing an excursion of water quality standards in the receiving water (including but not limited to copper, chromium(VI), and aluminum), and
- update or amend the SIRP with any BMPs resulting from the evaluation within one (1) year after the effective date of the permit.

Pathogens

The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) in order to

- eliminate or reduce the discharge of bacteria through the facility's stormwater system, e.g. identifying and eliminating illicit sewer connections to the facility's drainage system, and
- significantly reduce or eliminate the bacteria loading to the receiving water via the development of BMPs in the event the source(s) of bacteria cannot be eliminated.

PART I.E. MONITORING AND REPORTING

The monitoring program in the permit specifies sampling and analysis, which will provide continuous information on compliance and the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures found in 40 CFR Part 136 are required unless other procedures are explicitly required in the permit. The permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit. Unless otherwise specified in this permit, the permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of Reports as NetDMR Attachments

   As the permittee is already using NetDMR, the permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies, unless otherwise specified in this permit. Permittees shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. (See Part I.E.5 for more information on state reporting.) Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this permit.

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 the EPA Office Ecosystem Protection (OEP).

   a. Transfer of permit notice
   b. Request for changes in sampling location
   c. Request for reduction in WET testing requirement
   d. Report on unacceptable dilution water / request for alternative dilution water for WET testing
   e. Notification of proposal to add or replace chemicals, including chemical additives

3. Submittal of Requests and Reports to EPA/OEP

   These reports, information, and requests shall be submitted to EPA/OEP electronically at R1NPDES.Notices.OEP@epa.gov.

PART I.E. MONITORING AND REPORTING, cont'd.

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

This information shall be submitted to EPA/OES and MassDEP at the following addresses:

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 Street
Wilmington, MA 01887

5. State Reporting

Transfer or termination of permit notices shall also specifically be submitted to:

Massachusetts Department of Environmental Protection
Bureau of Water Resources
Wastewater Management Program
1 Winter Street, 5th Floor
Boston, MA 02108

PART I.E. MONITORING AND REPORTING, cont'd.

Unless otherwise specified in this permit, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.E.2, I.E.3, and I.E.4 also shall be submitted to the State at the following address:

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

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

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

7. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA and to MassDEP. This includes verbal reports and notifications which require reporting within 24 hours. (As examples, see Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.) Verbal reports and verbal notifications shall be made to EPA's Office of Environmental Stewardship at: **617-918-1510.**

PART I.F. STATE PERMIT CONDITIONS

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

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

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

4. The permittee shall ensure that sweepings collected at its facility are reused or disposed in a manner consistent with MassDEP’s Policy #BWP-94-092: Reuse and Disposal of Street Sweepings.

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)

TABLE OF CONTENTS

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
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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: **MA0000531**

PUBLIC NOTICE START AND END DATES: August 1, 2017 – August 30, 2017

NAME AND MAILING ADDRESS OF APPLICANT:

Boston Sand & Gravel Company
100 N. Washington Street, 2nd Floor
Boston, MA 02114

ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

500 Front Street
Charlestown, MA 02129

RECEIVING WATER: Unnamed Tributary to the Charles River ("Millers River", Outfall 001)

CLASSIFICATION: Class B

SIC CODE: 3273 (Ready-Mix Concrete)

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A – Aerial Photo of Facility
B – Process Diagram
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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 stormwater and process water into the designated receiving water. The permit last issued to Boston Sand and Gravel became effective on September 28, 2007 and expired on August 31, 2012. EPA received a permit renewal application from Boston Sand and Gravel on March 1, 2012. 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

Boston Sand and Gravel Company (BS&G) operates two facilities in Charlestown, Massachusetts: a Ready-Mix Concrete Plant ("the Concrete Plant") located at 500 Front Street and a vehicle maintenance garage located at 40 Bunker Hill Industrial Park Drive. Although the Concrete Plant's address is in Charlestown, a majority of the site area is located in Cambridge, Massachusetts. An aerial photograph of the facility is located in Attachment A.

Ready-mix concrete batching operations which occur at the Concrete Plant involve raw material storage, concrete production, truck wash-off and drum wash-out, waste disposal and recycling, vehicle fueling, water recycling, and wastewater treatment operations as described below and provided in the facility's Process Diagram (Attachment B).

Process water commingled with stormwater is treated by settling, chemical treatment and clarification at the Concrete Plant's wastewater treatment facility (WWTF), prior to final discharge to the Unnamed Tributary (known locally as "Millers River"). Activities at the maintenance garage are conducted within an enclosed facility such that there is no exposure of industrial activities and related pollution to stormwater at the garage. Inside the garage building, any water from the vehicles flows to internal floor drains which connect to an oil/water separator. The separator then discharges to the MWRA wastewater system. The separator is inspected by BS&G employees on a monthly basis and these inspection reports are included in an oil/water separator database as part of MWRA's Toxic Reduction and Control program (TRAC). Since the garage is a separate, non-contiguous facility with no outdoor activities that could result in exposure of stormwater to industrial activities, BS&G submitted a no exposure certification for the garage. Stormwater and process water permitting requirements for other areas of the site where industrial activities are occurring will be addressed under this individual NPDES permit.

The majority of the land at the site is covered by overhead highways (Interstate 93) which capture the majority of the stormwater that would otherwise fall on the site beneath. The

stormwater runoff which falls on the overhead structures is conveyed through the stormwater management system for the highways. However, during large storms, stormwater from the overhead highway overflows onto the site below. The site is comprised of primarily impervious surface areas and is divided into seven drainage areas as delineated in Attachment C. Dust control is performed throughout the site.

The site is bordered on the northwestern edge by a chain link fence adjacent to the Massachusetts Bay Transportation Authority (MBTA) commuter rail tracks. The MBTA Commuter Rail Maintenance Facility (CRMF) is also covered by a NPDES permit (MA0003590) and also discharges to the same Unnamed Tributary of the Charles River as Boston Sand & Gravel's facility. At the time of the March 2016 site visit, approximately one half-acre of the Boston Sand & Gravel site was used for MBTA Green Line Extension project activities. Green Line Extension project activity in the surrounding areas was halted in October 2016 due to funding issues. Construction is scheduled to resume in 2018 but this date is subject to change. The approximately 0.5 acre temporary construction area was fenced off but stormwater runoff appeared to pond and discharge underneath a chain link fence that surrounded it. This non-BS&G discharge could have commingled with stormwater and process water from the facility. Maintenance for Interstate 93 highway viaducts, performed as necessary by MassDOT, occasionally also occurs on-site. There were no current maintenance activities occurring at the time of the site visit in late March, 2016. Ducts from the above highway are routed to grates and connected underground conveyances that discharge to the Unnamed Tributary.

Discharges of stormwater and process water at the Concrete Plant will be covered under this individual permit. BS&G previously obtained a Multi-Sector General Permit (MSGP) for stormwater discharge from the Concrete Plant, however this MSGP coverage was terminated in 2009.

1.2.1 On-site Water Management

Stormwater and process water commingle on-site. Impervious surface is graded so that water flows to three "Low Points". Most of the site area is impervious, except for the area around the rail tracks on the northwestern border, the area surrounding bulk storage of aggregate materials (i.e. sand and stone), and a northeasterly portion of the site that includes storage of concrete blocks and employee parking. These three pervious areas are designed for infiltration.

Water that collects in Low Points is pumped and/or recycled through a series of treatment lagoons, and then routed to the WWTF for final treatment. Refer to Attachment B for the Process Diagram and the location of the three Low Points.

Low Point #1 (LP1) is located on an access road bisecting the site underneath Interstate 93. A process/stormwater collection sump, a process/stormwater recycle tank (the Recycle Tank), and a sweeper sediment collection bin are in the vicinity of LP1. Water collected at LP1 is pumped either to the Recycle Tank or the truck washoff areas. Low Point #2 (LP2) is located nearby the Clearwater Pit in the northwestern portion of the site, which includes the truck washout area, the solids drying area, a truck washoff area, the rail lines, and the truck fueling area. Commingled process and stormwater can be pumped from LP2 to the other two low points if desired. Any

stormwater and process water that trickles into the conveyor belt tunnel at the Concrete Plant is also directed to LP2. Low Point #3 (LP3) is located adjacent to a Wastewater Treatment Facility (WWTF) that includes a block house building containing chemical mixing and treatment tanks and three exterior settling lagoons). A second truck washoff area is located by the Concrete Plant and the WWTF.

Recycling of on-site water is performed using the Clearwater Pit and the Recycle Tank. The Recycle Tank is also used in truck drum washout and concrete products manufacturing. Settling of solids occurs during water recycling and partially contributes to treatment of solids prior to the WWTF.

The Clearwater Pit is a concrete holding tank containing water from wash-off of residue from mixer trucks. The trucks are rinsed off over an impervious area and the wash water flows, along with any stormwater collected over the impervious area, through shallow tanks where solids settle, to the Clearwater Pit. The water from both pits may be reused as truck washout water. Water is pumped from the Clearwater pit to the Recycle Tank. The Recycle Tank acts as a holding vessel prior to pumping the recycled water into the manufacturing process. Recycle Tank water is pumped to the Concrete Plant as needed. Any excess water in the Recycle Tank may be pumped directly to LP3 to begin treatment in Lagoon 7. Potable water is used when there is insufficient recycled process water and stormwater necessary for operations.

Locations of drainage areas on the site, potential pollutants and risks associated with these drainage areas, and MSGP recommendations that apply to the facility operations are discussed in the SWPPP as required by Part I.C of the permit and Section 5.3.1. of this fact sheet. See Attachment C for the location of site drainage areas.

1.2.2 Wastewater Treatment

The WWTF consists of three settling basins (Lagoons 7, 8, and 9) and a block house building containing pumps, piping, a 2-chamber 1,800 gallon mixing tank, and treatment chemicals. Process water and commingled stormwater are treated at the block house building by the process of settling, chemical treatment, and clarification (for suspended solids and turbidity control), and pH neutralization. A certified WWTP operator (257 CMR 2.00) operates the wastewater treatment system and pumps are inspected daily.

The influent to the WWTF consists of water pumped from two low points, LP1 and LP2, which combines with the water from LP3 located near the WWTF. Boiler blowdown occurs in a building adjacent to the QA/QC lab and is discharged to LP1, is pumped into the recycle system at the Clearwater Pit (LP2) and eventually directed to the WWTF. Boiler blowdown is a minimal contribution to the final discharge.

Wastewater from LP3 is conveyed to Lagoon 7 where both flow equalization and primary solids settling is accomplished. The maximum holding capacity of Lagoon 7 is 14,300 gallons. A minimal amount of water dripping from mobile ice trucks is also directed to Lagoon 7. The water from Lagoon 7 is pumped to a 2-chamber 1,800 gallon tank inside the block house building where chemical addition (ferric chloride coagulant, hydrochloric acid, and polymer) promotes

the flocculation of suspended solids. The wastewater transfer pump is controlled by an automatic float system which activates the pump when the water in Lagoon 7 reaches a set level (approximately 3,000 – 4,000 gallons per pump cycle). Coagulant and polymer injection pumps turn on automatically when the wastewater transfer pump starts. The coagulant and polymer pumps are set to deliver doses established during wastewater treatability studies, but may be manually adjusted to handle changes in solids loading. Additionally, a pump connected to a pH controller injects acid to neutralize the wastewater whenever the controller set point is reached. Hydrochloric acid is stored in a 1,500 gallon tank outside the block house building and is delivered twice annually. A permanent employee at the facility, who is a licensed operator, performs manual adjustments and manages the efficiency of batch treatment and improvements for the WWTF.

The maximum holding capacity of Lagoon 8 is 17,900 gallons. Flocculated solids settle in Lagoon 8. When the water reaches a set level in Lagoon 8, it is pumped back through the block house building and into Lagoon 9, where additional settling of any solids occurs. A pH probe in the block house building is connected to a controller that activates an alarm and shuts off the pump if the pH measures outside of the prescribed limits. Flow between Lagoons 8 and 9, in addition to pH, is continuously monitored within the block house building. Lagoon 9 holds 4,100 gallons and discharges by gravity through a 12” ductile iron pipe to the Unnamed Tributary.

Settled solids are periodically removed from Lagoons 7, 8, and 9 and recycled for use in road base or other products.

Treated wastewater discharged for all of 2015 totaled 983,000 gallons and 1,140,000 gallons for 2016. An average 1.9 million gallons was discharged per year from 2007 to 2016 and the discharge for 2017 is expected to be similar. Concrete production in 2015 totaled 595,000 tons and 603,000 tons in 2016. Total concrete production is projected to be 715,000 tons for 2017, and water use for 2017 is expected to be 19 million gallons based upon production forecasts. Approximately 7% of water used at the site (1.1 million gallons) is recycled based on estimates for 2015 and 2016.

Sanitary wastewater from the dispatch building is contained in a septic tank equipped with a high level alarm. The tank is regularly pumped out by a commercial septic service provider and the wastewater is trucked off-site.

1.2.3 Raw Material Storage

Raw materials used in the production of ready-mix concrete at the facility include a variety of fine and coarse aggregate, Portland cement, other cementitious materials such as fly ash and ground granulated blast furnace slag, and concrete additives.

Coarse and fine aggregate are received at the facility by truck or rail car and offloaded and stockpiled at the southern portion of the site at the aggregate material storage area. A conveyor belt runs in a tunnel underneath the stockpiled materials. A gate is opened to allow the materials to fall onto the conveyor for transport to enclosed hoppers, where the dry material is stored until it is metered into a ready-mix concrete batch. The portions of the stockpile that are located under

Interstate 93 are not exposed to stormwater, whereas the remaining portions are exposed to stormwater. Since the aggregate material storage area is pervious, most stormwater is absorbed by the stockpiled materials. The minimal amount of stormwater that enters the conveyor tunnel through the gate is pumped to LP3 at the WWTF. Any stormwater runoff from the stockpile areas is also directed to the WWTF. Concrete walls constructed of pre-cast concrete blocks surround the stockpile perimeter and are used to separate different grades of aggregate material.

Portland cement, fly ash, and slag are received at the facility by tanker truck and stored in silos until the material is metered into a ready-mix concrete batch. Concrete additives such as water-reducing agents, air-entraining agents, and/or setting agents may be added to a ready-mix batch to enhance the concrete properties. Liquid concrete additives are stored in aboveground tanks on the ground and second floor in the Concrete Plant. Solid additives such as polymeric fibers are delivered in smaller bags which are stored in a covered area and not exposed to stormwater. BS&G uses enclosed silos and bins to store these materials. Bulk deliveries utilize enclosed transport vehicles which offload by pneumatic conveying. Dust entrained in the air exhaust is cleaned by baghouse-type dust collectors. A summary of chemicals and chemical additives used for cement product and process and stormwater treatment are included in Attachment D.

The Plant's use of cement and fly ash in concrete production also triggers the EPCRA (Emergency Planning and Community Right-to-Know Act) Section 313 thresholds for persistent bioaccumulative toxins (PBTs), namely lead and mercury. Muriatic acid (hydrochloric acid) is subject to state reporting only. These materials are stored and used in drainage areas 2, 3, and 7 (Attachment C).

Ice chips prepared from potable water for use in ready-mix concrete production are stored in mobile trailers outside the Plant dispatch area. A dumpster for general refuse is also located in a northwestern corner of the site and is not exposed to stormwater as it is located underneath the highway.

1.2.4 Concrete Production

The facility produces ready-mixed concrete (hereafter referred to as concrete). Basic components of concrete are coarse aggregate, fine aggregate, cement, and water. The aggregate functions as a filler material and is bound together by hardened cement paste formed by the hydration of cement. In addition to these basic components, supplementary cementitious materials and chemical admixtures are often used to enhance or modify properties of the fresh or hardened concrete.

Ready-mix batches are prepared based on industry standards for varying classifications of concrete. Additives to delay setting of the final concrete product may be combined with raw materials. Raw materials for each batch are metered into a central mix drum above the truck awaiting loading at the filling location nearby the Concrete Plant. The materials are mixed inside a central mix drum and poured into the hopper of the mixer truck drum for delivery.

The Concrete Plant and the two associated aggregate conveyors are located in the southwestern portion of the site. Aggregate storage bins with concrete retention walls contain sand and gravel

at the southernmost portion of the site. A dielectric transformer maintained by Eversource is located next the shipping office adjacent to the Concrete Plant. The outdoor transformer is staged on a concrete pad.

Concrete is batched to the mixer trucks at the Concrete Plant northwest of the WWTF and nearby the aggregate storage bins.

1.2.5 Truck Wash-Out and Wash-Off

Wastewater from truck washing is generated in two process operations: external truck wash-off prior to delivery and internal drum wash-out upon the return of the truck from the job site. The primary designated truck wash area is located adjacent to LP2 and the Clearwater Pit. The area has an impervious surface with a bermed area to collect truck wash-out and chute wash-off. The area is sloped such that exterior truck wash-off collects and flows to LP2 or a ramp adjacent to LP1 which is then pumped to either LP2 or LP3. A secondary exterior truck rinsing area is located at adjacent to the WWTF at LP3. Wastewater generated at the designated truck wash area is collected in a settling basin at LP2 and either recycled (used for mixer truck drum wash-out and as available, used in concrete production) or transferred to the influent lagoon at the WWTF. Rinsing conducted at LP3 flows by gravity to Lagoon 7 for subsequent treatment at the WWTF.

After a ready-mix batch has been added to the truck drum and prior to shipment to the job site, the truck exterior is rinsed at the designated truck wash area or at the wash rack located at LP3 adjacent to the WWTF. Exterior rinsing of the truck is performed to remove residual materials from the outside of the truck's drum and chute. The rinsing prevents adherence of the residuals to the truck and drum, as well as release to the environment outside of the facility. Although no surfactants are used in the rinsing, acid wash may be used, which is applied to the truck exterior with a spray bottle and rinsed off with water.

At the end of the work day (and occasionally between certain concrete loads) the drum of the mixer truck is rinsed out. The truck exterior rinsing and interior drum wash-out occurs in the designated truck wash area located adjacent to LP2 in the northwestern portion of the site. Recycled process water from the Clearwater Pit at LP2 is added to the truck drum while it is rotating in order to remove the residual concrete inside the drum. No surfactants are used for drum wash-out.

1.2.6 Returned Concrete

Upon return of the truck to the Plant, unused concrete may be reused to manufacture pre-cast retaining blocks or recycled by ribbon feed drying the concrete. Pre-cast retaining blocks are either sold, or used at the facility to construct partitions for the separation of materials and to erect semi-permanent walls for the protection of site features from truck traffic. Ribbon feed drying involves discharge of the concrete in narrow rows, also referred to as "ribbons," onto the ground in a designated area for drying. When the ribbons are partially dry, a front-end loader is used to break the material into small pieces which are stockpiled and then shipped off-site for further sizing to prepare the material for off-site use such as road base.

1.2.7 Vehicle Fueling

Two 10,000 gallon underground storage tanks (USTs) are in use at the facility, one for gasoline and the other for diesel fuel. They are located, along with the fueling equipment, between the boiler room/QC building and the Clearwater Pit (LP2). Filling and fueling of all vehicles occurs on impervious surfaces. Spill response equipment is located throughout the site. A Spill Pollution Control Plan (SPCC) detailing fuel spill pollution control procedures for the facility is kept, along with a Stormwater Pollution Prevention Plan (SWPPP), at the office building on the non-contiguous maintenance facility lot. Vehicle storage, maintenance, and cleaning occurs at the maintenance facility and associated discharges are not covered under this permit.

1.2.8 Extreme Weather Management

Sheetflow only occurs during extreme precipitation or in case of frozen ground. In the event of extreme stormy or icy weather, concrete production is shut down and discharges from the WWTF are ceased. The WWTF operator is responsible for severe event preparation and impacts on process and stormwater discharge. Site managers plan for severe weather events, and if necessary, a licensed operator of the WWTF comes on-site in order to treat commingled stormwater and process water during and after extreme weather events regardless of whether production has ceased. Generally, wastewater treatment is necessary with greater than approximately one half inch of precipitation (the “first flush” of stormwater) and more treatment is required with heavier flows. There is sufficient holding capacity in both the treatment lagoons and the site (drainage areas 1 and 5 in Attachment C) in order to manage additional volume from a 100-year storm event. Frac tanks for additional water storage will be brought to the facility when on-site water storage capacity is expected to be exceeded. Removal of solids from treatment lagoons (Lagoons 7, 8, and 9) during maintenance is performed only in dry weather. Ice on the rail tracks due to cold weather can derail cars transporting raw materials to the facility. Propane flame torches are used for deicing to prevent derailment and associated material spills.

2.0 RECEIVING WATER DESCRIPTION

2.1 Classification

The receiving water for Outfall 001, the Unnamed Tributary (locally known as "Millers River"), 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 "consistently good aesthetic value", according to 314 CMR 4.05(3)(b).

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 (TMDL). According to the *Final Massachusetts Year 2014 Integrated List of Waters*, the Unnamed Tributary (segment ID MA72-31) is classified as a water requiring a TMDL[1]. The river segment is defined from the emergence near Route 93, Cambridge/Boston, to the confluence with the Charles River in Cambridge. It is approximately 0.207 miles long. The impairment causes are foam/flocs/scum/oil slicks, petroleum hydrocarbons, polychlorinated biphenyls, polycyclic aromatic hydrocarbons, sedimentation/siltation, and taste and odor, as well as other causes designated as "Other" ("Other" causes include unspecified metals). Non-pollutant impairments to bottom deposits and stream habitat are also listed for this water, but these impairments do not trigger a TMDL requirement.

2.2 Water Quality Assessment

The 2002-2006 Massachusetts Water Quality Assessment report for the Unnamed Tributary to the Charles River Watershed notes that urban stormwater runoff, the NPDES discharges, and discharges from municipal separate storm sewer systems are likely sources of pollution to the water[2]. According to the same report, withdrawals and discharges include those from the MBTA Commuter Rail facility (NPDES permit MA0003590), this facility (Boston Sand and Gravel Company (NPDES permit MA0000531)), and the Boston Water and Sewer Commission (NPDES stormwater permit MAS010001). A use assessment was also performed as part of the 2002-2006 water quality assessment, and the assessment was primarily based on information from the earlier 2000 water quality assessment[3]. Aquatic life, primary and secondary contact recreation, and aesthetic uses were assessed as impaired due to degraded habitat, sediment quality, and aesthetic conditions. Ongoing stormwater runoff, urban runoff, and discharges from local permitted facilities are cited as contributing to these conditions. No fish were found during 2002 electrofishing during the data collection effort for the report and fish consumption use specifically for this waterbody was not assessed at the time of the report. However, state-wide safe eating guidelines from the Massachusetts Department of Public Health include the

[1] MassDEP. 2016. http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf
[2] MassDEP. 2008. Charles River Watershed 2002-2006 Water Quality Assessment Report.
[3] Fiorentino, J.F., L.E. Kennedy, and M.J. Weinstein. 2000. Charles River Watershed 1997/1998 Water Quality Assessment Report. Massachusetts Department of Environmental Protection, Division of Watershed Management. Worcester, MA.

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 the Unnamed Tributary).

A Final Phosphorus TMDL for the Lower Charles River Basin[4] and a Final Pathogen TMDL for the Charles River Watershed[5] have been completed. For the watershed areas that discharge to tributaries of the Lower Charles, all water segments, except the upper watershed above the Watertown dam and combined sewer areas not slated for sewer separation, are subject to a Waste Load Allocation (WLA) of a 62% reduction in phosphorus. The Final Pathogen TMDL requires that facilities that discharge to the Charles River, including to tributaries of the Charles, take an iterative approach to identifying and eliminating illicit discharge connections.

The Boston Water and Sewer Commission's annual reports submitted as part of the requirements of the 1999 City of Boston Municipal Separate Storm Sewer System (MS4) permit provide an example of the iterative approach to reducing water pollutants. The annual reports summarize progress made in reducing stormwater pollutant loads through BMPs and specifically through illicit discharge elimination. The area just upstream of the Unnamed Tributary is included as a sub-catchment area in the 2015 annual report. The following two tables are excerpts from the 2015 annual report and summarize the estimated 2015 annual loads as well as the 2012-2013 estimated loads reduced for pollutants including Total Phosphorus and *E. Coli* for the Unnamed Tributary (Millers River).

[4] http://www.mass.gov/eea/docs/dep/water/resources/a-thru-m/charlesp.pdf
[5] http://www.mass.gov/eea/docs/dep/water/resources/a-thru-m/charles1.pdf

Table 1. BWSC 2012 Stormwater Model:
2015 Mean Annual Pollutant Loads for the Unnamed Tributary[6]

Drainage Area	Mean Flow (annual)	BOD5	COD	TKN	Nitrate-Nitrite as N	Ammonia as N	Total Phosphorus
Acres	cfs	lb/year					
208	1.57	15,716	65,888	1,891	3,732	575	383

Ortho-phosphate as P	Total Copper	Total Zinc	TSS	E. Coli	Enterococcus	Fecal Coliform
lb/year				10^9 cfu/year		
60	18	76	29,967	119,979	88,372	95,414

Table 2. Annual Load Reduction for the Unnamed Tributary Based on Illicit Discharge Removal in 2012 and 2013[7]

Drainage Area	Number of Illicits Removed	Flow Removed	Total Phosphorus Removed	E. Coli Removed	Enterococcus Removed	Fecal Coliform Removed
Acres		GPD	lb/year	10^9 cfu/year		
208	1	27	1	316	32	607

[6] *Excerpt from Table 7-1 in* Boston Water and Sewer Commission. 2015. 2015 Annual Stormwater Management Report (for MS4 NPDES permit compliance).
[7] Estimates based on 2007-2009 precipitation using BWSC precipitation gage network; no illicit discharges removed for the Unnamed Tributary in 2014 and 2015; *excerpt from Table 7-2 in* Boston Water and Sewer Commission. 2015. 2015 Annual Stormwater Management Report (for MS4 NPDES permit compliance).

3.0 PERMIT BASIS: STATUTORY AND REGULATORY AUTHORITY

3.1 General Background

The CWA prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology-based effluent limitations (TBELs), water quality-based effluent limitations (WQBELs) and other requirements including monitoring and reporting. The draft permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable State regulations. During development, EPA considered the most recent technology-based treatment requirements and water quality-based requirements. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. The general conditions of the draft permit are based on 40 CFR §122.41 and consist primarily of management requirements common to all permits. The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the CWA in accordance with 40 CFR §122.41(j), §122.44(i), and §122.48.

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.

EPA has promulgated technology-based National Effluent Limitation Guidelines (ELGs) for wastewater from certain mineral mining and processing facilities under 40 CFR §436. Sand and gravel operations at facilities like Boston Sand & Gravel fall under the subcategory C of this Part (construction sand and gravel). The ELG limits the effluent pH of process wastewaters and mine dewatering discharges to a range of 6.0 to 9.0 SU. pH is the only pollutant in the applicable ELG. Additionally, 40 CFR §436.32(b) states that “any overflow from facilities governed by this subpart shall not be subject to the limitations of paragraph (a) [pH] of this section if the facilities

are designed, constructed and maintained to contain or treat the volume of waste water which would result from a 10-year 24-hour precipitation event."

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) antidegradation 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.

No new or increased discharges have been proposed by the permittee. This draft permit is being reissued with allowable effluent limits as stringent or more stringent than the previous permit and accordingly will continue to protect the existing uses of the Unnamed Tributary (Millers River). Therefore, MassDEP is not required to conduct an antidegradation review as part of 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 anti-backsliding 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

4.1 Outfall 001

The discharge from Outfall 001 consists of a combination of stormwater runoff, road sweeping water, and truck wash-off and wash-out water. All stormwater and process water is either treated at the WWTF prior to discharge to the Unnamed Tributary, or recycled on-site for use in making concrete and flowable fill.

The drainage at the site is such that the process water and stormwater combine and collect at three water accumulation areas or Low Points (LP1, LP2, and LP3), as shown in Attachment B. The water from LP1 and LP2 is pumped to LP3, near the WWTF, for subsequent treatment prior to discharge.

Process water and commingled stormwater are treated at the WWTF prior to final discharge to the Unnamed Tributary. Treated wastewater is discharged as overflow from Lagoon 9 via Outfall 001 when the pump from Lagoon 8 to Lagoon 9 turns on and the effective capacity of Lagoon 9 is exceeded. With the exception of flow monitoring, the discharge is sampled for permit parameters in Lagoon 9 after previous treatment, as close as practicable to the overflow, but prior to the overflow discharge to the Unnamed Tributary. The location in Lagoon 9, as close as practicable to the overflow, was chosen as the Outfall 001 sampling location because the discharge point to the Unnamed Tributary is not easily accessible and is considered unsafe for

routine sampling. The flow from Lagoon 8 to 9 is monitored by a continuous flow monitor inside the block house building.

4.2 Internal Outfall 002

The internal sampling location was deemed to be representative of boiler blowdown water and was associated with an Oil & Grease monthly monitoring requirement in the current permit. The monitoring requirement has been removed from the draft permit (See Section 5.2).

5.0 PROPOSED EFFLUENT LIMITATIONS, CONDITIONS

A monitoring data summary report for Outfall 001 is included in Attachment E. Regular water quality monitoring for Outfall 001 is identified by outfall code 001A and WET test results at Outfall 001 are identified by DMR outfall code 001T. Monthly hardness measurements for the receiving water are identified by DMR outfall code 001 – Receiving Water.

5.1 Outfall 001

Outfall 001 effluent contains both process water and stormwater as these commingle on-site.

5.1.1 Flow

The maximum daily flow from 2007 to 2015 was 280,000 GPD. Mean flow for the same time period was 5573 GPD (calculated as the mean of all reported average monthly flows). There were 2 recorded instances of no discharge in February 2012 and February 2015. The requirement to report daily maximum flow and report monthly average flow has been retained in this permit.

5.1.2 pH

The Massachusetts Surface Water Quality Standards [MA SWQS; 314 CMR 4.05 (3)(b)3] require that the pH of the receiving water be in the range of 6.5 to 8.3 standard units (SU) and no more than 0.5 units outside the background range (the applicable ELG-based limitation of pH of 6.0 to 9.0 is less stringent). Additionally, the State standards require that 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. Therefore, the pH range limit of 6.0 to 8.5 SU contained in the existing permit is replaced with the more stringent range of 6.5 to 8.3, with the requirement that pH should be no more than 0.5 SU outside the background range.

Review of the DMR data reveals that the monthly effluent pH did not violate the permitted pH range of 6.0 to 8.5 SU, or the more stringent range of 6.5 to 8.3 by more than 0.5 units. Based on these data, the monitoring frequency is retained at once per month.

5.1.3 Total Suspended Solids (TSS)

In the absence of published technology-based effluent limitation guidelines (ELG) or if an ELG exists but it doesn't address and didn't consider a pollutant of concern in its development, 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 conducted a site-specific BPJ analysis to determine the appropriate technology-based effluent limit (TBEL) for the permit as there is no applicable ELG for TSS[8] for the discharge (§125.3(c)(2)). The current permit includes a maximum daily TSS limit of 45 mg/L and a monthly average TSS limit of 20 mg/L.

Review of the DMR data reveals that the TSS effluent limitations were exceeded twice and generally were far below the daily maximum and monthly average limits. In December 2013, the highest TSS values of 21 mg/L for the monthly average and 48 mg/L for the daily maximum, respectively, were recorded.

An effective influent concentration of 100 mg/L of TSS to the series of settling ponds and the WWTF at the facility (the "current treatment system") can be assumed based on the National Urban Runoff Program median concentration often cited in the MSGP. Stormwater BMPs are expected to achieve at least 80% effectiveness[9]. Using the assumed influent concentration of 100 mg/L, combined with the monthly average discharge concentrations recorded in the DMR from October 2007 to December 2015, an average TSS treatment efficiency of 96% in the commingled stormwater and process water effluent is calculated. Therefore, the current treatment system for TSS at the facility is considered sufficient to meet the current maximum daily limit of 45 mg/L.

EPA's Quality Criteria for Water, 1986 (the Gold Book[10]) 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. National as well as state water quality criteria are narrative for solids and turbidity. 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.

[8] Federal Register notice of the Mineral Mining and Processing Point Source Category: Revocation of BPT Regulations and the final amendment to the rule is available at https://www.epa.gov/sites/production/files/2015-09/documents/mineral-mining_bpt_44-fr-76793_12-28-1979.pdf

[9] EPA Office of Water. 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. EPA-821-R-99-012.

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

The Gold Book proposes the same criteria for solids as EPA's 1972 Water Quality Criteria report[11]. Prescriptive requirements for recreation and aesthetics recommend managing solids with reference to waterbody historical/baseline data. In order to provide a high level of protection to aquatic organisms, EPA recommends a suspended solids level of 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 standards violation.

Based on the facility's ability to treat solids in their discharge with their current technology and to avoid backsliding, the monthly average TSS limit shall be retained at 20 mg/L, and the daily maximum limit shall be retained at 45 mg/L, with a weekly monitoring requirement.

5.1.4 Turbidity

The Massachusetts Surface Water Quality Standards (MA SWQS) 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). In order to minimize this turbidity, an average monthly limit 25 NTU is retained from the existing permit in the draft permit, as well as a requirement to report the maximum daily turbidity. Similar limits (20 – 25 NTU) have been required in permits for sand and gravel operations. Maintaining this limit is also in accordance with the anti-backsliding requirements found in 40 CFR §122.44(l).

Review of the DMR data reveals that the 25 NTU average monthly turbidity limit was not exceeded during the last decade. Therefore, EPA has determined that sampling frequency for turbidity shall be reduced in this permit from once per week to once per month.

5.1.5 Oil & Grease

Petroleum hydrocarbons are associated with fuel leaks and spills that may occur at the facility. Thus, there is reasonable potential for petroleum hydrocarbons to be present in the discharge. The impairment causes for the Unnamed Tributary also include oil slicks and petroleum hydrocarbons.

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[11] The National Academy of Science (NAS) and the National Academy of Engineering (NAE), who prepared this report, appointed a Committee on Water Quality Criteria, six Panels, and an Environmental Studies Board. This document is 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

Historically, Oil & Grease was the primary petroleum related parameter used in many of EPA Region 1's individual NPDES permits and is a common parameter in many of EPA's promulgated industrial effluent guidelines. Daily maximum Oil & Grease is frequently limited to 15 mg/L in order to be protective of Class B narrative MA SWQS.

EPA reviewed Oil & Grease monitoring data from December 2007 through December 2015 from this facility. Oil & Grease was detected only once, at a value of 4.6 mg/L (September 2008). The remaining monitoring results (32 samples) were recorded below the detection limit. Therefore, the Oil & Grease parameter is included in this draft permit with a maximum daily limit of 15 mg/L. EPA establishes this TBEL using BPJ-based performance information from this facility. The BPJ limit of 15 mg/L is also protective of water quality standards.

In addition, Total Petroleum Hydrocarbons (TPH) shall be monitored monthly in order to evaluate the petroleum content of the Oil & Grease monitored at this facility. Massachusetts test methods for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) may not be used for TPH analysis as they are not approved CWA methods.

5.1.6 Sulfate

The current permit continued a Total Sulfate limit of 250 mg/L. There are no current Effluent Limit Guidelines that apply to this facility with regards to Total Sulfate. However, sulfate is present in this facility's discharge as it is inherent in the Ready-Mix Concrete product formulations. Controlling sulfate in the discharge may assist with reducing copper concentrations as there is some evidence that copper may be associated with sulfate during wastewater treatment at the facility (See Section 5.1.7). The Secondary Maximum Contaminant Level (SMCL) for Total Sulfate is also 250 mg/L. The SMCL is used as a guideline for public water systems in managing aesthetic considerations for drinking water and a concentration at or above 250 mg/L of Total Sulfate is known to induce a salty taste[12].

Review of the DMR data reveals that the previous average monthly Total Sulfate limit of 250 mg/L was exceeded 1 time in June 2009. Therefore, the Total Sulfate limit shall be retained at 250 mg/L to avoid backsliding. The monitoring and reporting frequency shall also be continued at monthly. As the Unnamed Tributary is impaired for taste and odor, retaining the Total Sulfate limit at 250 mg/L would also ensure that MA SWQS continue to be met.

5.1.7 Copper

Boston Sand & Gravel analyzed the Pearson correlation coefficients of metals and other monitored parameters as part of the Metals Reduction study included in the 2012 NPDES permit reapplication. Copper was not correlated with TSS but weakly correlated to hardness and was inversely correlated with temperature. Copper is also somewhat correlated with Total Sulfate (with a Pearson correlation coefficient of 0.324). Boston Sand & Gravel expects interaction of metals and metal binding agents in the treatment system to potentially impact further metals removal efforts. According to the source analysis testing performed on stormwater from loop

[12] https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals

overflow (highway runoff), lightweight product, pea stone product, and tap water in August 2011, concentrations of copper were found to be 38.8 µg/L, 2.9 µg/L, 3.4 µg/L, and 42.7 µg/L respectively. Recycle water tested at a concentration of 17.6 µg/L in September 2011. Based on this limited set of data, the source of copper in the effluent is expected to be predominantly external based on the relatively high concentrations of copper found in tap water and highway runoff relative to product leachate.

Nine BMPs for the reduction of metals, including copper, were considered by the permittee since the issuance of the current permit (see Table 3). The current permit required the development BMPs as TBELs as there was no reasonable potential to cause or contribute to a violation of MA SWQS at the time. These BMPs are included in attachments to the permit application from 2012. The first eight BMPs have been implemented and are part of a continuous improvement cycle. A plan to seal plumbing leaks and install a fill-stop to prevent overflows of hot water during cold months (BMP #2) was specifically expected to reduce copper concentrations. BMP #9, a plan to install a float switch and timer to increase hold time and improve the efficiency of treatment, has not been implemented to date. Copper concentrations in the DMR monitoring data range from 2.3 µg/L to 153 µg/L and have not markedly decreased over time.

Table 3 – Permittee's Metals Reduction BMPs to Date

BMP Number	Metal Affected	BMP Description	Implementation Date
1	Aluminum	Convert treatment coagulant from polyaluminum chloride to ferric chloride	October 2007
2	Copper	Seal plumbing leaks, install fill-stop to prevent overflows of hot water during cold months	Ongoing
3	All metals	Install variable frequency drives on treatment plant motors to obtain better slow-flow treatment control and improve floc settling	October 2008
4	All metals	Install pump inlet chamber to reduce particulate uptake into the treatment process	August 2010
5	All metals	Hold treatment pH at high end of permit range (8 - 8.5) to improve precipitation of metals	2012
6	All metals	Raise the height of the float set points to lengthen holding time	2012
7	All metals	Increase treatment plant settled solids removal frequency	2012
8	All metals	Schedule treatment for hours when primary settling has been undisturbed	2012
9	All metals	Install float switch and timer to increase hold time and improve efficiency of treatment	automation recommended, will improve control over BMP 8

The reported metals concentrations are expressed as total recoverable fraction in the water column. However, the National Recommended Water Quality Criteria for Copper is expressed as total dissolved fraction in the water column. In order to directly compare the National Recommended Water Quality Criteria for Copper to the measured values in the DMR, the National Recommended Water Quality Criteria must be converted to total recoverable fraction in the water column. Pollutant specific conversion factors are used for converting a metal criterion expressed as the dissolved fraction in the water column to a criterion expressed as the total recoverable fraction in the water column. The equations and constants for determining the water quality criteria for each metal and the conversion factors and equation parameters are listed in EPA's *National Recommended Water Quality Criteria* as published in the Federal Register on December 10, 1998 (63 FR 68354) and updated November 2002 (USEPA 2002).

Review of the DMR data reveals that the receiving water hardness from the DMR data ranged from 37 mg/L to 480 mg/L and the median hardness was 160 mg/L. The total recoverable copper freshwater chronic criterion was calculated as 18.4 µg/L and the total recoverable acute criterion was calculated as 28.8 µg/L using a representative hardness of 160 mg/L and a conversion factor of 0.96[13], as follows:

$$WQC_{metal} = \exp[a * \ln(H) + b]$$

Metal-specific constants *a* and *b* are defined as part of the water quality criterion WQC_{metal} and *H* is the representative hardness. For copper in freshwater systems, the constants *a* and *b* are:

Table 4 – Water Quality Copper Criteria Constants

Copper	*a*	*B*
Chronic Criteria (µg/L)	0.8545	-1.465
Acute Criteria (µg/L)	0.9422	-1.464

The conversion factor of 0.96 converts the dissolved water quality criterion WQC_{metal} to a total recoverable copper limit.

EPA considers the available dilution when determining reasonable potential and water quality based limitations (WQBELs) in a NPDES permit. The low flow of the Unnamed Tributary would afford very little dilution to this discharge. Therefore, EPA is assuming zero dilution for the Unnamed Tributary receiving water for this facility and the daily maximum WQBEL will be set at the acute criterion value. With the non-intermittent discharge of commingled process water and stormwater, the monthly average WQBEL is also set at the chronic criterion value.

The chronic criterion was exceeded 57 times and the acute criterion was exceeded 33 times, and there is reasonable potential for copper to cause or contribute to an excursion of water quality standards. Therefore, monitoring shall be retained at monthly, the monthly average Total Recoverable Copper limit shall be 18 µg/L, and the daily maximum limit shall be 29 µg/L.

[13] Dissolved vs. total recoverable metal calculations based on The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from Dissolved Criterion. USEPA, 1996.

Additionally, the permittee shall review new and existing BMPs that could reduce the amount of Total Recoverable Copper in the effluent as part of the Source Identification and Reduction Plan (See Section 5.3.3).

In establishing a monthly average limit for copper, as well as chromium (VI) and aluminum as described below, EPA considered the frequency and nature of the Outfall 001 discharge and the associated aquatic life exposures. EPA recognizes that storm events varying in intensity and duration can impact the water quality and volume of the discharge at this facility. Acute exposures of the effluent are typically considered for intermittent industrial stormwater discharges, whereas both acute and chronic exposures are considered for continuous discharges. The data recorded in the DMR and EPA's current understanding of water management processes at the facility is insufficient to classify the discharge at this facility as intermittent. Therefore, in this draft permit, EPA has considered the discharge at Outfall 001 to be non-intermittent for the purposes of deriving effluent limitations for copper, chromium (VI), aluminum, and chronic Whole Effluent Toxicity (WET). EPA invites comment on the nature of the discharge in order to better characterize chronic exposures of any toxic pollutants discharged from this facility, including copper, chromium (VI), and aluminum.

5.1.8 Chromium VI

Chromium (VI) is a known human carcinogen[14]. However, a current federal drinking water standard of 100 µg/L only exists for Total Chromium. Total Chromium includes all forms of chromium, including Chromium (VI). The current drinking water standard is based on potential adverse dermatological effects in humans, such as allergic dermatitis, from continued exposure. The criterion equivalent to the drinking water standard is protective against the ingestion of contaminated water and aquatic organisms. The National Recommended Aquatic Life Criteria for Chromium (VI) are expressed as the dissolved fraction in the water column. The chronic Chromium (VI) criterion is 11 µg/L and the acute criterion is 16 µg/L. Since the human health criterion is higher than the aquatic life criteria, the more stringent aquatic life criteria will be used to determine reasonable potential for Chromium (VI) to cause or contribute to a violation of MA SWQS.

According to the source analysis testing performed on stormwater from loop overflow (highway runoff), lightweight product, pea stone product, and tap water in August 2011 as part of the metals study, the concentration of Chromium (VI) was non-detect for all individual source samples. An effluent and a receiving water sample from the 2012 permit re-application revealed a Total Chromium concentration of 136 µg/L and 52 µg/L (with a reporting limit of 5 µg/L).

The low flow of the Unnamed Tributary would afford very little dilution to this discharge. EPA is assuming zero dilution for the Unnamed Tributary receiving water for this facility and the discharge is considered non-intermittent. Therefore, water quality-based effluent limits (WQBELs) are set at criteria values. Review of the DMR data reveals that the Chromium (VI) chronic criterion was exceeded 80 out of 97 times and acute criterion was exceeded 79 out of 97

[14] Agency for Toxic Substances and Disease Control (ATSDR). ToxFAQs for Chromium. February 2001.

times (there were 97 results and two instances of no discharge) and there is reasonable potential for Chromium (VI) in the discharge to cause or contribute to an excursion of MA SWQS.

Therefore, monitoring shall be continued at a monthly frequency, the dissolved Chromium VI limit is established at 11 µg/L for average monthly results, and the daily maximum limit is established at 16 µg/L. Additionally, Total Recoverable Chromium monitoring, as a companion to the dissolved Chromium VI, shall be established at a frequency of once per month to assess the control of all species of this metal.

40 CFR 122.45(c)(3) allows for developing effluent limits for dissolved metals if all the approved methods are for the dissolved fraction instead of the total recoverable metal. Chromium VI (hexavalent chromium) is highlighted as an example of that exception in the regulations. The monthly average and daily maximum effluent limitations are therefore expressed in terms of dissolved Chromium (VI). The permittee shall continue to report dissolved Chromium (VI) to the DMR.

Additionally, the permittee shall review new and existing BMPs that could reduce the amount of Chromium (VI) in the effluent as part of the Source Identification and Reduction Plan (See Section 5.3.3).

5.1.9 Aluminum

Aluminum is present in the discharge due to leaching from pea stone and other product stockpiles. As part of the metals study submitted with the 2012 permit reapplication, the permittee switched the polyaluminum chloride coagulant used in the WWTF to ferric chloride in October 2007 (BMP #1, see Table 3). The low flow of the Unnamed Tributary would afford very little dilution to this discharge. EPA is assuming zero dilution for the Unnamed Tributary receiving water for this facility, and since the discharge is considered non-intermittent, water quality-based effluent limits (WQBELs) would be set at criteria values. Review of the DMR data since 2007 reveals that the daily maximum Total Aluminum concentration, reported monthly has exceeded the acute criterion of 750 µg/L 6 times and the chronic criterion 81 times. Based on the reported data there is reasonable potential to cause or contribute to an excursion of the acute and chronic water quality criteria for Total Aluminum. Therefore, the monthly average limit is established at 87 µg/L and the daily maximum limit at 750 µg/L. The monitoring frequency shall continue at monthly and both the daily maximum and average monthly Total Aluminum value shall be reported.

Additionally, the permittee shall review new and existing BMPs that could reduce the amount of Aluminum in the effluent as part of the Source Identification and Reduction Plan (See Section 5.3.3).

5.1.10 Phosphorus

Phosphorus is an essential nutrient for plant growth but excessive amounts of phosphorus in a water body have the potential to accelerate stream eutrophication, which is characterized by

excessive plant growth, low dissolved oxygen, and large diurnal swings in dissolved oxygen in the waterbody. MA SWQS do not include numeric criteria for phosphorus. The standards include narrative criteria, including, in 314 CMR 4.05(5)(c) that state "Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00". Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non-POTWs, to remove such nutrients to ensure protection of existing and designated uses."

Phosphorus is prevalent in the developed environment and is included in sources such as dust and dirt, organic debris such as pollen and leaf litter, vehicle emissions especially from diesel engines and from both dry and wet weather atmospheric deposition. These sources may be deposited directly on the site or may be carried on from adjacent land areas by wind and traffic. Such sources result in the accumulation of phosphorus on land surfaces where it then becomes available for wash-off during precipitation events as part of stormwater runoff. This is especially true for impervious surfaces that offer little capacity to capture phosphorus through storage or filtering. Consequently, phosphorus from these common sources that are ubiquitous in the built-up environment may result in phosphorus loads being discharged from the impervious surfaces at the Boston Sand & Gravel site.

In the absence of numeric criteria or a TMDL, EPA would interpret the narrative criteria using the procedures found at 40 CFR Part 122.44(d)(1)(vi), including the use of available guidance and other relevant information. For example, the 1986 EPA Gold Book cites that "a desired goal for the prevention of plant nuisances in streams or other flowing waters not discharging directly to lakes or impoundments is 100 µg/L Total Phosphorus" (Mackenthun, 1973).

However, a Phosphorus TMDL for the Lower Charles River Basin was completed in 2007. There is no numerical waste load allocation (WLA) for this facility in the TMDL. However, the TMDL provides a % phosphorus reduction goal of 62% for "other drainage areas", which apply to this facility's drainage area, as a basis for the WLA. The development of a phosphorus control plan (PCP) is required to achieve the WLA of the TMDL.

There are no available phosphorus monitoring data for the facility's effluent to date. Phosphorus impacts from a minor tributary to the Charles River are expected, and therefore the draft permit requires the permittee to develop and implement a PCP. The goal of the PCP would reduce the phosphorus discharges from this site by at least 62% over the term of a permit (see Section 5.3.2 of this fact sheet). The on-site WWTF's phosphorus treatment efficiency, by itself or in combination with other BMPs at the permittee's discretion, may be used to demonstrate that the facility achieves the WLA. The permit shall require monthly monitoring for effluent phosphorus, but additional monitoring of representative influent phosphorus may be necessary to establish a baseline condition and demonstrate the required reduction.

5.1.11 *E. Coli*

Coliform bacteria indicator parameters include total coliforms, fecal coliform, and Escherichia coli (*E. coli*). When coliform bacteria are found to be present in surface water, it may indicate the improper discharge of sewage. For Class B surface waters such as the Unnamed Tributary, the MA SWQS require that the geometric mean of all *E. coli* samples taken within the most recent six months shall not exceed 126 cfu per 100 mL typically based on a minimum of five samples and no single sample shall exceed 235 cfu per 100 mL.

The current permit does not require monitoring for pathogen indicators such as *E. coli*. However, a Pathogen TMDL for the Charles River was completed in 2007 in which stormwater sources of pathogens, such as from this facility, were identified as potential significant contributors of pathogen pollution. During rain events, fecal matter from domestic animals and wildlife is readily transported to surface waters via the stormwater drainage systems and/or overland flow. The natural filtering capacity provided by vegetative cover and soils is dramatically reduced as urbanization occurs because of the increase in impervious areas (i.e., streets, parking lots, etc.) and stream channelization in the watershed[15]. Current recommended pathogen TMDL implementation measures include identification and elimination of prohibited sources such as leaky or improperly connected sanitary sewer flows and best management practices (BMPs) to mitigate stormwater runoff volume.

Therefore, the draft permit requires that the permittee implement a Source Identification and Reduction Plan (SIRP) to identify and minimize the discharge of bacteria through the facility's stormwater system. The mitigation of stormwater runoff volume is addressed in the existing SWPPP. More details of the SIRP may be found in Section 5.3.3 of this fact sheet and Part I.C of the permit. The permit also requires the permittee to sample for *E. coli* on a monthly basis.

5.1.12 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 (314 CMR 4.05(5)(e)) 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:

[15] Final Pathogen TMDL for the Charles River Watershed, January 2007.

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

EPA Region 1 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.

The permittee has conducted annual freshwater acute and chronic WET tests for the daphnid, *Ceriodaphnia dubia*, and fathead minnow, *Pimephales promelas.* The end point measured by the acute test is the LC50 or the concentration that is lethal to 50% of the test organisms. An LC50 value, measured in percent, represents the degree of toxicity on an inverse logarithmic scale. 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.

In order to assure that this limit is met within a short distance of the effluent pipe MassDEP has established an end-of-pipe limit of 1.0 TU (LC_{50} = 100%) for dilution factors less than or equal to 100 (Boston Sand & Gravel's discharge to the Unnamed Tributary offers no dilution, i.e. a dilution factor of 1). However, at dilution factors of less than 10, the Unnamed Tributary is considered water quality limited in that the effluent limit of 1.0 TU may not be stringent enough to protect receiving waters. MassDEP requires both acute and chronic end points to be reported. Two limits apply to the effluent when the dilution factor is less than 10: (1) the chronic WET test should result in a No Observed Effect Concentration greater than or equal to the Receiving Water Concentration (NOEC > RWC) and (2) the acute level should be less than or equal to 1.0 TU (an $LC_{50} \geq 100\%$). Because the dilution factor is 1, this requires NOEC>100%, or a TU of less than or equal to 1.0.

Review of the DMR data reveals that for the daphnid, 6 of 7 valid acute WET results exceed a TU of 1 and all 7 of 7 valid chronic WET results exceed a TU of 1 and the discharge has the reasonable potential to cause or contribute to a violation of MA SWQS. (See Attachment F for the daphnid DMR WET data converted to TUs and more information on the reasonable potential calculation.) WET results for the fathead minnow do not demonstrate a reasonable potential for this species.

Therefore, two limits apply to the effluent: (1) the acute level should be $LC_{50} \geq 100\%$, and (2) the chronic WET test should result in a C-NOEC greater than or equal to the instream Receiving Water Concentration of the discharge (C-NOEC $\geq$ RWC) at critical low flow conditions. The C-NOEC limit is established using the instream waste concentration (IWC) of the effluent. The IWC is the inverse of the dilution factor (DF) and since it is assumed there is no dilution available to the effluent, or a dilution ratio of 1.0, the inverse would also be 1.0, resulting in the 100% limit.

The frequency of WET testing shall be increased to quarterly for the daphnid, *Ceriodaphnia dubia* (once every three months, at the beginning of the quarter, as specified in the footnotes to the effluent limitation table for Outfall 001 in the permit). WET testing requirements have been eliminated for the fathead minnow, *Pimephales promelas*, as the daphnid is the more sensitive species and the recorded WET results have not demonstrated toxicity of the effluent to the fathead minnow.

In order to determine the cause of the toxicity to the daphnid, the facility may conduct a TIE/TRE study (Toxicity Identification Evaluation/Toxicity Reduction Evaluation). More information on how a TIE/TRE study for industrial facilities is conducted can be found online[16]. EPA welcomes comments on the implementation of a TIE/TRE study and a compliance schedule during the public comment period.

5.1.13 Other Pollutants of Potential Concern

5.1.13.1 Iron

Sector E of the MSGP for SIC Code 3273 (Glass Clay, Cement, Concrete, and Gypsum Products) contains a benchmark monitoring cutoff concentration of 1.0 mg/L for Total Recoverable Iron. Previous monitoring for iron has consistently been below this benchmark monitoring concentration (an effluent sample from the 2012 permit application of 0.34 mg/L and three samples from the former permit fact sheet ranging from 0.28-0.31 mg/L). However, if future monitoring required in the permit re-application shows that this benchmark monitoring cutoff concentration is exceeded, the facility may be required to sample for iron, and/or develop BMPs, pursuant to the SWPPP, to reduce the level of iron in the discharge from the facility. The draft permit does not require monitoring for iron at this time.

5.1.13.2 Chlorine

Effluent sampling for the 2012 permit reapplication for Total Residual Chlorine (TRC) resulted in two non-detect readings, with a reporting limit of 20 µg/L. Out of eight (8) effluent water quality analyses conducted as part of the permittee's annual WET tests, seven of these were non-detect for TRC and one was recorded at 240 µg/L for September 2011. The current applicable aquatic life acute criterion for Total Residual Chlorine is 19 µg/L and the chronic criterion is 11 µg/L. The 240 µg/L measurement is not representative of the effluent and no limit is needed at this time. A monitoring requirement for Total Residual Chlorine will be included in the quarterly analytical chemistry testing performed with the WET tests.

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16 http://nepis.epa.gov/Exe/ZyNET.exe/30000H2L.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1986+Thru+1990&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%5C86thru90%5CTxt%5C00000002%5C30000H2L.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&ZyPURL

5.2 Internal Outfall 002

5.2.1 Oil & Grease

A monitoring and reporting requirement for Oil & Grease was previously included for an internal outfall representative of boiler blowdown water. Potential Oil & Grease limits were also previously considered based on a BPJ analysis using the Steam Electric Power Generating Effluent Guidelines. The boiler at the facility is run on natural gas. Due to a recommendation from MassDEP, starting in 2012 the permittee sampled for Oil & Grease at the same location as Outfall 001 in Lagoon 9. The BPJ analysis is not considered appropriate based on the single natural gas-powered boiler at the facility resulting in a minimal wastestream of boiler blowdown. The 2015 Steam Electric Power Generating Effluent Point Source Category: Final Detailed Study Report[17] notes the following about minimal wastewater streams (wastewater streams including boiler blowdown water) at facilities such as Boston Sand & Gravel:

> "The information collected during the detailed study [for non-power generating facilities in developing the 2015 Steam Electric Power Generating Guidelines] indicates that most industrial plants commingle the wastewaters associated with the electric generating units with the other plant process wastewaters. Because the wastewaters are commingled, they may be treated in the plant's wastewater treatment system. These commingled wastewaters typically have permit limits based on the industry-specific effluent guidelines; the Steam Electric Power Generating effluent guidelines limits are typically not used to set BPJ-based limits."

Therefore, EPA determined that it is appropriate to establish and Oil & Grease limit at Outfall 001.

5.2.2 Removal of the Internal Outfall

Internal Outfall 002 has been removed from the permit. Due to the removal of monitoring requirements at the internal outfall, reporting at this outfall is no longer 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

[17] https://www.epa.gov/sites/production/files/2015-06/documents/steam-electric_detailed_study_report_2009.pdf

waters of the United States, potentially violating MA SQWS, the draft permit requires the facility to develop, 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 a material storage operation, cement and aggregate processing is an example of a processing operation, and transporting of stone and cement materials throughout the site, as well as fueling, are examples 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 drainage system. The SWPPP requirements in the draft 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 numeric effluent limitations in the draft permit. Consequently, the SWPPP is as equally enforceable as the numeric limits.

Implementation of the SWPPP 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 the potential stormwater pollution sources;

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

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.

5) Development and implementation of site specific BMPs, including BMPs consistent with the sector specific BMPs in Sector E (Glass, Clay, Cement, Concrete, and Gypsum Products) of the MSGP.

5.3.2 Phosphorus Control Plan

On October 17, 2007, EPA approved the Final TMDL for Nutrients in the Lower Charles River Basin (Lower Charles TMDL). The following phosphorus reduction requirements are consistent with the percentage load phosphorus reductions for stormwater drainages systems within the lower Charles River watershed. To address the discharge of phosphorus from this facility and consistent with the TMDL requirements, the permittee shall develop a Phosphorus Control Plan

(PCP) designed to reduce the amount of phosphorus in stormwater discharges in terms of average annual load from its storm drainage system to the Charles River via the Unnamed Tributary. The PCP shall be completed in phases as detailed in the permit. The PCP shall be developed and fully implemented during the permit term to meet the 62% phosphorus load reduction WLA set forth in the TMDL for stormwater discharges that ultimately drain to the lower Charles River. The permittee is required to develop and implement the following site-specific PCP (see also permit Part I.C.).

5.3.3 Source Identification and Reduction Plan

Metals

Site-specific BMPs to address metals loading to the receiving water as part of a Source Identification and Reduction Plan (SIRP), in addition to numeric effluent limitations discussed in Section 5.1.7 through Section 5.1.9, are required in this permit. The permittee shall continue to develop and implement the study to determine the source of metals, including aluminum, chromium (VI) and copper, and continue to develop and implement subsequent treatment methods and/or stormwater BMPs to reduce the level of metals in the discharge. The permittee may build on the existing metals BMP study that was submitted as part of the 2012 permit reapplication.

Pathogens

Immediate effects of pathogen contamination to the Charles River from stormwater sources discharging to its tributaries (like this facility) are expected. Therefore, in addition to monthly monitoring for *E. Coli*, the implementation of BMPs are required as part of the SIRP for this permit. Examples of methods for identifying and eliminating illicit sewer connections in a facility's drainage system and pathogen reduction tracking are available in BWSC annual reports required as part of MS4 NPDES permit no. MAS010001.

5.4 Compliance Schedules

EPA recognizes that the permittee may not be able to meet the numeric chromium (VI), copper, aluminum, and acute and chronic WET effluent limits 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 these new effluent limitations. Also, the MA SWQS at 314 CMR 4.03(1)(b) authorize the use of compliance schedules in NPDES permits and may include interim effluent limits. EPA invites comment on a reasonable compliance schedule, and the means for specifying a compliance schedule through an Administrative Order or in the final permit.

6.0 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.

7.0 OTHER LEGAL REQUIREMENTS

7.1 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NOAA Fisheries) if EPA's action or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat such as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adverse impact means any impact which reduces the quality and/or quantity of EFH (50 CFR § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

In this case, the federal action being considered is the renewal of the NPDES permit for the Boston Sand and Gravel facility (BS&G), which ultimately discharges to the Charles River.

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b) (1) (A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. For this federal action, a summary of EFH designations identified from inner Boston Harbor near the mouth of the Charles River was consulted. This area of Boston Harbor is the habitat for 21 EFH species. The list of the species, including the applicable lifestage(s) present for each species, was taken from the NOAA Habitat Conservation EFH Mapper Website: http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html. The list is included as Attachment G in this fact sheet.

A review of the 21 species revealed that the life stages of concern are present in the seawater salinity zone (salinity > 25.0 parts per thousand) or the mixing water /brackish salinity zone (0.5 < salinity < 25.0 parts per thousand) only. No life stage is identified as inhabiting the tidal freshwater salinity zone. The freshwater of the Charles River does not experience appreciable mixing with the saline Boston Harbor water, due to the location and operation of the New Charles River Dam and Locks at the mouth of the river. This dam highly regulates the river level and flow of the Charles River, resulting in the river possessing the characteristics of a freshwater salinity zone. Therefore, no EFH species are expected to inhabit the Charles River in the vicinity of the BS&G discharge.

This determination is further supported by data collected as part of a four year adult and juvenile fish sampling program and an extensive ichthyoplankton collection program in the Charles River (Mirant Kendall Generating Station NPDES Monitoring Reports; 1999, 2000, 2002 and 2003). During this study, none of the 21 species listed in Attachment G were collected in the Charles River.

Based on the freshwater characteristic of the receiving water and the absence of any of the species listed in Attachment G, EPA has determined that the outfall from BS&G does not have the potential to come in contact with or directly affect the EFH species of concern.

However, EPA recognizes that the outfall has the potential to indirectly cause adverse effects to EFH species in Boston Harbor or Massachusetts Bay. The BS&G outfall is discharged to an Unnamed Tributary (known locally as “Millers River”). The mouth of this tributary meets the Charles River on the Cambridge side of the river, approximately one-third of a mile upstream of the New Charles River Dam and Locks. Anadromous species that enter the Charles River and move past the mouth of Miller’s River to spawn upstream have the potential to encounter the diluted discharge from the outfall. These species - blueback herring and alewife - while not identified as EFH species, may be selected as prey by EFH species. If these prey species are affected by the BS&G outfall, this has the potential to indirectly affect EFH species through loss of prey.

Based on the available information, EPA has determined that the limitations and conditions in the draft permit will minimize any indirect 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 facility withdraws no water from the Charles River or the Unnamed Tributary, so no life stages of EFH prey species are vulnerable to impingement or entrainment from this facility;
- The draft permit contains water quality-based numeric limits for pH, total suspended solids, oil & grease, copper, aluminum, chromium (VI), and turbidity;
- The draft permit prohibits the discharge of pollutants or combinations of pollutants in toxic amounts; and
- Acute and chronic toxicity testing for *Ceriodaphnia dubia* has been increased to four times per year from annually and acute and chronic WET limits have been established;
- The effluent limitations and conditions in the draft permit were developed to be protective of all aquatic life, including anadromous prey species of EFH species; and
- The draft permit prohibits violations of the state water quality standards.

EPA believes that the conditions and limitations contained within the draft permit adequately protect all aquatic life, including the ichthyoplankton and fish preyed upon by EFH species, and that further mitigation is not warranted. Should adverse impacts to EFH be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NMFS will be contacted and an EFH consultation will be initiated.

7.2 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.

In this case, the federal action being considered is the renewal of the NPDES permit for the Boston Sand and Gravel facility (BS&G), which ultimately discharges to the Charles River.

EPA does not consider the area influenced by the facility's discharge (the action area) to be suitable habitat for the protected species listed for Massachusetts Bay and Boston Harbor. Based on the normal distribution of these species, it is extremely unlikely that there would be any NMFS listed species in the vicinity of the area influenced by the BS&G outfall. EPA has made the determination that no protected species are present in the area influenced by the discharge.

Therefore, EPA has made the assessment that consultation is not required for these protected species under Section 7 of the ESA.

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

7.3 State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection (MassDEP) either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards or it is deemed that the state has waived its right to such certification. Regulations governing state certification are set forth in 40 CFR §124.53 and §124.55. EPA has requested permit certification by the State pursuant to 40 CFR §124.53 and expects that the draft permit will be certified.

7.4 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, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held 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 after any public hearings, if such hearings are held, the EPA will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a petition for review of the permit to EPA’s Environmental Appeals Board consistent with 40 CFR §124.19 and/or submit a request for an adjudicatory hearing to MassDEP’s Office of Appeals and Dispute Resolution consistent with 310 CMR 1.00.

8.0 EPA AND MASS DEP 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

Cathy Vakalopoulos
Massachusetts Department of Environmental Protection
Bureau of Water Resources
1 Winter Street
Boston, Massachusetts 02108
catherine.vakalopoulos@state.ma.us
Telephone: (617) 348-4026
Fax: (617) 292-5696

July 25, 2017
_____
Date

Arthur Johnson III, Acting Director
Office of Ecosystem Protection
US Environmental Protection Agency

Attachment A: Site Map

Boston Sand & Gravel Charlestown facility

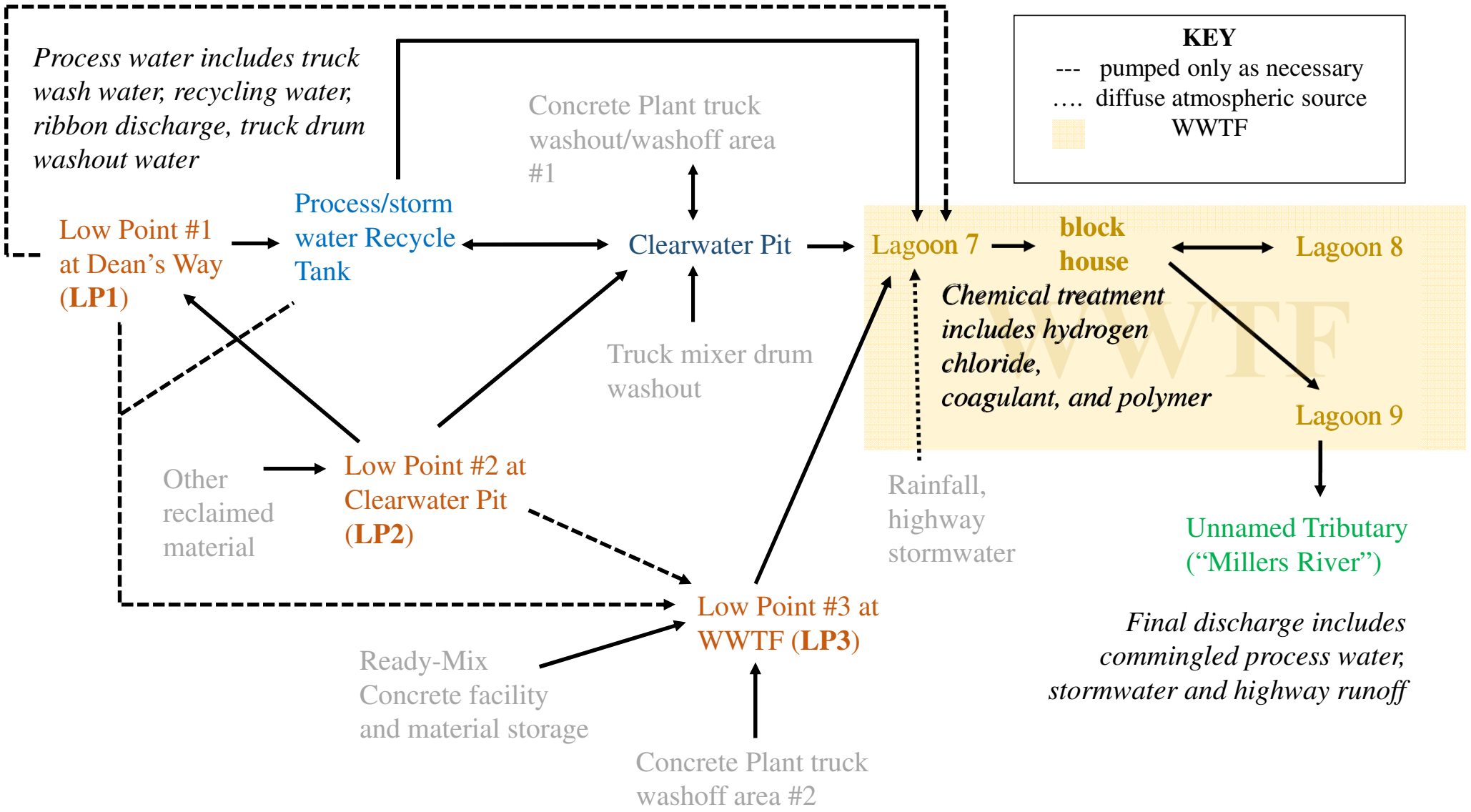
May 6, 2016

1:4,514

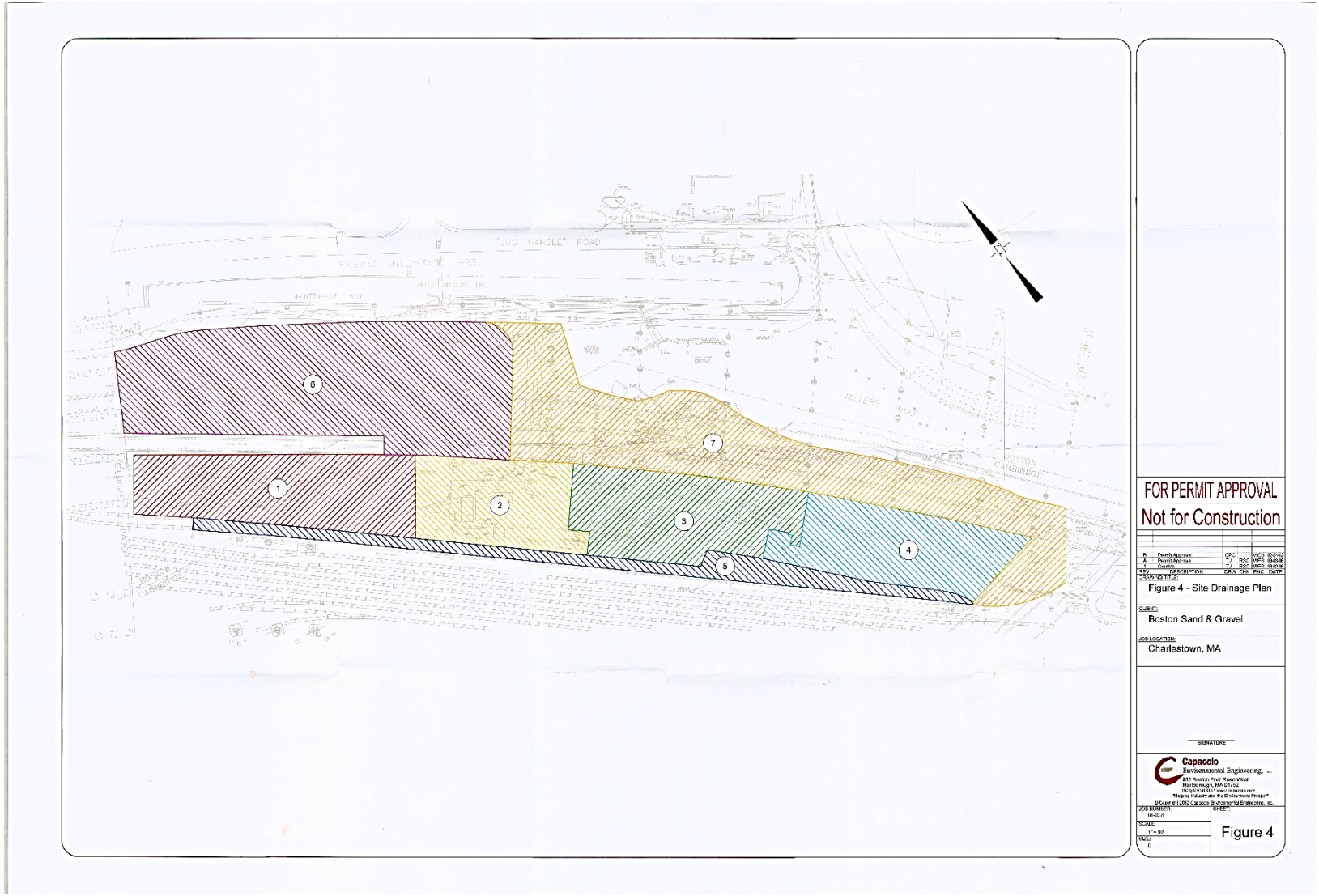
0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Attachment B: Facility Process Diagram



Attachment C: Facility SWPPP Drainage Areas



Attachment D: Facility Product Safety Data Sheet Summary

Product	MSDS Date	CAS No.	Ingredient Name	%	SG/Density	lb/gal
			Liquid Admix			
MasterAir AE 200 (Micro Air)	1/22/2016				1.01 g/cm3	8.43
		68439-57-6	Sulfonic acids, C14-16-alkaline hydroxy and C14-16-alkene, sodium salts	>=1.0 - <3.0 %		
		1310-58-3	Potassium hydroxide	>=0.0 - <5.0%		
		8050-09-7	Rosin	>=0.0 - <1.0%		
MasterGlenium 7500 (Glenium 7500)	1/8/2016				1.05 g/cm3	8.76
		64-19-7	Acetic acid	1.0 - 7.0 %		
		9014-85-1	Poly(oxy-1,2-ethanediyl), .alpha.,.alpha.'-[1,4-dimethyl-1,4-bis(2-methylpropyl)-2-butyne-1,4-diyl]bis[.omega.-hydroxy-	>= 0.3 - < 3.0%		
		126-71-6	triisobutyl phosphate	>= 0.1 - < 0.2%		
MasterLife CI 30 (Rheocrete CNI 30)	6/1/2015				1.29 g/cm3	10.76
		10124-37-5	Calcium nitrate	>= 1.0 - <= 7.0 %		
MasterLife SRA 20 (Master Life)	1/20/2015				1.01 g/cm3	8.43
MasterPolyheed 1025 (Polyheed 1025)	1/11/2016				1.065 g/cm3	8.89
		64-19-7	Acetic acid	5.0 - 10.0 %		
		140-07-8	Ethanol, 2,2',2",2'"-(1,2-ethanediyldinitrilo)tetrakis-	>= 1.0 - < 7.0%		
		126-71-6	triisobutyl phosphate	>= 1.0 - < 3.0%		
		112-18-5	dodecyldimethylamine	>= 0.1 - < 0.3%		
		2634-33-5	1,2-benzisothiazol-3(2H)-one	>= 0.0 - < 0.1%		
MasterPozzolith 700 (Pozzilith 700)	5/14/2015				1.1136 g/cm3	9.46
		102-71-6	2,2',2"-nitrilotriethanol	>= 3.0 - <= 5.0 %		
		15733-22-9	Phenol, 4-chloro-3-methyl-, sodium salt	>= 0.2 - < 1.0 %		
		111-42-2	2,2'-iminodiethanol	>= 0.0 - < 1.0 %		
MasterSet AC 122 (Pozzolith 122HE)	5/27/2015				1.301 -	10.85

		10043-52-4	Calcium chloride	>= 5.0 - <= 15.0 %	1.36 g/cm3	11.35
		7789-41-5	Calcium bromide (CaBr2)	>= 0.3 - < 1.0%		
		111-42-2	2,2'-iminodiethanol	>= 0.0 - < 0.2%		
MasterSet AC 534 (Pozzolith NC 534)	4/9/2015				1.399 g/cm3	11.67
		10124-37-5	Calcium nitrate	>= 25.0 - < 75.0 %		
		540-72-7	Sodium thiocyanate	>= 5.0 - < 15.0 %		
		102-71-6	2,2',2"-nitrilotriethanol	>= 0.0 - < 3.0 %		
		111-42-2	2,2'-iminodiethanol	>= 0.0 - < 0.3 %		
MasterSet FP 20 (Pozzutec 20+)	6/8/2016				1.35 g/cm3	11.26
		10124-37-5	Calcium nitrate	>= 0.0 - <= 75.0 %		
		540-72-7	Sodium thiocyanate	>= 0.0 - <= 7.0 %		
		5395-50-6	tetramethylolacethylenediurea	>= 0.0 - < 3.0%		
		50-00-0	Formaldehyde	>= 0.0 - < 0.2%		
MasterSet Delvo (Delvo Stabilizer)	1/21/2016				1.061 -	8.85
					1.075 g/cm3	8.97
		6419-19-8	Phosphonic acid, [nitrilotris(methylene)]tris-	>= 5.0 - < 15.0%		
		1310-73-2	Sodium Hydroxide	>= 0.3 - < 3.0%		
		13598-36-2	Phosphonic acid	>= 0.0 - < 1.0%		
		59-50-7	4-chloro-3-methyl phenol	>= 0.0 - < 0.2%		
MasterSet R 100 (Pozzolith 100 XR)	3/18/2015				1.15	9.59
MasterSure Z60 (RheoTec Z 60)	8/4/2015				1.043	8.7
			Dry Powders			
CEMENT - Lafarge Portland I/II	4/23/2015	65997-15-1	Portland Cement			
		12168-85-3	Tri-calcium silicate (20-70)			
		10034-77-2	Di-calcium silicate (10-60)		3.15	
		12068-35-8	Tetra-calcium- alumino-ferrrite (5-15)			
			Calcium sulfate (2-10)			
		12042-78-3	Tri-calcium Aluminate (1-15)			

		1309-48-4	Magnesium oxide (0-4)			
		14808-60-7	Crystalline Silica (Quartz) * (0-1%)			
		18540-29-9	Hexavalent Chromium (measured as chromic acid and chromates)			
WHITE CEMENT - Lehigh	5/21/2015	65997-15-1	Portland Cement	100%	2.3 - 3.1	
CEMENT - LAFARGE BLENDED - SILICA FUME	4/21/2015				3 - 3.2	
FLY ASH - Headwaters	5/18/2015		Aluminosilicate Glass Contains Al, Si, Fe, Ca, Mg, Ti			
			Crystalline Silica		2.2 - 2.8	
			Calcium Oxide CaO			
			Iron Mineral Dusts Fe2O3, Fe3O4			
SLAG - Lafarge	4/14/2015	65996-69-2	Granulated blast-furnace slag			
		7631-86-9	Amorphous silica		2 - 3	
			Crystalline Silica (Quartz)			
			Wastewater Treatment Chemicals			
Hydrochloric Acid		7647-01-0	Hydrogen chloride	30 - 40 %	1.2	10
Aries 2093		7705-08-0	Ferric chloride solution	92 - 94 %	1.34 - 1.36	11.3
Coagulant		7647-01-0	Hydrochloric acid	<1 %		
Aries 3610		064742-47-8	Petroleum dustillate hydrotreated light	22 - 25 %		
Flocculant		631-61-8	Ammonium acetate	2 - 10 %	1.03 - 1.06	8.7
		69011-36-5	Poly(oxy-1,2-ethanediyl), .alpha.-tridecyl-.omega.-hydroxy-, branched	<3 %		
			Other			
Gasoline -		86290-81-5	Gasoline			
10% Ethanol		71-43-2	Benzene			
		100-41-4	Ethyl benzene			
		91-20-3	Naphthalene			
		64-17-5	Ethanol			
		1634-04-4	Methyl tert-butyl ether (MTBE)			
		994-05-8	Tertiary amyl methyl ether (TAME)			
		637-92-3	Ethyl tert-butyl ether (ETBE)			
Diesel Fuel -		68476-34-6	Diesel Fuel			

Low Sulfur		Nonane, all isomers Mixture
	25551-13-7	Trimethylbenzenes, all isomers
	91-20-3	Naphthalene
	98-82-8	Cumene
	100-41-4	Ethylbenzene

Attachment E - DMR Summary

NPDES Permit Fact Sheet Table
Search Criteria: Monitoring Period Range: 01/01/2007 to 03/31/2016 and NPDES Permit ID: MA0000531

Outfall - Monitoring Location - Limit Set: 001A

	Aluminum, total (as Al)	Chromium, hexavalent (as Cr)	Copper, total (as Cu)	Flow, in conduit or thru treatment plant		Hardness, total (as CaCO3)	Solids, total suspended	
	Mon, ug/L	Mon, ug/L	Mon, ug/L	Mon, gal/d	Mon, gal/d	Mon, mg/L	20, mg/L	45, mg/L
Monitoring Period End Date	DAILY MX	DAILY MX	DAILY MX	DAILY MX	MO AVG	DAILY MX	MO AVG	DAILY MX
10/31/2007	2490	38	4.4	41900	5400	190	2	9.9
11/30/2007	277	56	9.8	32600	2700	860	0	0
12/31/2007	410	125	47	46100	2700	960	3.2	6.3
1/31/2008	556	28	14	21000	3200	330	3.3	13
2/29/2008	238	19	28.2	80700	10400	140	9.7	29
3/31/2008	2.39	19	7.2	78500	4800	150	9.3	16
4/30/2008	111	55	1103	12000	700	360	0	0
5/31/2008	99	26	4.7	31100	3100	120	0	0
6/30/2008	750	83	8.1	50900	4900	1200	5.9	6.8
7/31/2008	150	97	10.4	81100	8100	700	2.3	9
8/31/2008	376	150	8.7	126000	9000	470	4.6	8.8
9/30/2008	284	93	4	136300	10300	200	2.7	5.3
10/31/2008	172	173	4.8	29100	3000	810	0	0
11/30/2008	110	84	55.5	38200	7000	530	4	20
12/31/2008	93	45	11.6	89700	9500	230	3.8	15
1/31/2009	54	0	45.8	36900	5000	1500	9.4	20
2/28/2009	2800	0	27.8	42100	3300	1800	2.6	5.1
3/31/2009	654	47	20.8	20200	1800	290	3.9	7.8
4/30/2009	249	55	21	101000	9800	360	2.4	7.3
5/31/2009	159	23	16	40600	3400	170	5.5	11
6/30/2009	498	75	38.1	31800	5000	330	2.5	7.4
7/31/2009	172	37	9.3	68400	11200	450	0	0
8/31/2009	66	67	11	63500	5500	770	2	6
9/30/2009	96	21	6	124000	8200	140	2.5	7.4
10/31/2009	109	0	10.9	40800	6900	450	3.7	7.7
11/30/2009	98	0	75	37800	3500	730	0	0
12/31/2009	0	0	153	78800	8300	840	0	0
1/31/2010	176	99	16.2	31600	4400	850	5	10
2/28/2010	194	140	15	86800	8000	1300	3.7	7.4
3/31/2010	289	0	11.6	280000	27700	430	1.7	5
4/30/2010	934	56	24.9	29500	3100	750	0	0
5/31/2010	273	0	8.5	44300	4200	260	2.8	5.6
6/30/2010	80	71	15.4	64800	6500	820	0	0
7/31/2010	657	78	12.3	84400	6100	440	12.7	28
8/31/2010	308	0	67	50300	7900	410	2.5	7.6
9/30/2010	779	112	13.3	16600	2200	430	10	10
10/31/2010	128	100	10.7	42100	7200	520	2	8
11/30/2010	106	0	46.6	25600	4700	520	2	5.9
12/31/2010	167	174	14.4	48200	2800	970	0	0
1/31/2011	201	143	27.5	29800	2200	450	12	17
2/28/2011	1050	75	18.9	36900	3300	550	20	21
3/31/2011	126	148	8.9	23500	2600	300	6.5	13
4/30/2011	461	179	16.7	38000	5100	260	4.7	7.8
5/31/2011	195	295	16.2	27800	3900	420	3.7	11
6/30/2011	46	247	30.3	53800	6900	1200	3.6	5.6
7/31/2011	376	0	18.8	15800	1500	260	0	0

8/31/2011	161	165	21	158800	15500	460	2.3	5.1
9/30/2011	394	56	2.3	73200	9900	190	0	0
10/31/2011	72	229	22.3	81500	10700	650	1.4	5.7
11/30/2011	176	243	12.8	37000	9960	270	2.2	6.6
12/31/2011	230	215	21.2	55400	6200	450	0	0
1/31/2012	389	223	76.1	34000	3800	350	6.5	13
2/29/2012	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
3/31/2012	0	0	9.7	27400	2200	1300	15.5	18
4/30/2012	232	236	5.03	41200	4100	610	6.6	11
5/31/2012	108	0	5.4	20500	5200	320	3.9	6.3
6/30/2012	65	180	21.1	56000	8600	480	1.6	6.4
7/31/2012	131	12.9	19.4	25800	3700	460	8.3	8.3
8/31/2012	355	183	21.6	17600	1800	350	6.7	8.3
9/30/2012	496	114	13.4	25400	3100	310	6.6	6.9
10/31/2012	360	161	22.5	43400	5700	350	0	0
11/30/2012	23	215	38.3	15200	1800	480	0	0
12/31/2012	131	259	55.6	39700	6050	131	2.9	5.7
1/31/2013	138	167	40.4	23100	2750	450	0	0
2/28/2013	271	134	24.8	37600	9900	370	10.2	17
3/31/2013	349	165	57.1	23100	4900	600	8.5	19
4/30/2013	260	225	134	15200	2000	470	5	10
5/31/2013	57.9	116	121.6	25000	5400	540	0	0
6/30/2013	309	239	46.45	84800	16500	520	0	0
7/31/2013	360	41	23.31	42400	6300	290	3.2	6.3
8/31/2013	220	168	36.65	38300	5300	510	2.8	5.5
9/30/2013	198	65	18.35	28300	3600	350	0	0
10/31/2013	47.6	51	22.5	9.04	530	550	0	0
11/30/2013	20	0	68.01	32700	4150	1500	9.2	12
12/31/2013	802	265	94.31	74200	8500	570	21	48
1/31/2014	269	233	40.95	71400	7080	530	7.6	7.6
2/28/2014	296	149	68.95	43000	5250	400	0	0
3/31/2014	216	164	43.38	23600	1740	460	0	0
4/30/2014	141	215	49.95	27800	5190	27	2.9	5.7
5/31/2014	242	238	42.12	28300	6390	390	2.3	7
6/30/2014	135	0	26	28900	7270	920	0	0
7/31/2014	212	259	56.37	39500	8500	370	0	0
8/31/2014	327	294	68.09	31700	2440	540	0	0
9/30/2014	228	257	28.96	17900	2230	360	12	12
10/31/2014	383	105	49.1	40600	9800	340	3.5	5.4
11/30/2014	168	201	13.24	26000	5140	350	0	0
12/31/2014	194	153	24.1	108000	12300	66	0	0
1/31/2015	133	92	78.5	14900	1200	1100	0	0
2/28/2015	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
3/31/2015	64	294	36.5	48400	7200	1100	12	13
4/30/2015	87	0	52	18500	2900	1100	0	0
5/31/2015	140	56	20.6	23100	2040	1000	0	0
6/30/2015	0	84	11	38600	4980	1900	0	0
7/31/2015	198	0	18.1	15900	1200	600	0	0
8/31/2015	249	79	24.4	20600	2200	410	0	0
9/30/2015	100	0	13	43600	3800	580	0	0
10/31/2015	732	79	26.25	24600	2300	320	0	0
11/30/2015	117	348	35.04	20000	2400	900	4.3	8.5
12/31/2015	487	132	27.3	27100	1900	660	0	0
Min	0	0	2.3	9.04	530	27	0	0
Max	2800	348	1103	280000	27700	1900	21	48
Average	300	112	41.8	47110	5573	562	3.58	6.8

	Sulfate, total (as SO4)		Turbidity		pH	
	250, mg/L	Mon, mg/L	25, NTU	Mon, NTU	6, SU	8.5, SU
Monitoring Period End D	MO AVG	DAILY MX	MO AVG	DAILY MX	MINIMUM	MAXIMUM
10/31/2007	39	39	3.6	6.6	7.2	8.3
11/30/2007	120	120	1.1	1.1	7.5	7.5
12/31/2007	100	100	2.2	2.5	6.4	7.6
1/31/2008	71	71	3.1	7.5	7.6	7.6
2/29/2008	25	25	12.4	35	7	7.2
3/31/2008	41	41	6.4	12	7	7
4/30/2008	80	80	1.3	1.3	7.5	7.5
5/31/2008	34	34	1.3	1.3	7.3	7.3
6/30/2008	31	31	0.86	0.96	7.3	7.3
7/31/2008	84	84	2.4	5.2	7.2	7.2
8/31/2008	67	67	2.1	2.7	6.5	6.5
9/30/2008	71	71	1.2	1.5	6.8	6.8
10/31/2008	120	120	1.6	1.6	7.1	7.1
11/30/2008	140	140	4.6	18	6.6	6.6
12/31/2008	34	34	2.8	7.3	7.2	7.2
1/31/2009	200	200	5.3	11	7.1	7.1
2/28/2009	170	170	1.4	1.4	6.6	6.6
3/31/2009	49	49	2.4	2.6	7.2	7.2
4/30/2009	48	48	1.8	2.5	7.2	7.2
5/31/2009	37	37	8	14	6.5	6.5
6/30/2009	260	260	3.7	7	7.3	7.3
7/31/2009	67	67	1.1	1.6	7.8	7.8
8/31/2009	55	55	1.6	2	6.9	6.9
9/30/2009	34	34	0.79	1	7.7	7.7
10/31/2009	120	120	1.5	2	7	7
11/30/2009	130	130	0.62	0.92	7.9	7.9
12/31/2009	120	120	2.4	4.3	7.3	7.3
1/31/2010	72	72	1.9	2.1	7.9	7.9
2/28/2010	130	130	2.4	3	8.2	8.2
3/31/2010	23	23	1.5	2.8	7.8	7.8
4/30/2010	170	170	1.4	2	6.4	6.4
5/31/2010	73	73	3.2	4.7	7.7	7.7
6/30/2010	170	170	1.2	2	7.7	7.7
7/31/2010	75	75	4.1	9.7	7.8	7.8
8/31/2010	59	59	3.8	8	7.1	7.1
9/30/2010	120	120	4.4	4.5	7.3	7.3
10/31/2010	58	58	2.9	7	7.3	7.3
11/30/2010	130	130	1	1.4	7	7
12/31/2010	59	59	1.3	2.2	6.5	6.5
1/31/2011	89	89	13	24	7	7
2/28/2011	97	97	21	25	6.9	6.9
3/31/2011	45	45	7.7	14	6.5	6.5
4/30/2011	67	67	3.2	4.9	6.2	6.2
5/31/2011	89	89	1.1	1.9	6.2	6.2
6/30/2011	160	160	1.4	2.4	7.4	7.4
7/31/2011	51	51	1	1	6.5	6.5
8/31/2011	100	100	4.1	9.1	7	7
9/30/2011	21	21	0.95	1.5	8	8
10/31/2011	45	45	1	1.8	7.5	7.5
11/30/2011	38	38	3.8	6.3	6.8	6.8
12/31/2011	40	40	0.9	1.4	7.6	7.6
1/31/2012	29	29	3	4.8	8.4	8.4
2/29/2012	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
3/31/2012	180	180	8.8	16	7.9	7.9
4/30/2012	130	130	3	4.8	7.2	7.2
5/31/2012	78	78	3.5	5.5	7.9	7.9

6/30/2012	72	72	2.1	3.4	7	7
7/31/2012	46	46	3.5	5.5	7.2	7.2
8/31/2012	77	77	4.5	5.7	7.8	7.8
9/30/2012	60	60	4.3	5.3	8.2	8.2
10/31/2012	54	54	2.4	2.5	7.5	7.5
11/30/2012	40	40	11.2	2.2	7	7
12/31/2012	29	29	1.8	2	6.9	6.9
1/31/2013	22	22	1.7	1.7	8.4	8.4
2/28/2013	27	27	1.6	2.8	6.9	6.9
3/31/2013	49	49	2.5	3.2	7.3	7.3
4/30/2013	62	62	1	1.1	8.1	8.1
5/31/2013	26	26	0.93	0.93	7.6	7.6
6/30/2013	28	28	2.4	3.3	7.1	7.1
7/31/2013	41	41	1.7	2.7	7.1	7.1
8/31/2013	76	76	0.86	1.1	7.3	7.3
9/30/2013	32	32	0.91	1.3	7.1	7.1
10/31/2013	58	58	0.47	0.47	7.5	7.5
11/30/2013	54	54	1.4	2.2	7.5	7.5
12/31/2013	18	18	2.6	3.5	7.9	7.9
1/31/2014	27	27	2.3	2.3	8.1	8.1
2/28/2014	26	26	3.7	3.7	8	8
3/31/2014	16	16	1.9	1.9	7.8	7.8
4/30/2014	24	24	0.92	1.3	7	7
5/31/2014	19	19	2.3	3.4	8.3	8.3
6/30/2014	31	31	1.4	1.9	7.6	7.6
7/31/2014	130	130	1.2	1.6	7.3	7.3
8/31/2014	71	71	2.6	4.3	8.2	8.2
9/30/2014	90	90	3.5	3.5	6.9	6.9
10/31/2014	28	28	2.3	3	7	7
11/30/2014	36	36	0.93	2	7	7
12/31/2014	46	46	1.2	1.8	6.9	6.9
1/31/2015	17	17	0.84	0.84	7.8	7.8
2/28/2015	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
3/31/2015	44	44	1.5	1.7	8.2	8.2
4/30/2015	16	16	1.9	3.1	8.4	8.4
5/31/2015	56	56	1	1.1	6.8	6.8
6/30/2015	60	60	5.5	7.6	7.4	7.4
7/31/2015	41	41	4.8	4.8	6.8	6.8
8/31/2015	54	54	3	4.3	7	7
9/30/2015	23	23	1	1	7.2	7.2
10/31/2015	30	30	2.2	3.1	7.8	7.8
11/30/2015	92	92	1.7	1.8	7.8	7.8
12/31/2015	18	18	4.5	4.5	8.2	8.2
Minimum	16	16	0.47	0.47	6.2	6.2
Maximum	260	260	21	35	8.4	8.4
Average	68	68	3	5	7	7

Outfall - Monitoring Location - Limit Set: 001T

Monitoring Period End Date	Alkalinity, total (as CaCO3) Mon, mg/L DAILY MX	Aluminum, total (as Al) Mon, mg/L DAILY MX	Ammonia (as N) + unionized ammonia Mon, mg/L DAILY MX	Cadmium, total (as Cd) Mon, mg/L DAILY MX	Calcium, total (as Ca) Mon, mg/L DAILY MX	Carbon, tot organic (TOC) Mon, mg/L DAILY MX	Chlorine, total residual Mon, mg/L DAILY MX	Chromium, total (as Cr) Mon, mg/L DAILY MX
12/31/2007	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9
9/30/2008	33	0.41	0.638	0	380	33	0	0.09
9/30/2009	25	0.11	0.914	0	210	10	0	0.1952
9/30/2010	26	0	0.761	0	340	7.3	0	0.0439
9/30/2011	36	0.128	0.467	0	210	7.7	0.24	0.0975
9/30/2012	25	0.176	0	0	110	10	0	0.1362
9/30/2013	37.5	0.0476	1.08	0	220	4.18	0	0.1346
9/30/2014	40.1	0.168	0.099	0	140	6	0	0.1217
9/30/2015	58	0	2.06	0	730	8.86	0	0.0216
Minimum	25	0	0	0	110	4.18	0	0.0216
Maximum	58	0.41	2.06	0	730	33	0.24	0.1952
Average	35	0.130	0.752	0	293	11	0.03	0.1051

Monitoring Period End Date	Copper, total (as Cu) Mon, mg/L DAILY MX	Hardness, total (as CaCO3) Mon, mg/L DAILY MX	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 DAILY MX	Magnesium, total (as Mg) Mon, mg/L DAILY MX	Nickel, total (as Ni) Mon, mg/L DAILY MX	Noel Static 7Day Chronic Ceriodaphnia Mon, % MO AV MN
12/31/2007	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9
9/30/2008	0.047	960	Not Valid	100	0	1.2	0	Not Valid
9/30/2009	0.0555	530	57.4	100	0	0.51	0.0027	25
9/30/2010	0.153	840	76.1	100	0	0.8	0.0044	25
9/30/2011	0.0107	520	18.9	100	0	0.72	0.0029	6.25
9/30/2012	0.0128	270	100	100	0	0.42	0.0156	50
9/30/2013	0.0225	550	82	100	0	0.58	0.00332	50
9/30/2014	0.01324	350	61.6	100	0	0.48	0.00177	12.5
9/30/2015	0.011	1900	25	100	0	11.1	0.0122	12.5
Minimum	0.0107	270	18.9	100	0	0.42	0	6.25
Maximum	0.153	1900	100	100	0	11.1	0.0156	50
Average	0.0407	740	60	100	0	2	0.0054	26

Monitoring Period End Date	Noel Static 7Day Chronic Pimephales Mon, % MO AV MN	Oxygen, dissolved (DO) Mon, mg/L DAILY MX	Solids, total Mon, mg/L DAILY MX	Specific conductance Mon, umho/cm DAILY MX	Zinc, total (as Zn) Mon, mg/L DAILY MX	pH Mon, SU DAILY MX
12/31/2007	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9
9/30/2008	100	9.8	3700	6400	0.099	7.6
9/30/2009	100	7.8	1200	2000	0.0188	7
9/30/2010	100	7.1	2500	4100	0.099	6.4
9/30/2011	100	9.9	920	1600	0.0186	7.3
9/30/2012	100	9.2	810	1300	0.018	6.8
9/30/2013	100	7.8	1200	1900	0.00616	7.5
9/30/2014	100	7.2	760	1100	0.00714	7.7
9/30/2015	100	5.8	3300	5600	0.0073	7.4
Minimum	100	5.8	760	1100	0.00616	6.4
Maximum	100	9.9	3700	6400	0.099	7.7
Average	100	8	1799	3000	0.0343	7.2

Outfall - Monitoring Location - Limit Set: 001A - Receiving Water

Monitoring Period End Date	Hardness, total (as CaCO3) Mon, mg/L DAILY MX	Monitoring Period End Date	Hardness, total (as CaCO3) Mon, mg/L DAILY MX
10/31/2007	150	1/31/2012	270
11/30/2007	480	2/29/2012	NODI: C
12/31/2007	130	3/31/2012	250
1/31/2008	140	4/30/2012	180
2/29/2008	260	5/31/2012	160
3/31/2008	210	6/30/2012	160
4/30/2008	100	7/31/2012	160
5/31/2008	150	8/31/2012	74
6/30/2008	120	9/30/2012	130
7/31/2008	130	10/31/2012	140
8/31/2008	160	11/30/2012	200
9/30/2008	170	12/31/2012	480
10/31/2008	150	1/31/2013	240
11/30/2008	120	2/28/2013	120
12/31/2008	180	3/31/2013	170
1/31/2009	230	4/30/2013	250
2/28/2009	240	5/31/2013	180
3/31/2009	250	6/30/2013	51
4/30/2009	160	7/31/2013	180
5/31/2009	140	8/31/2013	130
6/30/2009	37	9/30/2013	180
7/31/2009	110	10/31/2013	200
8/31/2009	110	11/30/2013	110
9/30/2009	150	12/31/2013	140
10/31/2009	170	1/31/2014	210
11/30/2009	140	2/28/2014	130
12/31/2009	67	3/31/2014	150
1/31/2010	160	4/30/2014	59
2/28/2010	240	5/31/2014	53
3/31/2010	280	6/30/2014	120
4/30/2010	480	7/31/2014	160
5/31/2010	230	8/31/2014	140
6/30/2010	55	9/30/2014	180
7/31/2010	180	10/31/2014	93
8/31/2010	150	11/30/2014	160
9/30/2010	150	12/31/2014	52
10/31/2010	160	1/31/2015	260
11/30/2010	100	2/28/2015	NODI: C
12/31/2010	150	3/31/2015	310
1/31/2011	220	4/30/2015	260
2/28/2011	310	5/31/2015	220
3/31/2011	100	6/30/2015	53
4/30/2011	190	7/31/2015	170
5/31/2011	60	8/31/2015	220
6/30/2011	200	9/30/2015	97
7/31/2011	93	10/31/2015	110
8/31/2011	180	11/30/2015	210
9/30/2011	130	12/31/2015	260
10/31/2011	250	Minimum	37
11/30/2011	230	Maximum	480
12/31/2011	280	Average	174

Outfall - Monitoring Location - Limit Set: 002A

	Oil & grease	
Monitoring Period End Date	Mon, mg/L DAILY MX	Mon, mg/L MO AVG
12/31/2007	0	0
3/31/2008	0	0
6/30/2008	0	0
9/30/2008	4.6	4.6
12/31/2008	0	0
3/31/2009	0	0
6/30/2009	0	0
9/30/2009	0	0
12/31/2009	0	0
3/31/2010	0	0
6/30/2010	0	0
9/30/2010	0	0
12/31/2010	0	0
3/31/2011	0	0
6/30/2011	0	0
9/30/2011	0	0
12/31/2011	0	0
3/31/2012	0	0
6/30/2012	0	0
9/30/2012	0	0
12/31/2012	0	0
3/31/2013	0	0
6/30/2013	0	0
9/30/2013	0	0
12/31/2013	0	0
3/31/2014	0	0
6/30/2014	0	0
9/30/2014	0	0
12/31/2014	0	0
3/31/2015	0	0
6/30/2015	0	0
9/30/2015	0	0
12/31/2015	0	0
Minimum	0	0
Maximum	4.6	4.6
Average	0.139	0.139

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: WET Reasonable Potential Calculation

Massachusetts policy-based WET limit derivation protocol

Dilution Factor for facility: 1 (no assumed dilution)

In order to assure that this limit is met within a short distance of the effluent pipe MassDEP has established an end-of-pipe limit of 1.0 TU (LC_{50} = 100%) for dilution factors less than or equal to 100 (Boston Sand & Gravel's discharge to the Unnamed Tributary offers no dilution, i.e. a dilution factor of 1). However, at dilution factors less than 10, the Unnamed Tributary is considered water quality limited in that the effluent limit of 1.0 TU may not be stringent enough to protect receiving waters. MassDEP requires both acute and chronic end points to be reported.

Two limits apply to the effluent when the dilution factor is less than 10: (1) the chronic WET test should result in a No Observed Effect Concentration greater than or equal to the Receiving Water Concentration (NOEC $\geq$ RWC) and (2) the acute level should be less than or equal to 1.0 TU (an $LC_{50} \geq 100\%$). Because the Dilution Factor is 1, this requires NOEC$\geq$100%, or a TU of less than or equal to 1.0.

$\frac{100}{\text{NOEC or } LC_{50}}$ = Toxic Units or TU

Facility WET Test Data for the Daphnid

Monitoring Period End Date	WET Test Date	Species	LC50 Static 48Hr Acute Ceriodaphnia, modified (%)	TU, acute	Noel Static 7Day Chronic Ceriodaphnia (%)	TU, chronic
12/31/2007	N/A	*Ceriodaphnia dubia*	N/A	N/A	N/A	N/A
9/30/2008	12/17/2007	*Ceriodaphnia dubia*	Not valid*	N/A	Not valid*	N/A
9/30/2009	11/17/2008	*Ceriodaphnia dubia*	57.4	1.74	25	4
9/30/2010	12/14/2009	*Ceriodaphnia dubia*	76	1.32	25	4
9/30/2011	10/25/2010	*Ceriodaphnia dubia*	18.9	5.29	6.25	16
9/30/2012	11/15/2011	*Ceriodaphnia dubia*	100	1	50	2
9/30/2013	10/2/2013	*Ceriodaphnia dubia*	82	1.22	50	2
9/30/2014	10/28/2014	*Ceriodaphnia dubia*	61.6	1.62	12.5	8
9/30/2015	6/2/2015	*Ceriodaphnia dubia*	25	4	12.5	8

*Result was invalid because survival of *C.dubia* exposed to the ambient river water (which was used as the diluent in the test) was 0% at 24 hours.

Daphnid chronic toxic - (TU Lognormal distribution assumed)

Estimated Daily Maximum Effluent Concentration		
k = number of daily samples =	7	
Max Concentration	16	
cv(x)= Coefficient of Variation* =	0.6	
99th percentile multiplication factor**	3.6	
95th percentile multiplication factor**	2	
Daily Max Estimate = Max*99th percentile multiplication factor**		
Estimated Daily Max 99th percentile =	**57.6**	**TU,chronic**
Estimated Daily Max including Dilution Factor =	**57.6**	**TU,chronic**
Daily Max Estimate = Max*95th percentile multiplication factor**		
Estimated Daily Max 95th Percentile =	**32.0**	**TU,chronic**
Estimated Daily Max including Dilution Factor =	**32.0**	**TU,chronic**

Daphnid acute toxicity - (TU Lognormal distribution assumed)

Estimated Daily Maximum Effluent Concentration		
k = number of daily samples =	7	
Max Concentration	5.29	
cv(x)= Coefficient of Variation* =	0.6	
99th percentile multiplication factor**	3.6	
95th percentile multiplication factor**	2	
Daily Max Estimate = Max*99th percentile multiplication factor**		
Estimated Daily Max 99th percentile =	**19.0**	**TU,acute**
Estimated Daily Max including Dilution Factor =	**19.0**	**TU,acute**
Daily Max Estimate = Max*95th percentile multiplication factor**		
Estimated Daily Max 95th Percentile =	**10.6**	**TU,acute**
Estimated Daily Max including Dilution Factor =	**10.6**	**TU,acute**

*Conservative estimate of CV. See box 3-2 in Technical Support Document for Water Quality Based Toxics Control
**Multiplication factors from Table 3-1 and Table 3-2 in Technical Support Document for Water Quality Based Toxics Control.

The 95th percentiles for daphnid chronic (32 TU) and acute toxicity (10.6 TU) are both higher than 1 and a WET limit is required.

Attachment G: EFH list

The following is a list of the EFH species and applicable lifestage(s) for the area that includes inner Boston Harbor:

Species	**Eggs**	**Larvae**	**Juveniles**	**Adults**
Atlantic cod (*Gadus morhua*)	X	X	X	X
haddock (*Melanogrammus aeglefinus*)	X	X		
pollock (*Pollachius virens*)	X	X	X	X
silver hake (*Merluccius bilinearis*)	X	X	X	X
red hake (*Urophycis chuss*)	X	X	X	X
white hake (*Urophycis tenuis*)	X	X	X	X
winter flounder (*Pseudopleuronectes americanus*)	X	X	X	X
yellowtail flounder (*Pleuronectes ferruginea*)	X	X	X	X
windowpane flounder (*Scopthalmus aquosus*)	X	X	X	X
American plaice (*Hippoglossoides platessoides*)	X	X	X	X
ocean pout (*Macrozoarces americanus*)	X	X	X	X
Atlantic halibut (*Hippoglossus hippoglossus*)	X	X	X	X
Atlantic herring (*Clupea harengus*)		X	X	X
white shark (*Carcharodon carcharias*)	X	X	X	X
Atlantic butterfish (*Peprilus triacanthus*)	X	X	X	X
Atlantic mackerel (*Scomber scombrus*)	X	X	X	X
Atlantic wolffish (*Anarhichas lupus*)	X	X	X	X
bluefish *(Pomatomus saltatrix)*	X	X	X	X
black sea bass (*Centropristus striata*)	n/a		X	X
little skate (*Leucoraja erinacea*)	n/a	n/a	X	X
bluefin tuna (*Thunnus thynnus*)			X	X

Source: NOAA Habitat Conservation EFH Mapper Website: http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html.

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY – REGION 1
OFFICE OF ECOSYSTEM PROTECTION
5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO WATERS OF THE UNITED STATES UNDER SECTIONS 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATERS ACT, AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT.

DATE OF NOTICE: August 1, 2017 – August 30, 2017

PERMIT NUMBER: **MA0000531**

PUBLIC NOTICE NUMBER: MA-006-2017

NAME AND MAILING ADDRESS OF APPLICANT:

Boston Sand & Gravel Company
100 N. Washington Street, 2nd Floor
Boston, MA 02114

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Boston Sand & Gravel Company
500 Front Street
Charlestown, MA 02129

RECEIVING WATER: Unnamed Tributary to the Charles River ("Millers River", Outfall 001)

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a draft permit for Boston Sand & Gravel's Charlestown facility, which discharges commingled process water and stormwater. The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq., the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00, and State Surface Water Quality Standards at 314 CMR 4.00. EPA has requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified.

INFORMATION ABOUT THE DRAFT PERMIT:

The draft permit and explanatory fact sheet may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by contacting:

Undine Kipka
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1335
kipka.undine@epa.gov

The administrative record containing all documents relating to this draft permit including all data submitted by the applicant may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by August 30, 2017, to the address or email address listed above. Any person, prior to such date, may submit a request in writing to EPA and MassDEP for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this draft permit, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

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

DOUGLAS E. FINE
ASSISTANT COMMISSIONER
BUREAU OF WATER RESOURCES
MASSACHUSETTS DEPARTMENT
OF ENVIRONMENTAL PROTECTION

ARTHUR V. JOHNSON III
ACTING DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
EPA REGION 1