

**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”),

New England Aquarium Corporation

is authorized to discharge from a facility located at

**New England Aquarium
Central Wharf
Boston, MA 02110**

to receiving water named

**Boston Inner Harbor
Class SB (CSO)
Boston Harbor Watershed**

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 immediately following 60 days after signature.¹

This Permit expires at midnight five years from the last day of the month preceding the effective date.

This Permit supersedes the Permit issued on August 1, 2013.

This Permit consists of this **cover page, Part I, Attachment A** (Marine Acute Toxicity Test Procedure and Protocol, July 2012) and **Part II** (NPDES Part II Standard Conditions, April 2018).

Signed this 14th day of November, 2022

 Digitally signed by
KENNETH MORAFF
Date: 2022.11.14
10:51:12 -05'00'

Ken Moraff, Director
Water Division
Environmental Protection Agency
Region 1
Boston, MA

¹ Procedures for appealing EPA’s Final Permit decision may be found at 40 CFR § 124.19.

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 wastewater from aquatic animal holding tanks through Outfall Serial Number 001 to Boston Inner Harbor. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	Effluent Limitations		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type ⁵
Effluent Flow ⁶	100,000 GPD	150,000 GPD	Continuous	Meter
pH ⁷	6.5 - 8.5 S.U.		1/Week	Grab
Total Suspended Solids (TSS)	30 mg/L 25 lbs/day	60 mg/L 75 lbs/day	2/Month	Composite
Fecal coliform bacteria ⁸	88 MPN/100 mL	260 MPN/100 mL	1/Month	Grab
<i>Enterococcus</i> bacteria ⁸	35 CFU/100 mL	130 CFU/100 mL	1/Month	Grab
Total Nitrogen ⁹	Report mg/L	Report mg/L	1/Quarter	Composite
Total Residual Chlorine (TRC) ¹⁰	0.49 m/L	0.85 mg/L	1/Week	Grab
Total Copper ¹¹	Report µg/L	Report µg/L	1/Month	Composite
Whole Effluent Toxicity (WET) Testing ^{12, 13,14}				
LC ₅₀	---	Report %	1/Year	Composite
Ammonia Nitrogen	---	Report mg/L	1/Year	Composite
Total Cadmium	---	Report mg/L	1/Year	Composite
Total Copper	---	Report mg/L	1/Year	Composite
Total Nickel	---	Report mg/L	1/Year	Composite
Total Lead	---	Report mg/L	1/Year	Composite
Total Zinc	---	Report mg/L	1/Year	Composite

Ambient Characteristic ¹⁵	Reporting Requirements		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type ⁵
Salinity	---	Report ppt	1/Year	Grab
Ammonia Nitrogen	---	Report mg/L	1/Year	Grab
Total Cadmium	---	Report mg/L	1/Year	Grab
Total Copper	---	Report mg/L	1/Year	Grab
Total Nickel	---	Report mg/L	1/Year	Grab
Total Lead	---	Report mg/L	1/Year	Grab
Total Zinc	---	Report mg/L	1/Year	Grab
pH ¹⁶	---	Report S.U.	1/Year	Grab
Temperature ¹⁶	---	Report °C	1/Year	Grab

Footnotes:

1. Effluent samples shall yield data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the discharge point to the receiving water after chlorination, prior to co-mingling with any other wastestream. Changes in sampling location must be approved in writing by the Environmental Protection Agency Region 1 (EPA). The Permittee shall report the results to EPA and the State of any additional testing above that required herein, if testing is done in accordance with 40 CFR Part 136.
2. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to 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 (except WET). A method is “sufficiently sensitive” when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the 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 term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.
3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For calculating and reporting the average monthly concentration when one or more

values are not detected, assign a value of zero to all non-detects and report the average of all the results. The number of exceedances shall be enumerated for each parameter in the field provided on every Discharge Monitoring Report (DMR).

4. Measurement frequency of continuous is defined as the continuous recording of the parameter. Measurement frequency of 1/week is defined as the sampling of one discharge event in each seven-day calendar week. Measurement frequency of 1-2/month is defined as the sampling of one-to-two discharge event(s) in each calendar month. Measurement frequency of 1/year is defined as the sampling of one discharge event during one calendar year. Measurement frequency of 1/quarter is defined as the sampling of one discharge event during each calendar quarter. Calendar quarters are defined as January through March, inclusive, April through June, inclusive, July through September, inclusive and October through December, inclusive. If no sample is collected during the measurement frequencies defined above, the Permittee must report an appropriate No Data Indicator Code.
5. Each composite sample will consist of at least eight grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.
6. Effluent flow shall be reported in gallons per day (GPD).
7. The pH shall be within the specified range at all times. The minimum and maximum pH sample measurement values for the month shall be reported in standard units (S.U.).
8. The monthly average limits for fecal coliform and *Enterococcus* are expressed as a geometric mean.
9. Total Kjeldahl nitrogen and nitrate + nitrite samples shall be collected concurrently. The results of these analyses shall be used to calculate the concentration of total nitrogen, as follows.

$$\text{Total Nitrogen (mg/L)} = \text{Total Kjeldahl Nitrogen (mg/L)} + \text{Nitrate (mg/L)} + \text{Nitrite (mg/L)}$$
10. For the purposes of this permit, TRC analysis must be completed using a test method in 40 CFR Part 136 that achieves a minimum level of detection no greater than 30 µg/L.
11. Copper analysis must be completed using a test method in 40 CFR Part 136 that achieves a minimum level no greater than 3 µg/L.
12. WET testing shall occur on a discharge comprised of a major medication treatment, e.g., a discharge from the Giant Ocean Tank after prolonged copper-based treatment. If no such treatment is conducted or anticipated to be conducted, WET testing shall be conducted during the fourth calendar quarter of that year.
13. The Permittee shall conduct acute toxicity tests (LC₅₀) and chronic toxicity tests (C-NOEC) 1/year in accordance with test procedures and protocols specified in **Attachment A** of this

permit. LC₅₀ and C-NOEC are defined in Part II.E. of this permit. The Permittee shall test the mysid shrimp, *Americamysis bahia*, and the inland silverside, *Menidia beryllina*. The complete report for each toxicity test shall be submitted as an attachment to the DMR submittal that includes the results for that toxicity test.

14. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the effluent sample. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall follow procedures outlined in **Attachment A**, Section IV., DILUTION WATER. Even where alternate dilution water has been used, the results of the receiving water control (0% effluent) analyses must be reported. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.
15. For Part I.A.1., Ambient Characteristic, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the receiving water sample collected as part of the WET testing requirements. Such samples shall be taken from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location, as specified in **Attachment A**. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.
16. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection and the results reported on the appropriate DMR. These pH and temperature measurements are independent from any pH and temperature measurements required by the WET testing protocols.

Part I.A. continued.

2. The discharge shall not cause a violation of the water quality standards of the receiving water.
3. The discharge shall be free from pollutants in concentrations or combinations that, in the receiving water, settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.
4. The discharge shall be free from pollutants in concentrations or combinations that adversely affect the physical, chemical, or biological nature of the bottom.
5. The discharge shall not result in pollutants in concentrations or combinations in the receiving water that are toxic to humans, aquatic life or wildlife.
6. The discharge shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to the receiving water, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.
7. The discharge shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.
8. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify EPA as soon as they know or have reason to believe (40 CFR § 122.42):
 - a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
 - (1) 100 micrograms per liter ($\mu\text{g/L}$);
 - (2) 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (mg/L) for antimony;
 - (3) Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
 - (4) Any other notification level established by EPA in accordance with 40 CFR § 122.44(f) and State regulations.
 - 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”:
 - (1) 500 $\mu\text{g/L}$;

- (2) One mg/L for antimony;
 - (3) 10 times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
 - (4) Any other notification level established by EPA in accordance with 40 CFR § 122.44(f) and State regulations.
- 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.

B. UNAUTHORIZED DISCHARGES

1. This permit authorizes discharges only from the outfall(s) listed in Part I.A.1, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources are not authorized by this permit and shall be reported in accordance with Part D.1.e.(1) of the Standard Conditions of this permit (24-hour reporting).

C. SPECIAL CONDITIONS

1. Dilution Study

The Permittee must conduct a new model or dye study to determine a defensible dilution factor for its discharge. Within 36 months of the effective date of the Final Permit, the Permittee shall submit a study plan to EPA and MassDEP for approval. The results of the study shall be submitted to EPA and MassDEP by the application deadline for the permit renewal (6 months prior to the expiration date of the Final Permit).

2. Storage and Spill Control

The permittee must ensure the proper storage of medications and disease control chemicals in a manner designed to prevent spills that may result in the discharges of these items to the receiving water. The permittee shall implement procedures for properly containing, cleaning, and disposing of any spilled material.

3. Discharges of Medications and Other Chemicals

The discharge of any medication or other chemical, including chemical substitution that was not reported in the application submitted to EPA or provided through a subsequent written notification submitted to EPA is prohibited. Upon the effective date of this permit, medications and/or chemicals that have been disclosed to EPA may be discharged up to the frequency and level disclosed, provided that such discharge does not violate §§ 307 or 311 of the CWA or applicable State water quality standards. Discharges of a new chemical or additive are authorized under this permit 30 days following written notification to EPA unless otherwise notified by EPA. To request authorization to discharge a new medication or chemical, the Permittee must submit a written notification to EPA in accordance with Part

I.D.3 of this permit. The written notification must include the following information, at a minimum:

- a. The following information for each chemical and/or additive that will be discharged:
 - (1) Product name, chemical formula, general description, and manufacturer of the chemical/additive;
 - (2) Purpose or use of the chemical/additive;
 - (3) Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
 - (4) The frequency (e.g., hourly, daily), magnitude (i.e., maximum application concentration), duration (e.g., hours, days), and method of application for the chemical/additive;
 - (5) If available, the vendor's reported aquatic toxicity (i.e., NOAEL and/or LC₅₀ in percent for aquatic organism(s)).
- b. Written rationale that demonstrates that the discharge of such chemicals and/or additives as proposed will not: 1) will not add any pollutants in concentrations that exceed any permit effluent limitation; and 2) will not add any pollutants that would justify the application of permit conditions different from, or in addition to those currently in this permit.

D. REPORTING REQUIREMENTS

Unless otherwise specified in this Permit, the Permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs Using NetDMR

The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State electronically using NetDMR no later than the 15th day of the month following the monitoring period. When the Permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or the State. NetDMR is accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.

2. Submittal of Reports as NetDMR Attachments

Unless otherwise specified in this Permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. *See* Part I.D.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 following the monitoring period), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this Permit.

3. Submittal of Requests and Reports to EPA Water Division (WD)

- a. The following requests, reports, and information described in this Permit shall be submitted to the NPDES Applications Coordinator in EPA WD:
 - (1) Transfer of Permit notice;
 - (2) Request for changes in sampling location;
 - (3) Request to discharge new chemicals or medications; and
 - (4) Dilution Study.
- b. These reports, information, and requests shall be submitted to EPA WD electronically at R1NPDESReporting@epa.gov or by hard copy mail to the following address:

**U.S. Environmental Protection Agency
Water Division
NPDES Applications Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912**

4. Submittal of Reports in Hard Copy Form

- a. The following notifications and reports shall be signed and dated originals, submitted in hard copy, with a cover letter describing the submission:
 - (1) Written notifications required under Part II, Standard Conditions. Beginning December 21, 2025, such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.
- b. This information shall be submitted to EPA ECAD at the following address:

**U.S. Environmental Protection Agency
Enforcement and Compliance Assurance Division
Water Compliance Section
5 Post Office Square, Suite 100 (04-SMR)
Boston, MA 02109-3912**

5. State Reporting

Duplicate signed copies of all WET test reports shall be submitted to the Massachusetts Department of Environmental Protection, Division of Watershed Management, at the following address:

**Massachusetts Department of Environmental Protection
Bureau of Water Resources
Division of Watershed Management**

**8 New Bond Street
Worcester, Massachusetts 01606**

6. Verbal Reports and Verbal Notifications

- a. 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 the State. This includes verbal reports and notifications which require reporting within 24 hours (e.g., Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.).
- b. Verbal reports and verbal notifications shall be made to EPA's Enforcement and Compliance Assurance Division at:

617-918-1510

- c. Verbal reports and verbal notifications shall be made to the State's Emergency Response at:

888-304-1133

E. STATE 401 CERTIFICATION CONDITIONS

1. Pursuant to 314 CMR 3.11(2)(a)(6), and in accordance with MassDEP's obligation under 314 CMR 4.05(5)(e) to maintain surface waters free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife:
 - a. Within six (6) months of the effective date of this Final Permit, the Permittee shall submit to MassDEP an evaluation of whether the Facility uses or stores any products containing any per- and polyfluoroalkyl substances (PFAS) and whether use or storage of those products can be reduced or eliminated. The analysis shall be submitted electronically to massdep.npdes@mass.gov.
 - b. Within six (6) months after the permittee has been notified by MassDEP of an EPA multi-lab validated method for wastewater, or two (2) years after the effective date of this Final Permit, whichever is earlier, the Permittee shall conduct monitoring of the effluent for PFAS compounds as detailed in the table below. Sampling of the intake water is optional and shall be conducted concurrently with sampling of the effluent. If any of the six (6) PFAS compounds are detected in the effluent, the Permittee can decide to analyze the intake water sample for all six (6) PFAS compounds. If EPA's multi-lab validated method is not available by twenty (20) months after the effective date of this Final Permit, the Permittee shall contact MassDEP (massdep.npdes@mass.gov) for guidance on an appropriate analytical method. Notwithstanding any other provision of this Final Permit to the contrary, monitoring results shall be reported to MassDEP electronically at massdep.npdes@mass.gov, or as otherwise specified, within 30 days after they are received. Those results do not need to be reported to EPA through NetDMR, unless EPA establishes a requirement through a future permitting action.

Effluent (Outfall 001)

Parameter	Units	Measurement Frequency	Sample Type
Perfluorohexanesulfonic acid (PFHxS)	ng/L	2/Year ²	24-hour Composite
Perfluoroheptanoic acid (PFHpA)	ng/L	2/Year	24-hour Composite
Perfluorononanoic acid (PFNA)	ng/L	2/Year	24-hour Composite
Perfluorooctanesulfonic acid (PFOS)	ng/L	2/Year	24-hour Composite
Perfluorooctanoic acid (PFOA)	ng/L	2/Year	24-hour Composite
Perfluorodecanoic acid (PFDA)	ng/L	2/Year	24-hour Composite

- c. After completing two years two (2) years of monitoring, if four (4) consecutive samples are reported as non-detect for all six (6) PFAS compounds, then the Permittee may submit a request to MassDEP to discontinue PFAS monitoring. After completing two (2) years of monitoring, if the Permittee had analyzed the intake water samples and sufficiently demonstrates that the detected PFAS compounds in the effluent are from the intake water from the Boston Inner Harbor and not from the wastewater generated from the animal holding operations, the Permittee may submit a request to MassDEP to modify the effluent and intake water monitoring requirements. MassDEP will make a determination based on the review and evaluation of the monitoring data. Any such requests shall be made in writing and sent to massdep.npdes@mass.gov. The Permittee shall continue such monitoring pending written approval from MassDEP to discontinue it.

² Twice yearly samples shall be taken in the third (July to September) and fourth (October to December) calendar quarters and shall be taken 3 months apart (e.g., an example sampling schedule could be July and October).

MARINE ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

A discharge and receiving water sample shall be collected. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any holding time extension. Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine¹ (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate

¹ For this protocol, total residual chlorine is synonymous with total residual oxidants.
(July 2012)

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

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

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

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

IV. DILUTION WATER

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

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

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

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

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

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

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

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

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

and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

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

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE MYSID, AMERICAMYSIS BAHIA 48 HOUR TEST¹

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

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

Footnotes:

- ¹ Adapted from EPA 821-R-02-012.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks are recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

EPA NEW ENGLAND TOXICITY TEST CONDITIONS FOR THE INLAND SILVERSIDE, MENIDIA BERYLLINA 48 HOUR TEST¹

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

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

Footnotes:

- ¹ Adapted from EPA 821-R-02-012.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

V.1. Test Acceptability Criteria

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

V.2. Use of Reference Toxicity Testing

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

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

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

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

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

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

VI. CHEMICAL ANALYSIS

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

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

Superscript:

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

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

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration

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

Methods of Estimation:

- Probit Method
- Spearman-Kärber
- Trimmed Spearman-Kärber
- Graphical

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

Please note: The NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) are available on EPA's website at

<http://www.epa.gov/NE/enforcementandassistance/dmr.html>

In addition to the summary sheets the report must include:

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

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¹ Updated July 17, 2018 to fix typographical errors.

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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 or Act) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

- a. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage 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, or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
- b. Penalties for Violations of Permit Conditions: The Director will adjust the civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (83 Fed. Reg. 1190-1194 (January 10, 2018) and the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note. See Pub. L. 114-74, Section 701 (Nov. 2, 2015)). These requirements help ensure that EPA penalties keep pace with inflation. Under the above-cited 2015 amendments to inflationary adjustment law, EPA must review its statutory civil penalties each year and adjust them as necessary.

(1) Criminal Penalties

- (a) *Negligent Violations.* The CWA provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to criminal penalties of not less than \$2,500 nor more than \$25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation or by imprisonment of not more than 2 years, or both.
- (b) *Knowing Violations.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act 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. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than 6 years, or both.
- (c) *Knowing Endangerment.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he or she is placing another person in imminent danger of death or serious bodily injury shall upon conviction be subject to a fine of not more than \$250,000 or by imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing

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endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.

- (d) *False Statement.* 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. The Act further 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 non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (2) *Civil Penalties.* The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).
- (3) *Administrative Penalties.* The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty as follows:
 - (a) *Class I Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).
 - (b) *Class II Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

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 a notification of planned changes or anticipated noncompliance does not stay any permit

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condition.

3. Duty to Provide Information

The Permittee shall furnish to the Director, within a reasonable time, any information which the Director 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 Director, upon request, copies of records required to be kept by this permit.

4. 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).

5. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

6. Confidentiality of Information

a. In accordance with 40 C.F.R. 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 C.F.R. 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.

c. Information required by NPDES application forms provided by the Director under 40 C.F.R. § 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.

7. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, 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 Director. (The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

8. State Authorities

Nothing in Parts 122, 123, or 124 precludes more stringent State regulation of any activity

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covered by the regulations in 40 C.F.R. Parts 122, 123, and 124, whether or not under an approved State program.

9. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

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. 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 which are installed by a Permittee 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 reasonably be 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 provisions of paragraphs (c) and (d) of this Section.

c. Notice

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- (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. As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by state law.
- (2) *Unanticipated bypass.* The Permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (24-hour notice). As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or required to do so by law.

d. *Prohibition of bypass.*

- (1) Bypass is prohibited, and the Director may take enforcement action against a Permittee for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) 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
 - (c) The Permittee submitted notices as required under paragraph 4.c of this Section.
- (2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director 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

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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; and
 - (3) The Permittee submitted notice of the upset as required in paragraph D.1.e.2.b. (24-hour notice).
 - (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.

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 of 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 5 years (or longer as required by 40 C.F.R. § 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. This period may be extended by request of the Director 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 must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. Subchapters N or O.
- e. The Clean Water Act provides that any person who falsifies, tampers with, or

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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 Director, 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 Clean Water Act, any substances or parameters at any location.

D. REPORTING REQUIREMENTS

1. Reporting Requirements

- a. *Planned Changes.* The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only 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 C.F.R. § 122.29(b); or
 - (2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements at 40 C.F.R. § 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 that are 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 Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

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- c. *Transfers.* This permit is not transferable to any person except after notice to the Director. The Director 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 Clean Water Act. *See* 40 C.F.R. § 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. As of December 21, 2016 all reports and forms submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by State law.
 - (2) If the Permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 C.F.R. § 136, or another method required for an industry-specific waste stream under 40 C.F.R. Subchapters N or O, the results of such 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 report shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written report 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. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather. As of December 21, 2020 all

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reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section.

- (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 C.F.R. § 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 Director in the permit to be reported within 24 hours. *See* 40 C.F.R. § 122.44(g).
 - (3) The Director may waive the written report on a case-by-case basis for reports under paragraph D.1.e. of this Section if the oral report has been received within 24 hours.
- f. *Compliance Schedules.* Reports of compliance or noncompliance with, or 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. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in paragraph D.1.e. and the applicable required data in Appendix A to 40 C.F.R. Part 127. As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this Section.
- h. *Other information.* Where the Permittee becomes aware that it failed to submit any

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relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

- i. *Identification of the initial recipient for NPDES electronic reporting data.* The owner, operator, or the duly authorized representative of an NPDES-regulated entity is required to electronically submit the required NPDES information (as specified in Appendix A to 40 C.F.R. Part 127) to the appropriate initial recipient, as determined by EPA, and as defined in 40 C.F.R. § 127.2(b). EPA will identify and publish the list of initial recipients on its Web site and in the FEDERAL REGISTER, by state and by NPDES data group (see 40 C.F.R. § 127.2(c) of this Chapter). EPA will update and maintain this listing.

2. Signatory Requirement

- a. All applications, reports, or information submitted to the Director shall be signed and certified. *See* 40 C.F.R. §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 non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under paragraph A.6. 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 Director. 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.

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

For more definitions related to sludge use and disposal requirements, see EPA Region 1's NPDES Permit Sludge Compliance Guidance document (4 November 1999, modified to add regulatory definitions, April 2018).

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 under the CWA, 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 or 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

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“approved States,” including any approved modifications or revisions.

Approved program or *approved State* means a State or interstate program which has been approved or authorized by EPA under Part 123.

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” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that 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.

Bypass see B.4.a.1 above.

C-NOEC or “*Chronic (Long-term Exposure Test) – No Observed Effect Concentration*” means 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.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 C.F.R. § 501.2, required to have an approved pretreatment program under 40 C.F.R. § 403.8 (a) (including any POTW located in a State that has elected to assume local program responsibilities pursuant to 40 C.F.R. § 403.10 (e)) and any treatment works treating domestic sewage, as defined in 40 C.F.R. § 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 its sewage sludge use or disposal practice to affect public health and the environment adversely.

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) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483 and Public Law 97-117, 33 U.S.C. 1251 *et seq.*

CWA and regulations means the Clean Water Act (CWA) and applicable regulations promulgated thereunder. In the case of an approved State program, it includes State program requirements.

Daily Discharge means the “discharge of a pollutant” measured during a calendar day or any

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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.

Direct Discharge means the “discharge of a pollutant.”

Director means the Regional Administrator or an authorized representative. In the case of a permit also issued under Massachusetts’ authority, it also refers to the Director of the Division of Watershed Management, Department of Environmental Protection, Commonwealth of Massachusetts.

Discharge

- (a) When used without qualification, *discharge* means the “discharge of a pollutant.”
- (b) As used in the definitions for “interference” and “pass through,” *discharge* means the introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b), (c) or (d) of the Act.

Discharge Monitoring Report (“DMR”) means the EPA uniform 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.

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 Director 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.”

Environmental Protection Agency (“EPA”) means the United States Environmental Protection

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Agency.

Grab Sample means an individual sample collected in a period of less than 15 minutes.

Hazardous substance means any substance designated under 40 C.F.R. Part 116 pursuant to Section 311 of CWA.

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

Indirect discharger means a nondomestic discharger introducing “pollutants” to a “publicly owned treatment works.”

Interference means a discharge (see definition above) 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, 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 that is not a land application unit, surface impoundment, injection well, or waste pile.

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

LC₅₀ means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC₅₀ = 100% is defined as a sample of undiluted effluent.

Maximum daily discharge limitation means the highest allowable “daily discharge.”

Municipal solid waste landfill (MSWLF) unit means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 C.F.R. § 257.2. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, very small quantity generator waste and industrial solid waste. Such a landfill may be

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publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion. A construction and demolition landfill that receives residential lead-based paint waste and does not receive any other household waste is not a MSWLF unit.

Municipality

- (a) When used without qualification *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 tribal organization, or a designated and approved management agency under Section 208 of CWA.
- (b) As related to sludge use and disposal, *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.

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 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 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 Director 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 Director shall consider the factors specified in 40 C.F.R. §§ 125.122 (a) (1) through (10).

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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 (see definition above) 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).

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

Permit means an authorization, license, or equivalent control document issued by EPA or an “approved State” to implement the requirements of Parts 122, 123, and 124. “Permit” includes an NPDES “general permit” (40 C.F.R. § 122.28). “Permit” does not include any permit which has not yet been the subject of final agency action, such as a “draft permit” or “proposed permit.”

Person means 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 measured at 25° Centigrade or measured at another temperature and then converted to an equivalent value at 25° Centigrade.

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 C.F.R. § 122.3).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials

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(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 C.F.R. Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operator is not the operator of the treatment works and (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 a treatment works as defined by Section 212 of the Act, which is owned by a State or municipality (as defined by Section 504(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

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

Secondary industry category means any industry which is not a “primary industry category.”

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, semi-solid, or liquid residue removed during the treatment of municipal waste water or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced waste water treatment, scum, septage, portable toilet pumpings, type III marine sanitation device pumpings (33 C.F.R. 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 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

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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 C.F.R. § 122.2.

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; finished materials such as metallic products; 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 Section 313 of title III of SARA; 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 C.F.R. §§ 110.10 and 117.21) or Section 102 of CERCLA (see 40 C.F.R. § 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 C.F.R. § 122.1(b)(2).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, the Trust Territory of the Pacific Islands, or an Indian Tribe as defined in the regulations which meets the requirements of 40 C.F.R. § 123.31.

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.

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 that is used for collecting and conveying storm water and that is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

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

Toxic pollutant 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 waste water 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 waste water 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 Director may designate any person subject to the standards for sewage sludge use and

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disposal in 40 C.F.R. 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 C.F.R. Part 503.

Upset see B.5.a. above.

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

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

Waters of the United States or *waters of the U.S.* 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 the 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 CWA (other than cooling ponds as defined in 40 C.F.R. § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland.

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Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient 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.

Zone of Initial Dilution (ZID) means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards.

2. 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 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

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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
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)
µg/L	Microgram(s) per liter
WET	“Whole effluent toxicity”
ZID	Zone of Initial Dilution

RESPONSE TO COMMENTS
NPDES PERMIT NO. MA0003123 AND MA0040380
NEW ENGLAND AQUARIUM AND OFF-SITE HOLDING FACILITIES
BOSTON AND QUINCY, MASSACHUSETTS

The U.S. Environmental Protection Agency's New England Region (EPA) is issuing Final National Pollutant Discharge Elimination System (NPDES) Permits for the New England Aquarium Central Wharf facility located in Boston, Massachusetts and the New England Aquarium Off-Site Holding facility in Quincy, Massachusetts. These permits are being issued under the Federal Clean Water Act (CWA), 33 U.S.C., §§ 1251 *et seq.*

In accordance with the provisions of 40 Code of Federal Regulations (CFR) §124.17, this document presents EPA's responses to comments received on the Draft NPDES Permits numbers MA0003123 and MA0040380 ("Draft Permits"). The Response to Comments explains and supports EPA's determinations that form the basis of the Final Permits. From July 12, 2022, through August 11, 2022, EPA solicited public comments on the Draft Permit.

EPA received a single comment letter from New England Aquarium, dated August 11, 2022, commenting on both permits jointly. No other comments were received.

Although EPA's knowledge of the facilities has benefited from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permits that warranted a reopening of the public comment period. EPA does, however, make certain clarifications and changes in response to comments. These are explained in this document and reflected in the Final Permits. Below EPA provides a summary of the changes made in the Final Permits. The analyses underlying these changes are contained in the responses to individual comments that follow.

Copies of the Final Permits and this response to comments document will be posted on the EPA Region 1 web site: http://www.epa.gov/region1/npdes/permits_listing_ma.html.

Copies of the Final Permits may be also obtained by writing or calling Nathan Chien, USEPA, 5 Post Office Square, Suite 100 (Mail Code: 06-4), Boston, MA 02109-3912; Telephone: (617) 918-1649; Email Chien.Nathan@epa.gov.

I. Summary of Changes to Final Permit MA0003123

1. The additional sub-condition in the Discharges of Medications and Other Chemicals Special Condition (Part I.C.3.c.) has been removed. See Response 4.

II. Summary of Changes to Final Permit MA0040380

1. The additional sub-condition in the Discharges of Medications and Other Chemicals Special Condition (Part I.C.3.c.) has been removed. See Response 4.

III. Responses to Comments

Comments are reproduced below as received; they have not been edited.

A. Comments from Leigh Ann Clayton, DVM, eMBA, DABPV (Avian/Reptile-Amphibian) and Nina Fischer, PhD on behalf of New England Aquarium:

Thank you for the opportunity to provide comments on the New England Aquarium's (NEAq) Draft National Pollutant Discharge Elimination System (NPDES) Permit No. MA0003123 for our facility on Central Wharf in Boston, MA and Permit No. MA0040380 for our Animal Care Center in Quincy, MA. NEAq requests your consideration of these comments which address operational challenges created by specific provisions in the Draft Permits. The comments also address the aggregate impacts of the Draft Permits on our operations and highlight NEAq's need for accurate water source data to sustain our environmental quality and operations.

Founded in 1969, NEAq is a non-profit ocean conservation organization. In pursuit of our vision for a vital and vibrant ocean for future generations, the NEAq values our partnerships with the U.S. Environmental Protection Agency (EPA) and Massachusetts Department of Environmental Protection (MassDEP) to comply with and uphold the Federal Clean Water Act and the Massachusetts Clean Waters Act to ensure that our business operations continue to meet the highest standards of environmental quality.

In its current form, NEAq's Draft NPDES permits will require our institution to make numerous changes to our protocols and processes to ensure compliance with the standards. The following provisions create new challenges for NEAq and its operations:

Comment 1

Total Nitrogen

The Draft Permit requires NEAq to report on discharge of total nitrogen (TN). NEAq is unable to test TN in our laboratories with the equipment currently owned and this requirement poses several challenges to implement. TN testing will be outsourced quarterly due to limited on-site physical space for new equipment and staff safety concerns. TN testing requires the use of caustic chemicals and heating; simpler methods do not work with saltwater.

An alternative proposal is to test total ammonia nitrogen (TAN), nitrites, and nitrates, instead of total nitrogen. While TN includes organic nitrogen, which would not be captured, we believe the

TAN, nitrites, and nitrates are a reasonable approximation, particularly given NEAq operates systems to keep concentrations of these compounds very low compared to many other commercial water facilities.

Response 1

As discussed in the Draft Permit's fact sheet, Total Nitrogen (TN) monitoring is being required in order to characterize the nitrogen load discharged from both these facilities to Boston Inner Harbor and the Weymouth Fore River. NEAq is requesting to sample only the nitrite, nitrate, and ammonia portions of Total Nitrogen to reduce the monitoring burden of this new requirement. The requested change would underestimate total nitrogen concentration by not including the organic nitrogen component of total kjeldahl nitrogen (TKN = ammonia nitrogen and organic nitrogen). Dissolved organic nitrogen (DON) and particulate organic nitrogen (PON) can contribute substantially to TN concentrations and TN is considered one of the best indications of eutrophication in coastal systems. Furthermore, NOAA's National Marine Fisheries Service (NMFS) has emphasized the importance of TN monitoring for the issuance of these permits in their correspondence related to Essential Fish Habitat consultation (email from NMFS dated September 9, 2022). Given the need for accurate TN quantification for point source discharges to these waterbodies and the relatively low cost of total nitrogen analysis, EPA does not find that this request is merited and has not made any changes to the Final Permit.

Comment 2

Dilution Study

The Draft Permits require NEAq to complete dilution studies at each permitted facility to determine a defensible dilution factor for its discharge within 36 months of each Final Permits' effective date. Details of this special condition are not thoroughly outlined in the Draft Permits, so the breadth of this condition and expectations for NEAq are unclear. NEAq does not have the staff expertise or capacity to conduct the dilution studies. NEAq will outsource the study, but to date, has been unable to establish a plan and cost estimate for these services from an outside vendor. Should the condition remain, NEAq requests assistance in finding vendors that can conduct the study to meet the Draft Permit requirements.

Response 2

The dilution special condition has recently been added to coastal discharge permits where dilution information from the existing permit is out-of-date or non-existent. See for example the Draft Medium Wastewater Treatment General Permit, <https://www.epa.gov/npdes-permits/region-1-draft-medium-wastewater-treatment-facilities-general-permit-massachusetts>. EPA recognizes that the special condition does not comprehensively outline the method for completing the dilution study. In part, this is because dilution allowances are site-specific, and EPA did not intend to narrow the parameters with which dilution could be justified. EPA also expects that for certain smaller discharges, a simpler dye or modelling study would be acceptable, whereas for discharges of greater magnitude with increased potential toxicity, dilution could only be characterized through complex hydrodynamic models. The study plan approval process is meant to allow for this nuance in model selection.

Given the quantity of flow discharged from the New England Aquarium facilities relative to the flows from the POTWs in the draft general permit referenced above, EPA anticipates that a simpler study would be sufficient to demonstrate a defensible dilution factor. The following information is meant to provide further clarification on what a dilution study could look like for the aquarium discharges; however, final EPA and MassDEP study plan approval must still be requested before conducting the study. Further, EPA is not in a position to recommend specific vendors to complete the analysis required by an NPDES permit.

Dilution Study Guidance for New England Aquarium Facilities

Study Goal. To determine the zone of initial dilution (ZID) and corresponding dilution factor at the edge of that zone for the regulated toxics (e.g., Total Residual Chlorine and Total Copper) from the aquarium outfalls at the critical receiving water flow.

The Zone of Initial Dilution is defined as the area immediately surrounding the outfall where rapid and irreversible turbulent mixing of the wastewater with the receiving water is achieved. In the ZID, turbulent mixing of the submerged discharges is achieved through the momentum of the discharge leaving the outfall and the buoyancy of the effluent relative to the receiving water. The ZID ends when the diluted wastewater ceases to rise in the water column and first begins to spread horizontally.¹

A dilution factor at the edge of the ZID would be used to assess the acute toxicity of the effluent plume. In addition to the ZID, a dilution study could also be expanded to delineate a larger mixing zone where chronic criteria could be exceeded but the use and size of the mixing zone would be limited in extent so as not to impair any designated uses of the waterbody. At the edge of this mixing zone, chronic dilution would be determined.

In coastal and marine waters, EPA and MassDEP determine the critical flow (or “extreme hydrologic condition”) on a case-by-case basis in accordance with 314 CMR 4.03(3)(c). Typically, the low slack tide scenario is chosen for tidal environments. However, alternative critical conditions may be appropriate depending on model selection.

Study Considerations

- Outfall design: The orientation, size, and location of the outfall opening in the receiving water.
- Discharge Characteristics. The timing, frequency, and magnitude of discharge.
- Environmental Conditions. While not required for models of the ZID, models that incorporate more complex hydrodynamic behavior and far-field effects typically consider tides, riverine input, wind intensity and direction, and thermal and saline stratification.
- Study selection. Dye-tracer studies or mathematical models are both acceptable ways for evaluating dilution. Models that are widely used for academic or

¹ See Massachusetts Surface Water Quality Standards Implementation Policy for Mixing Zones (1993). Available at: <https://www.epa.gov/sites/default/files/2014-12/documents/mawqs-mixing-zone.pdf>.

engineering work and that can model the ZID or alternative mixing zone being studied are acceptable, e.g., CORMIX, <https://www.epa.gov/ceam/cormix>.

Additional References

- EPA, 1991. Technical Support Document for Water Quality-Based Toxics Control. See section 4.4 for a description of mixing zone analyses.
<https://www3.epa.gov/npdes/pubs/owm0264.pdf>.
- EPA, 2010. *National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual*. See section 6.2.5 for dilution considerations.
<https://www.epa.gov/npdes/npdes-permit-writers-manual>.
- MassDEP, 1993. *Massachusetts Surface Water Quality Standards Implementation Policy for Mixing Zones*. <https://www.epa.gov/sites/default/files/2014-12/documents/mawqs-mixing-zone.pdf>.
- USGS. 1984. *Measurement of Discharge Using Tracers*.
<https://pubs.er.usgs.gov/publication/ofr84136>.
- USGS, 1986. *Fluorometric Procedures for Dye Tracing*.
<https://pubs.er.usgs.gov/publication/twri03A12>.

Comment 3

Chlorine and Bacteria Limit

The Draft Permit lowers chlorine limits in conjunction with a decreased daily maximum bacteria limit. In practice, these provisions together limit our use of a disinfectant while increasing the required level of disinfection, making testing our discharge much more challenging to manage. NEAq disinfects with chlorine to keep bacteria levels low. Since the upper chlorine limit in the Draft Permit is lower than NEAq's current permit, NEAq will need to be more conservative with its chlorine dosing and adjustment. As a result, the chance of higher bacteria readings increases. Daily maximum limits for these also are reduced compared to the current Permit (No. MA0003123 only).

Response 3

EPA acknowledges the comment and the fact that there are inherent challenges associated with maintaining adequate chlorine levels to prevent discharges of excess bacteria and meet chlorine water quality criteria in the receiving water. However, EPA has determined that the effluent limitations in place for both residual chlorine and bacteria species are necessary to meet State water quality standards. Many NPDES permittees are required to meet similar requirements, particularly municipal wastewater treatment plants, and in some cases dechlorination is necessary. Since the comment does not offer any alternative regulatory solutions that would ensure that water quality criteria are met for both chlorine and bacteria, there have been no changes made to the Final Permit.

Comment 4

Pharmaceuticals

NEAq is required to test for each of the medications used as immersion treatments twice during the first full calendar year of the Final Permit. Because NEAq lacks the equipment and training to conduct this testing, samples will need to be sent to outside laboratories. Testing for pharmaceuticals in sea water is not a widely available service, and so NEAq must work with

numerous different laboratories. NEAq will incur added shipping and labor costs to send the samples among the laboratories that offer these very specific services.

Collectively, the aforementioned provisions require NEAq to increase its reliance on outsourcing its environmental quality testing – resulting in higher costs of compliance and additional administrative challenges – and highlight the need for accurate intake data from our water sources for each permit.

Response 4

The requirement referred to in the comment is in Section I.C.3.c of both Draft Permits:

“During the first full calendar year of the Final Permit, the Permittee shall sample the effluent twice per year for each of the chemicals and medications that it uses, or the active ingredient of these chemicals and medications, for which test methods are available. See footnote 1 in Part I.a.1. regarding applicable test methods. This sampling shall be conducted the same day that such medications are administered, to the extent practicable. The results of this sampling shall be submitted with the January DMR of the following year.”

In response to this comment and other comments received from the Permittee on the Draft Permits, EPA re-evaluated the necessity of this monitoring requirement. As part of the permit drafting process, EPA assessed the toxicity of the chemicals/medications discharged by the Facility. Given the dosage rates, application frequencies, treatment, and dilution reported by the Permittee, EPA does not have concerns about the current use of those chemicals listed in Section 5.2.3. of the fact sheets. If the use of these chemicals were to change or new chemicals were to be used at either facility, the Draft Permit contains a reporting requirement that will allow EPA to assess the potential impact to the receiving water, see Section I.C.3. of the Draft Permits. The Quincy facility is currently equipped with advanced carbon treatment that should minimize the concentrations of the chemicals discharged. For the Boston facility, the dilution received in the 30,000-gallon discharge sump will allow additional dilution before mixing with the harbor water. Lastly, both facilities are subject to annual WET testing that will further characterize potential toxicity from use of chemicals/medications. EPA finds this information, taken collectively, justifies the elimination of this monitoring requirement. As a result, the requirement has been removed from both Draft Permits. EPA notes that analytical analysis of the discharge may still be necessary to satisfy the requirements of Section I.C.3.b. to demonstrate that changes in chemical use “will not add any pollutants that would justify the application of permit conditions different from, or in addition to those currently in this permit.”

Comment 5

Outsourcing

The Draft Permits require NEAq to increase the frequency and type of testing it conducts. NEAq currently does not possess the equipment to test for several effluent characteristics – including TN, and some pharmaceuticals – or conduct the required dilution studies. The required equipment is priced at upwards of \$100,000. Because NEAq cannot complete many of the

required tests on-site, we will need to find outside laboratories to analyze our water discharge to comply with the Draft Permits. This increased reliance on outsourcing increases the overall costs of our operations and presents new administrative challenges:

- *Operational Costs:* Because the Draft Permits increase the type and frequency of testing, the aggregate expense of outsourcing increase operational costs. For example, NEAq currently is required to conduct toxicity testing once during the duration of the permit for our Central Wharf Facility; however, the Draft Permit (No. MA0003123 only) increases the frequency to annually. We estimate that this change alone will cost approximately \$10,000 over the duration of the permit. In total, NEAq estimates that the required outsourcing will total at a minimum \$23,000 over the life of the permits. This estimate excludes the required dilution studies, for which a cost estimate is currently lacking.
- *Administrative Challenges:* Although testing will be completed off-site, outsourcing still substantially adds to staff workloads. Additional staff responsibilities include researching, hiring, and managing numerous outside vendors and appropriately packing, shipping, and tracking outsourced samples. NEAq currently employs two environmental quality employees, but as the institution continues to recover from the economic impacts of the COVID-19 pandemic, its ability to add to staff workloads or hire new environmental quality employees currently is limited.
- *Laboratories:* Environmental testing for sea water is not as widely available as for drinking water. To assist with NEAq's compliance of the Draft Permits, we request a list of laboratories that can conduct the required tests and meet the standards of the EPA or MassDEP.

Response 5

EPA recognizes that new permit requirements require additional costs and that in-house expertise is not always available to conduct such testing. It should be noted that in response to comments above, some of the requirements in the Draft Permits have been removed, e.g., bi-annual medication and chemical testing at both facilities.

In response to the specific request from the comment, MassDEP hosts the following website for identifying certified laboratories.

<https://eeaonline.eea.state.ma.us/DEP/Labcert/Labcert.aspx>. In terms of compliance with the permit, EPA requires that the method be one that is EPA-approved as outlined in 40 Code of Federal Regulations (CFR) Part 136. As noted in Response 4, testing is not required as stipulated in the Discharges of Medications and Other Chemicals Special Condition (Part I.C.3.c.). If upon review of the MassDEP website and 40 CFR Part 136, a laboratory cannot be identified, EPA recommends reaching out to the permit writer to confirm whether a laboratory is available to conduct that particular analysis.

Comment 6

Water Intake Data

Intake water for NEAq's facilities comes from both Boston Harbor (No. MA0003123) and Quincy Bay (No. MA0040380). NEAq has limited knowledge of the concentrations of many regulated compounds in its intake water. To better understand the impacts of our operations, such as our contribution to TN levels, NEAq needs to obtain baseline data for our water intake from

Boston Harbor and Quincy Bay. Currently, NEAq can research data from buoys that remotely measure, but these buoys do not measure all parameters.

NEAq requests assistance from EPA and/or MassDEP in obtaining more accurate intake data regarding concentrations of regulated compounds. Obtaining source data on TN, copper, and PFAS, for instance, would help to contextualize our discharge concentrations, improve our operations, and facilitate compliance with the Draft Permit.

Response 6

EPA does not explicitly collect monitoring data for Boston Harbor and the Weymouth Fore River but does require many permittees to collect ambient data. All data required to be submitted on Discharge Monitoring Reports (DMRs) is hosted on EPA's Enforcement and Compliance History Online (ECHO) website, <https://echo.epa.gov/>. If a permit number is known, excel or csv files can be easily downloaded from ECHO for a given time period using the NPDES Monitoring Data Download Tool, <https://echo.epa.gov/trends/loading-tool/get-data/monitoring-data-download>.

The most common form of data for these waterbodies is data from facilities discharging to these waterbodies and required to conduct Whole Effluent Toxicity (WET) Tests. The diluent water for these tests, often marked on DMRs as "Outfall Number – RW", provide conditions for metals parameters. Lists of NPDES permits and what waterbody they discharge to can be found on the EPA webpage, <https://www.epa.gov/npdes-permits/massachusetts-final-individual-npdes-permits>. Examples of facilities that discharge to Boston Inner Harbor or surrounding waterbodies include Boston Ship Repair (MA0040142), Global Companies LLC Terminal (MA0000825), and Gillette (MA0003832). Massachusetts Water Resource Authority (MWRA) also collects ambient data in Boston Harbor and they host that data on their webpage at, https://www.mwra.com/harbor/html/wq_data.htm.

For further information on available ambient data collected as part of NPDES permitting, please reach out to the permit writer contact. Additional water quality data may be available through the MassDEP Water Quality Monitoring Program, <https://www.mass.gov/guides/water-quality-monitoring-program-data>, or the United States Geological Survey's National Water Information System (NWIS), <https://waterdata.usgs.gov/nwis>.

**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”),

New England Aquarium Corporation

is authorized to discharge from a facility located at

**New England Aquarium
Central Wharf
Boston, MA 02110**

to receiving water named

**Boston Inner Harbor
Class SB (CSO)
Boston Harbor Watershed**

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 immediately following 60 days after signature.¹

This Permit expires at midnight five years from the last day of the month preceding the effective date.

This Permit supersedes the Permit issued on August 1, 2013.

This Permit consists of this **cover page, Part I, Attachment A** (Marine Acute Toxicity Test Procedure and Protocol, July 2012) and **Part II** (NPDES Part II Standard Conditions, April 2018).

Signed this day of

Ken Moraff, Director
Water Division
Environmental Protection Agency
Region 1
Boston, MA

¹ Pursuant to 40 Code of Federal Regulations (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. Procedures for appealing EPA’s Final Permit decision may be found at 40 CFR § 124.19.

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 wastewater from aquatic animal holding tanks through Outfall Serial Number 001 to Boston Inner Harbor. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	Effluent Limitations		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type ⁵
Effluent Flow ⁶	100,000 GPD	150,000 GPD	Continuous	Meter
pH ⁷	6.5 - 8.5 S.U.		1/Week	Grab
Total Suspended Solids (TSS)	30 mg/L 25 lbs/day	60 mg/L 75 lbs/day	2/Month	Composite
Fecal coliform bacteria ⁸	88 MPN/100 mL	260 MPN/100 mL	1/Month	Grab
<i>Enterococcus</i> bacteria ⁸	35 CFU/100 mL	130 CFU/100 mL	1/Month	Grab
Total Nitrogen ⁹	Report mg/L	Report mg/L	1/Quarter	Composite
Total Residual Chlorine (TRC) ¹⁰	0.49 m/L	0.85 mg/L	1/Week	Grab
Total Copper ¹¹	Report µg/L	Report µg/L	1/Month	Composite
Whole Effluent Toxicity (WET) Testing ^{12, 13,14}				
LC ₅₀	---	Report %	1/Year	Composite
Ammonia Nitrogen	---	Report mg/L	1/Year	Composite
Total Cadmium	---	Report mg/L	1/Year	Composite
Total Copper	---	Report mg/L	1/Year	Composite
Total Nickel	---	Report mg/L	1/Year	Composite
Total Lead	---	Report mg/L	1/Year	Composite
Total Zinc	---	Report mg/L	1/Year	Composite

Ambient Characteristic ¹⁵	Reporting Requirements		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type ⁵
Salinity	---	Report ppt	1/Year	Grab
Ammonia Nitrogen	---	Report mg/L	1/Year	Grab
Total Cadmium	---	Report mg/L	1/Year	Grab
Total Copper	---	Report mg/L	1/Year	Grab
Total Nickel	---	Report mg/L	1/Year	Grab
Total Lead	---	Report mg/L	1/Year	Grab
Total Zinc	---	Report mg/L	1/Year	Grab
pH ¹⁶	---	Report S.U.	1/Year	Grab
Temperature ¹⁶	---	Report °C	1/Year	Grab

Footnotes:

1. Effluent samples shall yield data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the discharge point to the receiving water after chlorination, prior to co-mingling with any other wastestream. Changes in sampling location must be approved in writing by the Environmental Protection Agency Region 1 (EPA). The Permittee shall report the results to EPA and the State of any additional testing above that required herein, if testing is done in accordance with 40 CFR Part 136.
2. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to 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 (except WET). A method is “sufficiently sensitive” when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the 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 term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.
3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For calculating and reporting the average monthly concentration when one or more

values are not detected, assign a value of zero to all non-detects and report the average of all the results. The number of exceedances shall be enumerated for each parameter in the field provided on every Discharge Monitoring Report (DMR).

4. Measurement frequency of continuous is defined as the continuous recording of the parameter. Measurement frequency of 1/week is defined as the sampling of one discharge event in each seven-day calendar week. Measurement frequency of 1-2/month is defined as the sampling of one-to-two discharge event(s) in each calendar month. Measurement frequency of 1/year is defined as the sampling of one discharge event during one calendar year. Measurement frequency of 1/quarter is defined as the sampling of one discharge event during each calendar quarter. Calendar quarters are defined as January through March, inclusive, April through June, inclusive, July through September, inclusive and October through December, inclusive. If no sample is collected during the measurement frequencies defined above, the Permittee must report an appropriate No Data Indicator Code.
5. Each composite sample will consist of at least eight grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.
6. Effluent flow shall be reported in gallons per day (GPD).
7. The pH shall be within the specified range at all times. The minimum and maximum pH sample measurement values for the month shall be reported in standard units (S.U.).
8. The monthly average limits for fecal coliform and *Enterococcus* are expressed as a geometric mean.
9. Total Kjeldahl nitrogen and nitrate + nitrite samples shall be collected concurrently. The results of these analyses shall be used to calculate both the concentration and mass loadings of total nitrogen, as follows.

$$\text{Total Nitrogen (mg/L)} = \text{Total Kjeldahl Nitrogen (mg/L)} + \text{Nitrate} + \text{Nitrite (mg/L)}$$

10. For the purposes of this permit, TRC analysis must be completed using a test method in 40 CFR Part 136 that achieves a minimum level of detection no greater than 30 µg/L.
11. Copper analysis must be completed using a test method in 40 CFR Part 136 that achieves a minimum level no greater than 3 µg/L.
12. WET testing shall occur on a discharge comprised of a major medication treatment, e.g., a discharge from the Giant Ocean Tank after prolonged copper-based treatment. If no such treatment is conducted or anticipated to be conducted, WET testing shall be conducted during the fourth calendar quarter of that year.
13. The Permittee shall conduct acute toxicity tests (LC₅₀) and chronic toxicity tests (C-NOEC) 1/year in accordance with test procedures and protocols specified in **Attachment A** of this

permit. LC₅₀ and C-NOEC are defined in Part II.E. of this permit. The Permittee shall test the mysid shrimp, *Americamysis bahia*, and the inland silverside, *Menidia beryllina*. The complete report for each toxicity test shall be submitted as an attachment to the DMR submittal that includes the results for that toxicity test.

14. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the effluent sample. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall follow procedures outlined in **Attachment A**, Section IV., DILUTION WATER. Even where alternate dilution water has been used, the results of the receiving water control (0% effluent) analyses must be reported. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.
15. For Part I.A.1., Ambient Characteristic, the Permittee shall conduct the analyses specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS for the receiving water sample collected as part of the WET testing requirements. Such samples shall be taken from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location, as specified in **Attachment A**. Minimum levels and test methods are specified in **Attachment A**, Part VI. CHEMICAL ANALYSIS.
16. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection and the results reported on the appropriate DMR. These pH and temperature measurements are independent from any pH and temperature measurements required by the WET testing protocols.

Part I.A. continued.

2. The discharge shall not cause a violation of the water quality standards of the receiving water.
3. The discharge shall be free from pollutants in concentrations or combinations that, in the receiving water, settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.
4. The discharge shall be free from pollutants in concentrations or combinations that adversely affect the physical, chemical, or biological nature of the bottom.
5. The discharge shall not result in pollutants in concentrations or combinations in the receiving water that are toxic to humans, aquatic life or wildlife.
6. The discharge shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to the receiving water, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.
7. The discharge shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.
8. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify EPA as soon as they know or have reason to believe (40 CFR § 122.42):
 - a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
 - (1) 100 micrograms per liter ($\mu\text{g/L}$);
 - (2) 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (mg/L) for antimony;
 - (3) Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
 - (4) Any other notification level established by EPA in accordance with 40 CFR § 122.44(f) and State regulations.
 - 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”:
 - (1) 500 $\mu\text{g/L}$;

- (2) One mg/L for antimony;
 - (3) 10 times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
 - (4) Any other notification level established by EPA in accordance with 40 CFR § 122.44(f) and State regulations.
- 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.

B. UNAUTHORIZED DISCHARGES

1. This permit authorizes discharges only from the outfall(s) listed in Part I.A.1, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources are not authorized by this permit and shall be reported in accordance with Part D.1.e.(1) of the Standard Conditions of this permit (24-hour reporting).

C. SPECIAL CONDITIONS

1. Dilution Study

The Permittee must conduct a new model or dye study to determine a defensible dilution factor for its discharge. Within 36 months of the effective date of the Final Permit, the Permittee shall submit a study plan to EPA and MassDEP for approval. The results of the study shall be submitted to EPA and MassDEP by the application deadline for the permit renewal (6 months prior to the expiration date of the Final Permit).

2. Storage and Spill Control

The permittee must ensure the proper storage of medications and disease control chemicals in a manner designed to prevent spills that may result in the discharges of these items to the receiving water. The permittee shall implement procedures for properly containing, cleaning, and disposing of any spilled material.

3. Discharges of Medications and Other Chemicals

The discharge of any medication or other chemical, including chemical substitution that was not reported in the application submitted to EPA or provided through a subsequent written notification submitted to EPA is prohibited. Upon the effective date of this permit, medications and/or chemicals that have been disclosed to EPA may be discharged up to the frequency and level disclosed, provided that such discharge does not violate §§ 307 or 311 of the CWA or applicable State water quality standards. Discharges of a new chemical or additive are authorized under this permit 30 days following written notification to EPA unless otherwise notified by EPA. To request authorization to discharge a new medication or chemical, the Permittee must submit a written notification to EPA in accordance with Part

I.D.3 of this permit. The written notification must include the following information, at a minimum:

- a. The following information for each chemical and/or additive that will be discharged:
 - (1) Product name, chemical formula, general description, and manufacturer of the chemical/additive;
 - (2) Purpose or use of the chemical/additive;
 - (3) Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
 - (4) The frequency (e.g., hourly, daily), magnitude (i.e., maximum application concentration), duration (e.g., hours, days), and method of application for the chemical/additive;
 - (5) If available, the vendor's reported aquatic toxicity (i.e., NOAEL and/or LC₅₀ in percent for aquatic organism(s)).
- b. Written rationale that demonstrates that the discharge of such chemicals and/or additives as proposed will not: 1) will not add any pollutants in concentrations that exceed any permit effluent limitation; and 2) will not add any pollutants that would justify the application of permit conditions different from, or in addition to those currently in this permit.
- c. During the first full calendar year of the Final Permit, the Permittee shall sample the effluent twice per year for each of the chemicals and medications that it uses, or the active ingredient of these chemicals and medications, for which test methods are available. See footnote 1 in Part I.a.1. regarding applicable test methods. This sampling shall be conducted the same day that such medications are administered, to the extent practicable. The results of this sampling shall be submitted with the January DMR of the following year.

D. REPORTING REQUIREMENTS

Unless otherwise specified in this Permit, the Permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs Using NetDMR

The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State electronically using NetDMR no later than the 15th day of the month following the monitoring period. When the Permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or the State. NetDMR is accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.

2. Submittal of Reports as NetDMR Attachments

Unless otherwise specified in this Permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. *See* Part I.D.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 following the monitoring period), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this Permit.

3. Submittal of Requests and Reports to EPA Water Division (WD)

- a. The following requests, reports, and information described in this Permit shall be submitted to the NPDES Applications Coordinator in EPA WD:

- (1) Transfer of Permit notice;
- (2) Request for changes in sampling location;
- (3) Request to discharge new chemicals or medications; and
- (4) Dilution Study.

- b. These reports, information, and requests shall be submitted to EPA WD electronically at R1NPDESReporting@epa.gov or by hard copy mail to the following address:

**U.S. Environmental Protection Agency
Water Division
NPDES Applications Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912**

4. Submittal of Reports in Hard Copy Form

- a. The following notifications and reports shall be signed and dated originals, submitted in hard copy, with a cover letter describing the submission:

- (1) Written notifications required under Part II, Standard Conditions. Beginning December 21, 2025, such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>.

- b. This information shall be submitted to EPA ECAD at the following address:

**U.S. Environmental Protection Agency
Enforcement and Compliance Assurance Division
Water Compliance Section
5 Post Office Square, Suite 100 (04-SMR)
Boston, MA 02109-3912**

5. State Reporting

Duplicate signed copies of all WET test reports shall be submitted to the Massachusetts Department of Environmental Protection, Division of Watershed Management, at the following address:

**Massachusetts Department of Environmental Protection
Bureau of Water Resources
Division of Watershed Management
8 New Bond Street
Worcester, Massachusetts 01606**

6. Verbal Reports and Verbal Notifications

- a. 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 the State. This includes verbal reports and notifications which require reporting within 24 hours (e.g., Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.).
- b. Verbal reports and verbal notifications shall be made to EPA's Enforcement and Compliance Assurance Division at:

617-918-1510

- c. Verbal reports and verbal notifications shall be made to the State's Emergency Response at:

888-304-1133

E. STATE 401 CERTIFICATION CONDITIONS

1. This Permit is in the process of receiving state water quality certification issued by the State under § 401(a) of the CWA and 40 CFR § 124.53. EPA will incorporate by reference all State water quality certification requirements (if any) into the Final Permit.

MARINE ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

A discharge and receiving water sample shall be collected. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any holding time extension. Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine¹ (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate

¹ For this protocol, total residual chlorine is synonymous with total residual oxidants.
(July 2012)

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

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

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

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

IV. DILUTION WATER

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

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

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

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

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

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

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

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

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

and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

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

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE MYSID, AMERICAMYSIS BAHIA 48 HOUR TEST¹

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

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

Footnotes:

- ¹ Adapted from EPA 821-R-02-012.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks are recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

EPA NEW ENGLAND TOXICITY TEST CONDITIONS FOR THE INLAND SILVERSIDE, MENIDIA BERYLLINA 48 HOUR TEST¹

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

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

Footnotes:

- ¹ Adapted from EPA 821-R-02-012.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

V.1. Test Acceptability Criteria

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

V.2. Use of Reference Toxicity Testing

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

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

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

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

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

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

VI. CHEMICAL ANALYSIS

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

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

Superscript:

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

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

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration

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

Methods of Estimation:

- Probit Method
- Spearman-Kärber
- Trimmed Spearman-Kärber
- Graphical

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

Please note: The NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) are available on EPA's website at

<http://www.epa.gov/NE/enforcementandassistance/dmr.html>

In addition to the summary sheets the report must include:

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

NPDES PART II STANDARD CONDITIONS
(April 26, 2018)¹

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¹ Updated July 17, 2018 to fix typographical errors.

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(April 26, 2018)

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 or Act) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

- a. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage 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, or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
- b. Penalties for Violations of Permit Conditions: The Director will adjust the civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (83 Fed. Reg. 1190-1194 (January 10, 2018) and the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note. See Pub. L. 114-74, Section 701 (Nov. 2, 2015)). These requirements help ensure that EPA penalties keep pace with inflation. Under the above-cited 2015 amendments to inflationary adjustment law, EPA must review its statutory civil penalties each year and adjust them as necessary.

(1) Criminal Penalties

- (a) *Negligent Violations.* The CWA provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to criminal penalties of not less than \$2,500 nor more than \$25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation or by imprisonment of not more than 2 years, or both.
- (b) *Knowing Violations.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act 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. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than 6 years, or both.
- (c) *Knowing Endangerment.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he or she is placing another person in imminent danger of death or serious bodily injury shall upon conviction be subject to a fine of not more than \$250,000 or by imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing

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endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.

- (d) *False Statement.* 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. The Act further 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 non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (2) *Civil Penalties.* The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).
- (3) *Administrative Penalties.* The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty as follows:
 - (a) *Class I Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).
 - (b) *Class II Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

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 a notification of planned changes or anticipated noncompliance does not stay any permit

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condition.

3. Duty to Provide Information

The Permittee shall furnish to the Director, within a reasonable time, any information which the Director 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 Director, upon request, copies of records required to be kept by this permit.

4. 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).

5. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

6. Confidentiality of Information

a. In accordance with 40 C.F.R. 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 C.F.R. 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.

c. Information required by NPDES application forms provided by the Director under 40 C.F.R. § 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.

7. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, 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 Director. (The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

8. State Authorities

Nothing in Parts 122, 123, or 124 precludes more stringent State regulation of any activity

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covered by the regulations in 40 C.F.R. Parts 122, 123, and 124, whether or not under an approved State program.

9. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

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. 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 which are installed by a Permittee 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 reasonably be 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 provisions of paragraphs (c) and (d) of this Section.

c. Notice

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- (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. As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by state law.
- (2) *Unanticipated bypass.* The Permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (24-hour notice). As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or required to do so by law.

d. *Prohibition of bypass.*

- (1) Bypass is prohibited, and the Director may take enforcement action against a Permittee for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) 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
 - (c) The Permittee submitted notices as required under paragraph 4.c of this Section.
- (2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director 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

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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; and
 - (3) The Permittee submitted notice of the upset as required in paragraph D.1.e.2.b. (24-hour notice).
 - (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.

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 of 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 5 years (or longer as required by 40 C.F.R. § 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. This period may be extended by request of the Director 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 must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. Subchapters N or O.
- e. The Clean Water Act provides that any person who falsifies, tampers with, or

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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 Director, 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 Clean Water Act, any substances or parameters at any location.

D. REPORTING REQUIREMENTS

1. Reporting Requirements

- a. *Planned Changes.* The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only 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 C.F.R. § 122.29(b); or
 - (2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements at 40 C.F.R. § 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 that are 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 Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

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- c. *Transfers.* This permit is not transferable to any person except after notice to the Director. The Director 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 Clean Water Act. *See* 40 C.F.R. § 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. As of December 21, 2016 all reports and forms submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by State law.
 - (2) If the Permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 C.F.R. § 136, or another method required for an industry-specific waste stream under 40 C.F.R. Subchapters N or O, the results of such 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 report shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written report 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. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather. As of December 21, 2020 all

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reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section.

- (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 C.F.R. § 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 Director in the permit to be reported within 24 hours. *See* 40 C.F.R. § 122.44(g).
 - (3) The Director may waive the written report on a case-by-case basis for reports under paragraph D.1.e. of this Section if the oral report has been received within 24 hours.
- f. *Compliance Schedules.* Reports of compliance or noncompliance with, or 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. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in paragraph D.1.e. and the applicable required data in Appendix A to 40 C.F.R. Part 127. As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), §122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this Section.
- h. *Other information.* Where the Permittee becomes aware that it failed to submit any

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relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

- i. *Identification of the initial recipient for NPDES electronic reporting data.* The owner, operator, or the duly authorized representative of an NPDES-regulated entity is required to electronically submit the required NPDES information (as specified in Appendix A to 40 C.F.R. Part 127) to the appropriate initial recipient, as determined by EPA, and as defined in 40 C.F.R. § 127.2(b). EPA will identify and publish the list of initial recipients on its Web site and in the FEDERAL REGISTER, by state and by NPDES data group (see 40 C.F.R. § 127.2(c) of this Chapter). EPA will update and maintain this listing.

2. Signatory Requirement

- a. All applications, reports, or information submitted to the Director shall be signed and certified. *See* 40 C.F.R. §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 non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under paragraph A.6. 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 Director. 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.

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

For more definitions related to sludge use and disposal requirements, see EPA Region 1's NPDES Permit Sludge Compliance Guidance document (4 November 1999, modified to add regulatory definitions, April 2018).

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 under the CWA, 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 or 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

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“approved States,” including any approved modifications or revisions.

Approved program or *approved State* means a State or interstate program which has been approved or authorized by EPA under Part 123.

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” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that 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.

Bypass see B.4.a.1 above.

C-NOEC or “*Chronic (Long-term Exposure Test) – No Observed Effect Concentration*” means 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.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 C.F.R. § 501.2, required to have an approved pretreatment program under 40 C.F.R. § 403.8 (a) (including any POTW located in a State that has elected to assume local program responsibilities pursuant to 40 C.F.R. § 403.10 (e)) and any treatment works treating domestic sewage, as defined in 40 C.F.R. § 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 its sewage sludge use or disposal practice to affect public health and the environment adversely.

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) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483 and Public Law 97-117, 33 U.S.C. 1251 *et seq.*

CWA and regulations means the Clean Water Act (CWA) and applicable regulations promulgated thereunder. In the case of an approved State program, it includes State program requirements.

Daily Discharge means the “discharge of a pollutant” measured during a calendar day or any

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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.

Direct Discharge means the “discharge of a pollutant.”

Director means the Regional Administrator or an authorized representative. In the case of a permit also issued under Massachusetts’ authority, it also refers to the Director of the Division of Watershed Management, Department of Environmental Protection, Commonwealth of Massachusetts.

Discharge

- (a) When used without qualification, *discharge* means the “discharge of a pollutant.”
- (b) As used in the definitions for “interference” and “pass through,” *discharge* means the introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b), (c) or (d) of the Act.

Discharge Monitoring Report (“DMR”) means the EPA uniform 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.

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 Director 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.”

Environmental Protection Agency (“EPA”) means the United States Environmental Protection

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Agency.

Grab Sample means an individual sample collected in a period of less than 15 minutes.

Hazardous substance means any substance designated under 40 C.F.R. Part 116 pursuant to Section 311 of CWA.

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

Indirect discharger means a nondomestic discharger introducing “pollutants” to a “publicly owned treatment works.”

Interference means a discharge (see definition above) 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, 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 that is not a land application unit, surface impoundment, injection well, or waste pile.

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

LC₅₀ means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC₅₀ = 100% is defined as a sample of undiluted effluent.

Maximum daily discharge limitation means the highest allowable “daily discharge.”

Municipal solid waste landfill (MSWLF) unit means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 C.F.R. § 257.2. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, very small quantity generator waste and industrial solid waste. Such a landfill may be

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publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion. A construction and demolition landfill that receives residential lead-based paint waste and does not receive any other household waste is not a MSWLF unit.

Municipality

- (a) When used without qualification *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 tribal organization, or a designated and approved management agency under Section 208 of CWA.
- (b) As related to sludge use and disposal, *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.

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 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 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 Director 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 Director shall consider the factors specified in 40 C.F.R. §§ 125.122 (a) (1) through (10).

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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 (see definition above) 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).

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

Permit means an authorization, license, or equivalent control document issued by EPA or an “approved State” to implement the requirements of Parts 122, 123, and 124. “Permit” includes an NPDES “general permit” (40 C.F.R. § 122.28). “Permit” does not include any permit which has not yet been the subject of final agency action, such as a “draft permit” or “proposed permit.”

Person means 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 measured at 25° Centigrade or measured at another temperature and then converted to an equivalent value at 25° Centigrade.

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 C.F.R. § 122.3).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials

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(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 C.F.R. Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operator is not the operator of the treatment works and (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 a treatment works as defined by Section 212 of the Act, which is owned by a State or municipality (as defined by Section 504(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

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

Secondary industry category means any industry which is not a “primary industry category.”

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, semi-solid, or liquid residue removed during the treatment of municipal waste water or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced waste water treatment, scum, septage, portable toilet pumpings, type III marine sanitation device pumpings (33 C.F.R. 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 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

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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 C.F.R. § 122.2.

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; finished materials such as metallic products; 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 Section 313 of title III of SARA; 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 C.F.R. §§ 110.10 and 117.21) or Section 102 of CERCLA (see 40 C.F.R. § 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 C.F.R. § 122.1(b)(2).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, the Trust Territory of the Pacific Islands, or an Indian Tribe as defined in the regulations which meets the requirements of 40 C.F.R. § 123.31.

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.

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 that is used for collecting and conveying storm water and that is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

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

Toxic pollutant 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 waste water 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 waste water 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 Director may designate any person subject to the standards for sewage sludge use and

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disposal in 40 C.F.R. 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 C.F.R. Part 503.

Upset see B.5.a. above.

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

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

Waters of the United States or *waters of the U.S.* 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 the 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 CWA (other than cooling ponds as defined in 40 C.F.R. § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland.

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Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient 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.

Zone of Initial Dilution (ZID) means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards.

2. 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 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

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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
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)
µg/L	Microgram(s) per liter
WET	“Whole effluent toxicity”
ZID	Zone of Initial Dilution

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912**

FACT SHEET

**DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO
THE CLEAN WATER ACT (CWA)**

NPDES PERMIT NUMBER: MA0003123

PUBLIC NOTICE START AND END DATES: July 12, 2022 – August 11, 2022

NAME AND MAILING ADDRESS OF APPLICANT:

New England Aquarium
Central Wharf
Boston, MA 02110

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

New England Aquarium
Central Wharf
Boston, MA 02110

RECEIVING WATER AND CLASSIFICATION:

Boston Inner Harbor (MA70-02)
Boston Harbor Watershed
Class SB (CSO)

SIC CODE: 8422 (Arboreta and Botanical or Zoological Gardens)

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1.0 Proposed Action

New England Aquarium (the Permittee) has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge from the New England Aquarium Central Wharf facility in Boston, Massachusetts (the Facility or the Aquarium) into Boston Inner Harbor.

The permit currently in effect was issued on August 1, 2013 with an effective date of August 1, 2013 and expired on July 31, 2018 (the 2013 Permit). The Permittee filed an application for permit reissuance with EPA dated January 24, 2018, as required by 40 Code of Federal Regulations (CFR) § 122.6. Since the permit application was deemed timely and complete by EPA on February 2, 2018, the Facility's 2013 Permit has been administratively continued pursuant to 40 CFR § 122.6 and § 122.21(d). EPA and the State conducted a site visit on March 31, 2022.

2.0 Statutory and Regulatory Authority

Congress enacted the Federal Water Pollution Control Act, codified at 33 U.S.C. § 1251 – 1387 and commonly known as the Clean Water Act (CWA), “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specific permitting sections of the CWA, one of which is § 402. *See* CWA §§ 301(a), 402(a). Section 402(a) established one of the CWA’s principal permitting programs, the NPDES Permit Program. Under this section, EPA may “issue a permit for the discharge of any pollutant or combination of pollutants” in accordance with certain conditions. CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. *See* CWA § 402(a)(1) and (2). The regulations governing EPA’s NPDES permit program are generally found in 40 CFR §§ 122, 124, 125, and 136.

“Congress has vested in the Administrator [of EPA] broad discretion to establish conditions for NPDES permits” in order to achieve the statutory mandates of Section 301 and 402. *Arkansas v. Oklahoma*, 503 U.S. 91, 105 (1992). *See also* 40 CFR §§ 122.4(d), 122.44(d)(1), and 122.44(d)(5). CWA §§ 301 and 306 provide for two types of effluent limitations to be included in NPDES permits: “technology-based” effluent limitations (TBELs) and “water quality-based” effluent limitations (WQBELs). *See* CWA §§ 301 and 304(b); 40 CFR §§ 122, 125, and 131.

2.1 Technology-Based Requirements

Technology-based treatment requirements represent the minimum level of control that must be imposed under CWA §§ 301(b) and 402 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 achievable (BAT) for toxic and non-conventional pollutants. *See* 40 CFR § 125 Subpart A.

Subpart A of 40 CFR Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under § 301(b) of the CWA, including the application of EPA promulgated Effluent Limitation Guidelines (ELGs) and case-by-case determinations of effluent limitations under CWA § 402(a)(1). EPA promulgates New Source Performance Standards (NSPS) under CWA § 306 and 40 CFR § 401.12. *See also* 40 CFR §§ 122.2 (definition of “new source”) and 122.29.

In general, ELGs for non-POTW facilities must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989. *See* 40 CFR § 125.3(a)(2). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit. In the absence of published technology-based effluent guidelines, the permit writer is authorized under CWA § 402(a)(1)(B) to establish effluent limitations on a case-by-case basis using best professional judgment (BPJ).

2.2 Water Quality-Based Requirements

The CWA and federal regulations require 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 less stringent TBELs would interfere with the attainment or maintenance of water quality criteria in the receiving water. *See* CWA § 301(b)(1)(C) and 40 CFR §§ 122.44(d)(1), 122.44(d)(5), 125.84(e) and 125.94(i).

2.2.1 Water Quality Standards

The CWA requires that each state develop water quality standards (WQSs) for all water bodies within the State. *See* CWA § 303 and 40 CFR §§ 131.10-12. Generally, WQSs consist of three parts: 1) beneficial designated use or uses for a water body or a segment of a water body; 2) numeric 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 and to protect high quality and National resource waters. *See* CWA § 303(c)(2)(A) and 40 CFR § 131.12. The applicable State WQSs can be found in Title 314 of the Code of Massachusetts Regulations, Chapter 4 (314 CMR 4.00).

As a matter of state law, state WQSs specify different water body classifications, each of which is associated with certain designated uses and numeric and narrative water quality criteria. When using chemical-specific numeric criteria to develop permit limitations, acute and chronic aquatic life criteria and human health criteria are used and expressed in terms of maximum allowable in-stream pollutant concentrations. In general, aquatic-life acute criteria are considered applicable to daily time periods (maximum daily limit) and aquatic-life chronic criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific human health criteria are typically based on lifetime chronic exposure and, therefore, are typically applicable to monthly average limits.

When permit effluent limitation(s) are necessary to ensure that the receiving water meets narrative water quality criteria, the permitting authority must establish effluent limits in one of the following three ways: 1) based on a “calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use,” 2) based on a “case-by-case basis” using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, 3) in certain circumstances, based on use of an indicator parameter. *See* 40 CFR § 122.44(d)(1)(vi)(A-C).

2.2.2 Antidegradation

Federal regulations found at 40 CFR § 131.12 require states to develop and adopt a statewide antidegradation policy that maintains and protects existing in-stream water uses and the level of water quality necessary to protect these existing uses. In addition, the antidegradation policy ensures maintenance of high quality waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water, unless the State finds that allowing degradation is necessary to accommodate important economic or social development in the area in which the waters are located.

Massachusetts’ statewide antidegradation policy, entitled “Antidegradation Provisions,” is found in the State’s WQSs at 314 CMR 4.04. Massachusetts guidance for the implementation of this policy is in an associated document entitled “Implementation Procedures for the Antidegradation Provisions of the Massachusetts Surface Water Quality Standards, 314 CMR 4.00,” dated October 21, 2009. According to the policy, no lowering of water quality is allowed, except in accordance with the antidegradation policy, and all existing in-stream uses, and the level of water quality necessary to protect the existing uses of a receiving water body must be maintained and protected.

This permit is being reissued with effluent limitations sufficiently stringent to satisfy the State’s antidegradation requirements, including the protection of the existing uses of the receiving water.

2.2.3 Assessment and Listing of Waters and Total Maximum Daily Loads

The objective of the CWA is to restore and maintain the chemical, physical and biological integrity of the Nation’s waters. To meet this goal, the CWA requires states to develop information on the quality of their water resources and report this information to EPA, the U.S. Congress, and the public. To this end, EPA released guidance on November 19, 2001, for the preparation of an integrated “List of Waters” that could combine reporting elements of both § 305(b) and § 303(d) of the CWA. The integrated list format allows states to provide the status of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories: 1) unimpaired and not threatened for all designated uses; 2) unimpaired waters for some uses and not assessed for others; 3) insufficient information to make assessments for any uses; 4) impaired or threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and 5) impaired or threatened for one or more uses and requiring a TMDL.

A TMDL is a planning tool and potential starting point for restoration activities with the ultimate goal of attaining water quality standards. A TMDL essentially provides a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from point sources and non-point sources, determines the maximum load of the pollutant that the water body can tolerate while still attaining WQSs for the designated uses, and allocates that load among the various sources, including point source discharges, subject to NPDES permits. *See* 40 CFR § 130.7.

For impaired waters where a TMDL has been developed for a particular pollutant and the TMDL includes a waste load allocation (WLA) for a NPDES permitted discharge, the effluent limitation in the permit must be “consistent with the assumptions and requirements of any available WLA”. 40 CFR § 122.44(d)(1)(vii)(B).

2.2.4 Reasonable Potential

Pursuant to CWA § 301(b)(1)(C) and 40 CFR § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs that are necessary to achieve water quality standards established under § 303 of the CWA. *See also* 33 U.S.C. § 1311(b)(1)(C). In addition, limitations “must control any pollutant or pollutant parameter (conventional, non-conventional, or toxic) which the permitting authority determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including State narrative criteria for water quality.” 40 CFR § 122.44(d)(1)(i). To determine if the discharge causes, or has the reasonable potential to cause, or contribute to an excursion above any WQS, EPA considers: 1) existing controls on point and non-point sources of pollution; 2) the variability of the pollutant or pollutant parameter in the effluent; 3) the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity); and 4) where appropriate, the dilution of the effluent by the receiving water. *See* 40 CFR § 122.44(d)(1)(ii).

If the permitting authority determines that the discharge of a pollutant will cause, has the reasonable potential to cause, or contribute to an excursion above WQSs, the permit must contain WQBELs for that pollutant. *See* 40 CFR § 122.44(d)(1)(i).

2.2.5 State Certification

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) 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 the State WQSs, the State waives, or is deemed to have waived, its right to certify. *See* 33 U.S.C. § 1341(a)(1). 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.

If the State believes that conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either CWA §§ 208(e), 301, 302, 303, 306 and 307, or applicable requirements of State law, the State should include such conditions in its certification

and, in each case, cite the CWA or State law provisions upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. EPA includes properly supported State certification conditions in the NPDES permit. The only exception to this is that the permit conditions/requirements regulating sewage sludge management and implementing CWA § 405(d) are not subject to the State certification requirements. Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through EPA's permit appeal procedures of 40 CFR Part 124.

In addition, the State should provide a statement of the extent to which any condition of the Draft Permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to final permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition.

It should be noted that under CWA § 401, EPA's duty to defer to considerations of State law is intended to prevent EPA from relaxing any requirements, limitations or conditions imposed by State law. Therefore, "[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition." 40 CFR § 124.55(c). In such an instance, the regulation provides that, "The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification." *Id.* EPA regulations pertaining to permit limitations based upon QQSs and State requirements are contained in 40 CFR §§ 122.4(d) and 122.44(d).

2.3 Effluent Flow Requirements

Generally, EPA uses effluent flow both to determine whether an NPDES permit needs certain effluent limitations and to calculate the effluent limitations themselves. EPA practice is to use effluent flow as a reasonable and important worst-case condition in EPA's reasonable potential and WQBEL calculations to ensure compliance with WQSs under CWA § 301(b)(1)(C). Should the effluent flow exceed the flow assumed in these calculations, the in-stream dilution would be reduced and the calculated effluent limitations might not be sufficiently protective (i.e., might not meet WQSs). Further, pollutants that do not have the reasonable potential to exceed WQSs at a lower discharge flow may have reasonable potential at a higher flow due to the decreased dilution. In order to ensure that the assumptions underlying EPA's reasonable potential analyses and permit effluent limitation derivations remain sound for the duration of the permit, EPA may ensure the validity of its "worst-case" effluent flow assumptions through imposition of permit conditions for effluent flow.¹ In this regard, the effluent flow limitation is a component of WQBELs because the WQBELs are premised on a maximum level flow. The effluent flow limit is also necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQSs.

¹ EPA's regulations regarding "reasonable potential" require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," *id.* 40 CFR §122.44(d)(1)(ii). Both the effluent flow and receiving water flow may be considered when assessing reasonable potential. *In re Upper Blackstone Water Pollution Abatement Dist.*, 14 E.A.D. 577, 599 (EAB 2010). EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. *See In re Washington Aqueduct Water Supply Sys.*, 11 E.A.D. 565, 584 (EAB 2004).

The limitation on effluent flow is within EPA's authority to condition a permit to carry out the objectives and satisfy the requirements of the CWA. *See* CWA §§ 402(a)(2) and 301(b)(1)(C); 40 CFR §§ 122.4(a) and (d), 122.43 and 122.44(d). A condition on the discharge designed to ensure the validity of EPA's WQBELs and reasonable potential calculations that account for "worst case" conditions is encompassed by the references to "condition" and "limitations" in CWA §§ 402 and 301 and the implementing regulations, as WQBELs are designed to assure compliance with applicable water quality regulations, including antidegradation requirements. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of effluent is also consistent with the CWA.

In addition, as provided in Part II.B.1 of this permit and 40 CFR § 122.41(e), the Permittee is required to properly operate and maintain all facilities and systems of treatment and control. Improper operation and maintenance may result in non-compliance with permit effluent limitations. Consequently, the effluent flow limit is a permit condition that relates to the Permittee's duty to mitigate (*i.e.*, minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment) and to properly operate and maintain the treatment works. *See* 40 CFR §§ 122.41(d), (e).

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

Sections 308(a) and 402(a)(2) of the CWA and the implementing regulations at 40 CFR Parts 122, 124, 125, and 136 authorize EPA to include monitoring and reporting requirements in NPDES permits.

The monitoring requirements included in this permit have been established to yield data representative of the Facility's discharges in accordance with CWA §§ 308(a) and 402(a)(2), and consistent with 40 CFR §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The Draft Permit specifies routine sampling and analysis requirements to provide ongoing, representative information on the levels of regulated constituents in the discharges. The monitoring program is needed to enable EPA and the State to assess the characteristics of the Facility's effluent, whether Facility discharges are complying with permit limits, and whether different permit conditions may be necessary in the future to ensure compliance with technology-based and water quality-based standards under the CWA. EPA and/or the State may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to CWA § 304(a)(1), State water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including, but not limited to, those pollutants listed in Appendix D of 40 CFR Part 122.

NPDES permits require that the approved analytical procedures found in 40 CFR Part 136 be used for sampling and analysis unless other procedures are explicitly specified. Permits also include requirements necessary to comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and*

*Reporting Rule.*² This Rule requires that where EPA-approved methods exist, NPDES applicants must use sufficiently sensitive EPA-approved analytical methods when quantifying the presence of pollutants in a discharge. Further, the permitting authority must prescribe that only sufficiently sensitive EPA-approved methods be used for analyses of pollutants or pollutant parameters under the permit. The NPDES regulations at 40 CFR § 122.21(e)(3) (completeness), 40 CFR § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 CFR § 136.1(c) (applicability) indicate that an EPA-approved method is sufficiently sensitive where:

- The method minimum level³ (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or
- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or
- 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.

2.4.2 Reporting Requirements

The Draft Permit requires the Permittee to report monitoring results obtained during each calendar month to EPA and the State electronically using NetDMR. The Permittee must submit a Discharge Monitoring Report (DMR) for each calendar month no later than the 15th day of the month following the completed reporting period.

NetDMR is a national web-based tool enabling regulated CWA permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has eliminated the need for participants to mail in paper forms to EPA under 40 CFR §§ 122.41 and 403.12. NetDMR is accessible through EPA's Central Data Exchange at <https://cdx.epa.gov/>. Further information about NetDMR can be found on EPA's NetDMR support portal webpage.⁴

With the use of NetDMR, the Permittee is no longer required to submit hard copies of DMRs and reports to EPA and the State unless otherwise specified in the Draft Permit. 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 Conditions.

² Fed. Reg. 49,001 (Aug. 19, 2014).

³ The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor. EPA is considering the following terms related to analytical method sensitivity to be synonymous: "quantitation limit," "reporting limit," "level of quantitation," and "minimum level." See Fed. Reg. 49,001 (Aug. 19, 2014).

⁴ <https://netdmr.zendesk.com/hc/en-us>

2.5 Standard Conditions

The Standard Conditions, included as Part II of the Draft Permit, are based on applicable regulations found in the Code of Federal Regulations. *See generally* 40 CFR Part 122.

2.6 Anti-backsliding

The CWA's anti-backsliding requirements prohibit a permit from being renewed, reissued or modified to include less stringent limitations or conditions than those contained in a previous permit except in compliance with one of the specified exceptions to those requirements. *See* CWA §§ 402(o) and 303(d)(4) and 40 CFR § 122.44(l). Anti-backsliding provisions apply to effluent limits based on technology, water quality, and/or State certification requirements.

All proposed limitations in the Draft Permit are at least as stringent as limitations included in the 2013 Permit unless specific conditions exist to justify relaxation in accordance with CWA § 402(o) or § 303(d)(4). Discussion of any less stringent limitations and corresponding exceptions to anti-backsliding provisions is provided in the sections that follow.

3.0 0 Description of Facility and Discharge

3.1 Location and Type of Facility

The Aquarium is located along the Boston waterfront adjacent to Boston Inner Harbor. A location map is provided in Figure 1. The Facility is composed of a number of different exhibits and animal holding tanks that generate wastewater discharges. These include a giant ocean tank, penguin exhibit, grouper exhibit and holding, front seal exhibit, fur seal/sea lion exhibit and holding, shark and ray exhibit and holding, five main exhibit galleries, an aquarium medical center and western wing, research lab holding, two lobster cultures, and one jellies culture.

3.1.1 Effluent Limitation Guidelines

EPA has not promulgated technology-based effluent limitation guidelines (ELGs) for Arboreta and Botanical or Zoological Gardens (SIC 8422) in 40 CFR Subchapter N Parts 405 through 471. Therefore, in accordance with CWA § 402(a)(1)(B) and 40 CFR § 125.3(c)(2), EPA may establish effluent limitations on a case-by-case basis using BPJ. The NPDES regulations in 40 CFR §125.3(c)(2) state that permits developed on a case-by-case basis under Section 402 (a)(1) of the CWA shall apply the appropriate factors listed in 40 CFR § 125.3(d) and must consider 1) the appropriate technology for the category class of point sources of which the applicant is a member, based on available information, and 2) any unique factors relating to the applicant.

3.2 Location and Type of Discharge

The Draft Permit authorizes discharges to Boston Inner Harbor via Outfall 001 consisting of wastewater generated from animal holding operations. Outfall 001 is located at Latitude 42° 21' 31.92", Longitude -71° 02' 53.34" on the sea floor of Boston Inner Harbor. The outfall is

approximately 100 feet from the shoreline and a little over 50 feet from the adjacent submerged process water intake. The outfall is at a depth of approximately 30 feet at low tide.

The Facility withdraws water from Boston Inner Harbor for use in animal exhibits. The intake is equipped with a 1-in grate to prevent large debris and organisms from entering. The intake pipe then leads to a strainer that prevents smaller organisms from entering. The strainer is cleaned and replaced periodically due to mussel build-up. Other organisms are rarely observed on the strainer. After entering the Facility, influent is treated with bag filters and then is stored in a 58,000-gallon storage tank. Water is then circulated to one of the life support systems for the different exhibits/holding tanks (e.g., Giant Ocean Tank, front seal exhibit, penguin exhibit, etc.). The life support systems are equipped with sand filters and protein skimmers. In addition, based on water quality needs, biological filtration, ozone contact chambers and small carbon treatment systems are used for some of the exhibits.

Wastewater generated from exhibits and filter backwash are pumped to a main 30,000-gallon sump. Settleable solids collected in the sump are manually removed. Once water levels in the sump hit a certain threshold, one of two pumps is triggered to discharge from the sump. The Permittee indicated the sump is not drawn all the way down to avoid stirring up solids. The activation of the sump pumps also triggers a chlorine disinfection process. A peristaltic pump will feed a 12% sodium hypochlorite solution into the discharging pump feed. This process has been designed to optimize the mixing of the effluent and the chlorine. Samples are taken a few feet after this mixing occurs from whichever pump is discharging. Effluent then travels out through an 18-inch discharge pipe where it enters a shallow trench and discharges into Boston Inner Harbor. There is currently no additional treatment for wastewater discharges from the exhibits. A schematic of water flow is provided in Figure 2.

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the Permittee, including Discharge Monitoring Reports (DMRs), from March 2017 through February 2022, is provided in Appendix A of this Fact Sheet.

4.0 Description of Receiving Water and Dilution

4.1 Receiving Water

The Facility discharges through Outfall 001 to Boston Inner Harbor (Segment ID MA70-02), which consists of 2.56 Square Miles in Boston, Massachusetts. Boston Inner Harbor is part of the Boston Harbor Watershed. From the Massachusetts WQSs, 314 Code of Massachusetts Regulations (CMR) 4.06, “Boston Inner Harbor is delineated as westerly inside a line from the southern tip of Governors Island to Fort Independence including the Charles, Mystic, Island End and Chelsea (Creek) Rivers and Reserved, Fort Point and Little Mystic Channels.”

Boston Inner Harbor is classified as Class SB (CSO), in the Massachusetts WQSs, 314 Code of Massachusetts Regulations (CMR) 4.06. Class SB waters are described in the Commonwealth of Massachusetts Water Quality Standards at 314 CMR 4.05(4)(b) as follows: *“These waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact*

recreation. In certain waters, habitat for fish, other aquatic life and wildlife may include, but is not limited to, seagrass. Where designated for shellfishing in 314 CMR 4.06(6)(b), these waters shall be suitable for shellfish harvesting with depuration (Restricted and Conditionally Restricted Shellfish Areas). These waters shall have consistently good aesthetic value.” Waters with a SB(CSO) designation are occasionally subject to short-term impairment of swimming or other recreational uses due to untreated combined sewer overflows (CSO) discharges in a typical year. *See 314 CMR 4.06(1)(d)(11).*

Boston Inner Harbor is listed in the Massachusetts Year 2018 Integrated List of Waters (“303(d) List”) as a Category 5 “Waters Requiring a TMDL.”⁵ The causes of impairments listed are cause unknown (contaminants in fish and/or shellfish), dissolved oxygen, enterococcus, fecal coliform, and PCBs in fish tissue. To address the fecal coliform and enterococcus impairments, the State developed a TMDL for pathogens in the Boston Harbor, Weymouth-Weir, and Mystic Watersheds.⁶ This will be addressed further below in Part 5.

4.2 Available Dilution

To ensure that discharges do not cause or contribute to violations of WQSs under all expected conditions, WQBELs are derived assuming critical conditions for the receiving water.⁷ The critical flow is some measure of the low flow of the receiving water and may stipulate the magnitude, duration, and frequency of allowable excursions from the magnitude component of criteria in order to prevent adverse impacts of discharges on existing and designated uses. State WQSs specify the hydrologic condition at which water quality criteria must be applied.

For coastal and marine waters in Massachusetts, the extreme hydrologic conditions at which aquatic life criteria must be applied are established on a case-by-case basis. In all cases existing uses shall be protected and the selection shall not interfere with the attainment of designated uses. *See 314 CMR 4.03(3)(c).* In addition, for coastal and marine waters in Massachusetts, human health criteria may be applied at conditions that will result in protection at least equivalent to that provided for rivers and streams. *See 314 CMR 4.03(3)(d).*

The 2013 Permit granted the Facility’s discharge a dilution factor of 5,333:1 based on tidal exchange modeling of Boston Harbor by Signell and Butman (1992).⁸ The authors used a hydrodynamic model to describe flushing dynamics between Massachusetts Bay and Boston Harbor and EPA derived a tidal flushing rate to calculate a dilution factor. Given the macro scale of this approach and the lack of consideration for site specific factors at the aquarium’s outfall or worst-case conditions (e.g., slack tide), EPA no longer finds that dilution estimate appropriate. At the same time, no site-specific study has been conducted to evaluate the dilution that is available to the Facility’s discharge. As a result, the Draft Permit requires that the Permittee

⁵ Massachusetts Year 2018 Integrated List of Waters. MassDEP Division of Watershed Management Watershed Planning Program, Worcester, Massachusetts, November 2021, Control Number 505.1.

⁶ *Final Pathogen TMDL for the Boston Harbor, Weymouth-Weir, and Mystic Watershed*. Prepared by Massachusetts DEP, USEPA, and ENSR International; October 2018, Control Number 157.1, page 78

⁷ [EPA Permit Writer’s Manual, Section 6.2.4](#)

⁸ Signell, R.P., Butman, B. (1992) *Modeling tidal exchange and dispersion in Boston Harbor*. Journal of Geophysical Resources, v. 97, p. 15191-15606.

conduct a dilution study by the permit renewal application deadline (i.e., 6 months from permit expiration). Failure to complete such an assessment will result in a no dilution finding during the next permit issuance. The dilution factor study can be based on modelling or a dye study. The Permittee must coordinate with EPA and MassDEP prior to conducting the study.

For the Draft Permit, EPA still is required to assess whether there is reasonable potential for the discharge to cause or contribute to an excursion above State WQS. Given that no new dilution model for the discharge is currently available, EPA used its best professional judgment of what the approximate dilution factor should be for the discharge by examining other coastal discharges in Massachusetts. The most recent and most applicable discharge to that of the aquarium is the one from Boston Ship Repair (NPDES Permit No. MA0040142), an industrial facility whose permit was reissued in 2021. Their discharge of copper-containing wastewater was modeled to have a dilution of 65:1 within 700 feet of their outfall. There are a variety of differences between the discharge from Boston Ship Repair and the aquarium, including the location in Boston Inner Harbor, the magnitude of maximum effluent flow (8.06 MGD vs. 0.15 MGD), and the daily discharge schedule. However, as a first approximation of the dilution, EPA finds this 65:1 value reasonable, unless new information during the public comment period or permit term (such as the required dilution study) indicate otherwise. For context, other permitted industrial coastal discharges in Massachusetts were either for thermal plumes (UMass Boston, Twin River Technology) or used the same Signell and Butman (1992) model (Gillette Company, Coast Guard Light Station).

EPA used this dilution factor (DF) in its quantitative derivation of WQBELs for pollutants in the Draft Permit.

5.0 Proposed Effluent Limitations and Conditions

The proposed effluent limitations and conditions derived under the CWA and State WQSs are described below. These proposed effluent limitations and conditions, the basis of which is discussed throughout this Fact Sheet, may be found in Part I of the Draft Permit.

5.1 Effluent Limitations and Monitoring Requirements

The State and Federal regulations, data regarding discharge characteristics, and data regarding ambient characteristics described above, were used during the effluent limitations development process. Discharge data are included in Appendix A. EPA's Reasonable Potential Analysis is included in Appendix B and results are discussed in the applicable sections below.

5.1.1 Effluent Flow

From March 1, 2017 through February 28, 2022 daily maximum effluent flow has ranged from 22,033 gallons per day (gpd) to 53,469 gpd (Appendix A). The Facility's 2013 Permit includes a maximum daily flow limit of 150,000 gallons per day (gpd) and an average monthly flow limit of 100,000 gpd. Under normal operating conditions, and as indicated by monitoring data and information provided by the Permittee, effluent flow rarely exceeds these limits. The Draft

Permit maintains the maximum daily and average monthly flow limits as well as continuous monitoring for flow using a totalizer or similar device when the Facility is discharging.

5.1.2 pH

The hydrogen-ion concentration in an aqueous solution is represented by the pH using a logarithmic scale of 0 to 14 standard units (S.U.). Solutions with pH 7.0 S.U. are neutral, while those with pH less than 7.0 S.U. are acidic and those with pH greater than 7.0 S.U. are basic. Discharges with pH values markedly different from the receiving water pH can have a detrimental effect on the environment. Sudden pH changes can kill aquatic life. pH can also have an indirect effect on the toxicity of other pollutants in the water.

From March 2017 through February 2022, pH has ranged from 7.73 to 8.42 S.U. (Appendix A). The Draft Permit requires a pH range of 6.5 to 8.5 S.U. when the Facility is discharging, monitored weekly by grab samples. The pH limitations are based on the State WQSs for Coastal and Marine Waters, Class SB at 314 CMR 4.05(4)(b)3, which require that the pH of the receiving water be in the range of 6.5 to 8.5 S.U. These limitations are based on CWA § 301(b)(1)(C) and 40 CFR § 122.44(d).

5.1.3 Total Suspended Solids

Solids could include inorganic (e.g., silt, sand, clay, and insoluble hydrated metal oxides) and organic matter (e.g., flocculated colloids and compounds that contribute to color). Solids can clog fish gills, resulting in an increase in susceptibility to infection or asphyxiation. Suspended solids can increase turbidity in receiving waters and reduce light penetration through the water column or settle to form bottom deposits in the receiving water. Suspended solids also provide a medium for the transport of other adsorbed pollutants, such as metals, which may accumulate in settled deposits that can have a long-term impact on the water column through cycles of re-suspension.

The 2013 Permit includes concentration-based effluent limitations of 30 mg/L as a monthly average and 60 mg/L as a daily maximum. In addition, the 2013 Permit contains mass-based limits of 25 lb/day as a monthly average and 75 lb/day as a daily maximum. The mass-based limitations were calculated by taking the product of the corresponding flow limit (100,000 or 150,000 gpd), the concentration limit, and a unit conversion factor (8.34). These limitations were carried forward across multiple previous permits and the Facility has shown an ability to meet them under almost all operating conditions. From March 2017 through February 2022, daily maximum total suspended solids (TSS) concentrations have ranged from below minimum levels to 24 mg/L (Appendix A). The monthly average TSS load between March 2017 through February 2022 was 0.69 lbs/day.

EPA believes that these limits are appropriate and achievable and are consistent with State water quality standards which require that, *“These waters shall be free from floating, suspended and settleable solids in concentrations or 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.”* See 314 CMR 4.05(4)(b)5. Therefore,

the Draft Permit continues the daily maximum and average monthly concentration and load limits.

5.1.4 Bacteria

Fecal coliform and Enterococci bacteria are indicators of contamination from sewage and/or the feces of warm-blooded wildlife (mammals and birds). Bacteria can survive in freshwater and saltwater environments and can pose a health risk to humans through primary and secondary contact recreation and the consumption of fish/shellfish. While aquaculture facilities are not considered to be significant sources of pathogens that affect human health, the Facility holds mammals in addition to fish and invertebrates and discharge to receiving waters for which a Final Pathogen Total Maximum Daily Load (TMDL) has been issued.

Where designated, Class SB waters shall be suitable for shellfish harvesting with depuration (Restricted and Conditionally Restricted Shellfish Areas). Fecal coliform is used as the indicator bacteria for waters with a shellfishing designated use, while *Enterococcus* is used as the indicator bacteria for recreational uses. See 314 CMR 4.05(4)(b)(4). Boston Inner Harbor is designated for both uses.

Boston Inner Harbor is impaired for both *Enterococcus* and fecal coliform and a Final Pathogen TMDL has been issued covering this waterbody. The TMDL establishes a wasteload allocation for all regulated discharges. For *Enterococcus*, the wasteload allocation is a geometric mean of 35 colonies per 100 mL based on five samples and a single sample maximum (SSM) of 104 colonies per 100 mL, which is consistent with the Massachusetts Surface Water Quality Standards that were in place at the time the TMDL was developed and approved. The State has interpreted the prior WQS to use the respective 90th percentile SSM criterion of 276 cfu per 100 mL as the maximum daily effluent limitations for NPDES discharges to receiving waters that are not designated beach areas. Thus, permit limits that would be consistent with the TMDL would be a monthly average of 35 colonies per 100 mL and a daily maximum of 276 colonies per 100 mL. For fecal coliform, the wasteload allocation is a median or geometric mean most probably number (MPN) of 88 organisms per 100 mL nor shall 10% of samples be greater than 260 organisms per 100 mL.

The 2013 Permit required monthly sampling for both bacteria and included effluent limitations based on State WQS only for *Enterococcus*. The limits for *Enterococcus* in the 2013 were a monthly average geometric mean of 35 colony forming units (CFU)/100 mL and a daily maximum of 276 CFU/100 mL. Since the issuance of that permit, Massachusetts WQS have been updated to include new criteria for *Enterococcus*. Concentrations shall not exceed 35 cfu/100 mL as the geometric mean of all samples collected within any 90-day or smaller interval and no more than 10% of samples shall exceed 130 CFU/100 mL (the statistical threshold value). In new implementation guidance for these criteria, MassDEP recommends implementing the geometric mean criteria as a monthly average limitation and the statistical threshold value as a daily maximum limitation.⁹

⁹ [Surface Water Quality Criteria for Bacteria: Implementation guidance for the Protection of Human Health in](#)

From March 2017 through February 2022, daily maximum fecal coliform concentrations have ranged from less than 4 CFU/100 mL to 416 CFU/100 mL (Appendix A). Over the same period, daily maximum *Enterococcus* concentrations have ranged from less than 10 CFU/100 mL to as high as 479 CFU/100 mL. Median results for both bacteria were non-detect and the daily maximum limitation for *Enterococcus* was exceeded twice.

To protect both primary contact recreation and shellfishing designated uses in Boston Inner Harbor, the Draft Permit includes limitations for both indicator organisms. Since the updated WQS are more stringent than the Boston Harbor Pathogen TMDL, the Draft Permit includes the following limits:

- *Enterococcus*
 - Daily Maximum limitation of 130 CFU/100 mL
 - Monthly Average limitation of 35 CFU/100 mL
- Fecal Coliform
 - Daily Maximum limitation of 260 MPN/100 mL
 - Monthly Average limitation of 88 MPN/100 mL

Samples shall be collected at a monthly frequency by grab sampling.

5.1.5 Total Nitrogen

Nutrients are compounds containing nitrogen and phosphorus. Although nitrogen and phosphorus are essential for plant growth, high concentrations of these nutrients can cause eutrophication, a condition in which aquatic plant and algal growth is excessive. Plant and algae respiration and decomposition reduces dissolved oxygen in the water, creating poor habitat for fish and other aquatic animals. Recent studies provide evidence that both phosphorus and nitrogen can play a role in the eutrophication of certain ecosystems. However, typically phosphorus is the limiting nutrient triggering eutrophication in freshwater ecosystems and nitrogen in marine or estuarine ecosystems. Thus, for Boston Inner Harbor nitrogen is the nutrient of concern evaluated below.

Total Nitrogen is the sum of Total Kjeldahl Nitrogen (TKN) (ammonium, organic and reduced nitrogen) and nitrate-nitrite. It is derived by individually monitoring for organic nitrogen compounds, ammonia, nitrate, and nitrite and adding the components together. Excess feed and animal waste are potential sources of total nitrogen from aquatic animal holding facilities such as aquariums. The Permittee has not been required to monitor for Total Nitrogen but has indicated on its 2018 Permit renewal application that it is believed to be present in the discharge (a long-term average nitrate-nitrite concentration of 7.7 mg/L was reported). To characterize the extent of nitrogen discharges from the Facility into the Weymouth-Weir Basin, the Draft Permit includes quarterly total nitrogen monitoring. EPA is including this monitoring condition in accordance with CWA 308(a), which allows EPA to gather information for the future

development of effluent limitations and potential violations of standards (e.g., narrative criteria for nutrients in State WQS at 314 CMR 4.05(5)(c)).

5.1.6 Total Residual Chlorine

Chlorine and chlorine compounds are toxic to aquatic life. Chlorine is used by the Facility for disinfection of the wastewater produced from its animal holding exhibits. Massachusetts WQS include aquatic life criteria for total residual chlorine. *See* 314 CMR 4.06, Table 29: Generally Applicable Criteria. For coastal and marine waters like Boston Inner Harbor, WQS stipulate an acute criterion of 13 µg/L and a chronic criterion of 7.5 µg/L. Furthermore, *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (1990), includes recommendations for chlorinated discharges. For facilities with large dilutions, the policy advises setting effluent limits no higher than 1.0 mg/L. As a result, the 2013 Permit included 1.0 mg/L average monthly and maximum daily effluent limitations monitored weekly by grab sample.

From March 2017 through February 2022, average monthly total residual chlorine concentrations ranged from 0.02 to 0.37 mg/L and daily maximum concentrations ranged from 0.1 to 3.32 mg/L (Appendix A). There were three violations of the daily maximum limit. The median daily maximum chlorine concentration was 0.23 mg/L, and the median average monthly concentration was 0.05 mg/L.

EPA conducted an analysis to determine whether there is reasonable potential for the discharge to cause or contribute to an excursion above State WQS using the 65:1 dilution discussed above, and criteria found in State WQS at 314 CMR 4.06 – Table 29 as stipulated by the Toxic Pollutants standard at 314 CMR 4.05(5)(e). *See* Appendix B. The results of EPA's analysis indicate discharges of total residual chlorine have a reasonable potential to cause or contribute to an excursion above WQSs. Because the upstream chlorine is assumed to be zero in this case, the water quality-based chlorine limits are calculated as the criteria times the dilution factor, as follows:

Acute criteria * dilution factor = Acute limit

13 µg/L * 65 = 845 µg/L = 0.845 mg/L (maximum daily)

Chronic criteria * dilution factor = Chronic limit

7.5 µg/L * 845 = 488 µg/L = 0.488 mg/L (average monthly)

These limits are included in the Draft Permit at a monitoring frequency of weekly.

5.1.7 Metals – Copper

The aquarium uses copper sulfate and/or cupramine as an anti-parasite treatment. Massachusetts WQS include aquatic life criteria for total copper. *See* 314 CMR 4.06, Table 29: Generally Applicable Criteria. For coastal and marine waters like Boston Inner Harbor, WQS stipulate an acute criterion of 4.8 µg/L and a chronic criterion of 3.1 µg/L. The 2013 Permit included a monthly monitoring requirement for total copper. From March 2017 through February 2022,

total copper concentrations ranged from below detection levels to 45 µg/L, with a median concentration of 2.5 µg/L (Appendix A).

EPA conducted an analysis to determine whether there is reasonable potential for the discharge to cause or contribute to an excursion above State WQS using the 65:1 dilution discussed above, and criteria found in State WQS at 314 CMR 4.06 – Table 29 as stipulated by the Toxic Pollutants standard at 314 CMR 4.05(5)(e). See Appendix B. The results of EPA’s analysis indicate discharges of copper do not cause, or have a reasonable potential to cause, or contribute to an excursion above WQSs. As a result, the Draft Permit does not include effluent limitations for copper. Regardless, monthly total copper monitoring remains in the Draft Permit given the historical concentrations relative to the criteria.

5.1.8 Whole Effluent Toxicity

CWA §§ 402(a)(2) and 308(a) 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. Whole effluent toxicity (WET) testing is conducted to ensure that the additivity, antagonism, synergism, and persistence of the pollutants in the discharge do not cause toxicity, even when the individual pollutants are present at low concentrations in the effluent. The inclusion of WET requirements in the Draft Permit will assure that the Facility does not discharge combinations of pollutants into the receiving water in amounts that would be toxic to aquatic life or human health.

In addition, under CWA § 301(b)(1)(C), discharges are subject to effluent limitations based on WQSs. Under CWA §§ 301, 303 and 402, EPA and the States may establish toxicity-based limitations to implement narrative water quality criteria calling for “no toxics in toxic amounts.” *See also* 40 CFR § 122.44(d)(1). The Massachusetts WQSs at 314 CMR 4.05(5)(e) state, “All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.” In addition, the Massachusetts WQSs at 314 CMR 4.03(2)(a) require no lethality to organisms passing through a mixing zone.

In accordance with current EPA guidance and State policy,¹⁰ whole effluent chronic effects are regulated by limiting the highest measured continuous concentration of an effluent that causes no observed chronic effect on a representative standard test organism, known as the chronic No Observed Effect Concentration (C-NOEC). Whole effluent acute effects are regulated by limiting the concentration that is lethal to 50% of the test organisms, known as the LC₅₀. This policy recommends that permits for discharges having a dilution factor greater than 20 but less than 100 have an effluent limit of 1.0 Toxic Unit (T.U.) and require acute toxicity testing only, four times per year for two species.

The 2013 Permit includes acute toxicity testing for two species (mysid shrimp and inland silverside) conducted once every five years. The last test occurred in 2017 and no acute toxicity was observed (Appendix A). Given the continued discharge of toxic pollutants (i.e., copper) and

¹⁰ *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters*. February 23, 1990.

the use of medications and chemicals with antibiotic and antiparasitic properties, EPA finds that toxicity testing is still warranted. Therefore, in accordance with 40 CFR § 122.44(d), the Draft Permit continues the effluent limits from the 2013 Permit and increases the monitoring frequency to annually. An annual frequency is merited due to the high chlorine concentrations observed in the discharge and the use of a variety of antibiotic and antiparasitic chemicals/medications. The quarterly testing recommended in the MA WQS implementation policy for toxics is not being followed in this case given the small magnitude of the discharge (average monthly flow of 100,000 gpd). The Draft Permit includes the new requirement to have WET testing coincide with a major discharge of treated tank water. This would be the worst-case condition when acute toxicity would be the greatest. Toxicity testing must be performed in accordance with EPA Region 1's test procedures and protocols specified in **Attachment A, Marine Acute Toxicity Test Procedure and Protocol** (July 2012), of the Draft Permit.

5.2 Special Conditions

5.2.1 Dilution Study

See the dilution discussion in Section 4.2 *Available Dilution*.

5.2.2 Best Management Practices

Best management practices (BMPs) may be expressly incorporated into a permit on a case-by-case basis where it is determined that they are necessary to achieve effluent limitations and standards or to carry out the purpose and intent of the CWA under § 402(a)(1). BMPs may be necessary to control or abate the discharge of pollutants when: 1) authorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) authorized under CWA § 402(p) for the control of storm water discharges; 3) numeric effluent limitations are infeasible; or 4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. See 40 CFR § 122.44(k).

On August 23, 2004, EPA promulgated technology-based effluent limitations guidelines (ELGs) for the CAAP Point Source Category at 40 CFR Part 451, Subpart A, Flow-through and Recirculating Systems Subcategory for facilities that contain, hold, or produce more than 100,000 pounds of aquatic animals per year (69 FR 51906). The ELGs became effective on September 22, 2004. The promulgated ELGs contain narrative effluent limitations with specific provisions for solids control, materials storage, structural maintenance, recordkeeping, and training. In the 2013 Permit, EPA found that the New England Aquarium Facility did not qualify as a CAAP but that some operations at the Facility were sufficiently similar such that some of the narrative effluent limitations or BMPs from the ELGs should apply on a case-by-case basis. Specifically, the requirements surrounding chemical storage and spill control measures. The Draft Permit has carried these requirements forward in Part I.C.2.

5.2.3 Discharges of Medications and Other Chemicals and Additives

The Facility uses a number of medications and chemicals including antibiotics, anti-parasite medications, sedatives, antifungals, antiprotozoals, disinfection chemicals and pH control chemicals. The Draft Permit allows the discharge of only those medications and chemicals specifically disclosed by the Permittee to EPA, only up to the amounts disclosed. The following medications and chemicals were disclosed to EPA:

- Chlorine
- Chloroquine
- Copper Sulfate
- Cupramine
- Diflubenzuron
- Doxycycline
- Enrofloxacin
- Ethanol
- Fenbendazole
- Formalin
- Imidocloprid
- Ketoconazole
- Levamisole
- Metronidazole
- Milbemycin
- Oxolinic acid
- Oxytetracycline
- Phenoxyethanol
- Praziquantel
- Soda ash
- Sodium bicarbonate
- Tricaine methane
- Sulfonate (MS222)
- Trichlorfon (Dylox)
- Trimethoprim Sulfa
- Virkon Aquatic

However, EPA recognizes that other medications and chemicals in use at a Facility may change during the term of the permit. As a result, the Draft Permit includes a provision that requires the Permittee to notify EPA in writing of the discharge a new medication or chemicals; allows for EPA review of the change; and provides the factors for consideration of such changes. The Draft Permit specifies that for each medication or chemical, the Permittee must submit the following information, at a minimum, in writing to EPA:

- Product name, chemical formula, general description, and manufacturer of the chemical/medication.

- Purpose or use of the chemical/additive.
- Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/medication.
- The frequency (e.g., hourly, daily), magnitude (e.g., maximum application concentration), duration (e.g., hours, days), and method of application for the chemical/medication.
- If available, the vendor's reported aquatic toxicity (i.e., NOAEL and/or LC₅₀ in percent for aquatic organism(s)).

The Permittee must also provide an explanation that demonstrates that the discharge of such chemical or additive: 1) will not add any pollutants in concentrations that exceed any permit effluent limitation; and 2) will not add any pollutants that would justify the application of permit conditions different from, or in addition to those currently in this permit.

The Draft Permit also carries forward a requirement to monitor for those chemicals with applicable test methods twice per year during the permit term. Assuming these requirements are met, discharges of a new chemical or additive is authorized under the permit upon notification to EPA unless otherwise notified by EPA.

6.0 Federal Permitting Requirements

6.1 Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA), grants authority and imposes requirements on Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (listed species) and habitat of such species that has been designated as critical (a "critical habitat").

Section 7(a)(2) of the ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to ensure that any action it authorizes, funds or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) administers Section 7 consultations for marine and anadromous species.

The Federal action being considered in this case is EPA's proposed NPDES permit for the New England Aquarium Central Wharf Facility's discharge of pollutants. The Draft Permit is intended to replace the 2013 Permit in governing the Facility. As the federal agency charged with authorizing the discharge from this Facility, EPA determines potential impacts to federally listed species, and initiates consultation, when required under Section 7(a)(2) of the ESA.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, and plants in the expected action area of the outfall to determine if EPA's proposed NPDES permit could potentially impact any such listed species in this segment of Boston Inner Harbor. Regarding protected species under the jurisdiction of USFWS, one species may be present in the action area

of the Facility's discharge.¹¹ The roseate tern (*Sterna dougallii dougallii*), a nesting shorebird found along the Atlantic Coast, is a federally listed endangered species that has been identified in the general vicinity of the action area¹². The roseate tern is found along coastal sand and gravel beaches in the northeast from March to August. They eat mainly insects, marine worms, and crustaceans. The population is threatened from habitat loss and degradation due to coastal development and stabilization, as well as predation and human disturbance.

The outfall and associated action area are located along the bottom of the harbor, which is reported to be approximately 30 feet deep at low tide and extends approximately 100 feet into the harbor. The shorefront is characterized by a concrete seawall and pier located in a highly developed area of Boston Inner Harbor (Figure 1). The bottom water discharge does not come in contact with the natural sand and gravel beach habitat of this bird and does not overlap with the sandy shore intertidal dwelling fish, worms and crustaceans that this bird feeds on. Based on this assessment, EPA has determined that there are no plausible routes of effects to the species from the discharge, so this federally protected shorebird species, as well as its prey, are not present in the action area. No ESA consultation with USFWS is required.

Regarding protected species under the jurisdiction of NOAA Fisheries, a number of anadromous and marine species and life stages likely overlap the action area of the Facility¹³. Subadult and adult life stages of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), adult shortnose sturgeon (*Acipenser brevirostrum*), adult and juvenile life stages of the following sea turtles - leatherback sea turtles (*Dermochelys coriacea*), loggerhead sea turtles (*Caretta caretta*) Kemp's ridley sea turtles (*Lepidochelys kempii*), green sea turtles (*Chelonia mydas*); adult and juvenile life stages of the following whales - North Atlantic right whales (*Eubalaena glacialis*) and fin whales (*Balaenoptera physalus*) are all expected to be present in Massachusetts coastal waters and may overlap the action area of the discharge in the Boston Inner Harbor.¹⁴ These protected species life stages are likely influenced by the discharge from this Facility.

Because these species may be affected by the discharge authorized by the proposed permit, EPA has evaluated the potential impacts of the permit action on these anadromous and marine species. On the basis of the evaluation, EPA's preliminary determination is that this action may affect, but is not likely to adversely affect, the relevant life stages of the NOAA Fisheries listed species above that are expected to inhabit the immediate coast near the Facility in the vicinity of the action area of the discharge. Therefore, EPA has judged that a formal consultation pursuant to Section 7 of the ESA is not required. EPA is seeking concurrence from NOAA Fisheries regarding this determination through the information in the Draft Permit and this Fact Sheet, as well as a biological assessment that will be sent to NOAA Fisheries Protected Resources Division under separate cover. EPA will not issue the Final Permit until ESA section 7 consultation with NOAA Fisheries has been completed.

Re-initiation of consultation will take place: (a) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously

¹¹ See <https://ecos.fws.gov/ipac/> [for USFWS]

¹² USFWS Species List Letter, Project Code: 2022-0047921; May 26, 2022.

¹³ See <https://www.greateratlantic.fisheries.noaa.gov/protected/section7/index.html> [for NOAA Fisheries].

¹⁴ <https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27>

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. No take is anticipated or exempted. If there is any incidental take of a listed species, initiation of consultation would be required.

6.2 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (*see* 16 U.S.C. § 1801 *et seq.*, 1998), EPA is required to consult with NOAA Fisheries if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat". *See* 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". *See* 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH. 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b) (1) (A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. A New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment in 2017 updated the descriptions. The information is included on the NOAA Fisheries website at:

<https://www.fisheries.noaa.gov/topic/habitat-conservation>. In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species. In a letter to EPA New England dated October 10, 2000, NOAA Fisheries agreed that for NPDES permit actions, EFH initial notification for purposes of consultation can be accomplished in the EFH section of the Draft Permit's supporting Fact Sheet.

The Federal action being considered in this case is EPA's proposed NPDES permit for the New England Aquarium, which discharges through Outfall 001 to Boston Inner Harbor (MA70-02) in Boston, Massachusetts at Latitude 42° 21' 31.92", Longitude -71° 02' 53.34". A review of the relevant essential fish habitat information provided by NOAA Fisheries¹⁵ indicates that the outfall exists within designated EFH for 26 federally managed species and one habitat area of particular concern (HAPC). Therefore, consultation with NOAA Fisheries under the Magnuson-Stevens Fishery Conservation and Management Act is required. The EFH species, life stages and HAPC for Boston Inner Harbor, Massachusetts, are listed in Table 1.

¹⁵ NOAA EFH Mapper available at <http://www.habitat.noaa.gov/protection/efh/efhmapper/>

Table 1. The EFH species, life stages and HAPC for Boston Inner Harbor, Massachusetts.

Species/Management Unit	Lifestage(s) Found at Location
Atlantic Wolffish	ALL
Winter Flounder	Eggs, Juvenile, Larvae/Adult
Little Skate	Juvenile, Adult
Ocean Pout	Adult, Juvenile
Atlantic Herring	Juvenile, Adult, Larvae
Atlantic Cod	Larvae, Adult, Juvenile, Eggs
Pollock	Juvenile, Eggs, Larvae
Red Hake	Adult, Eggs/Larvae/Juvenile
Silver Hake	Eggs/Larvae, Adult
Yellowtail Flounder	Adult, Juvenile, Larvae, Eggs
White Hake	Larvae, Adult, Eggs, Juvenile
Windowpane Flounder	Adult, Larvae, Eggs, Juvenile
Winter Skate	Adult, Juvenile
American Plaice	Adult, Juvenile, Larvae, Eggs
Thorny Skate	Juvenile
Bluefin Tuna	Adult
Northern Shortfin Squid	Adult
Longfin Inshore Squid	Juvenile, Adult
Atlantic Mackerel	Eggs, Larvae, Juvenile, Adult
Bluefish	Adult, Juvenile
Atlantic Butterfish	Eggs, Larvae, Adult
Spiny Dogfish	Sub-Adult Female, Adult Male, Adult Female
Atlantic Surfclam	Juvenile, Adult
Scup	Juvenile
Summer Flounder	Adult
Black Sea Bass	Adult
Habitat Area of Particular Concern Name	
Inshore 20m Juvenile Cod	

EPA has determined that actions regulated by the Draft Permit may adversely affect EFH. The Draft Permit has been conditioned in the following way to minimize any impacts that reduce the quality and/or quantity of EFH and HAPC.

EPA's Finding of all Potential Impacts to EFH

- This Draft Permit action does not constitute a new source of pollutants because it is the reissuance of an existing NPDES permit;
- Discharge monitoring requirements have been proposed for flow, pH, total suspended solids, bacteria, total residual chlorine, and whole effluent toxicity in order to meet federal effluent limitations guidelines and state water quality standards;
- More stringent chlorine limits have been implemented in the permit to reduce the likelihood of toxicity from chlorinated discharges;
- Acute toxicity tests will be conducted annually to evaluate the lethality of the discharge;
- The Draft Permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The effluent limitations and conditions in the Draft Permit were developed to be protective of all aquatic life;
- The Draft Permit prohibits violations of the state water quality standards; and
- The proposed Draft Permit requirements minimize any reduction in quality and/or quantity of EFH and HAPC, either directly or indirectly.

EPA believes that the conditions and limitations contained in the Draft Permit adequately protect all aquatic life, as well as the essential fish habitat and HAPC in the Inner Boston Harbor. Further mitigation is not warranted. Should adverse impacts to EFH or HAPC be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NOAA Fisheries Habitat and Ecosystem Services Division will be contacted and an EFH consultation will be re-initiated.

At the beginning of the public comment period, EPA notified NOAA Fisheries Habitat and Ecosystem Services Division that the Draft Permit and Fact Sheet were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents. In addition to this Fact Sheet and the Draft Permit, information to support EPA's finding was included in a letter under separate cover that will be sent to the NOAA Fisheries Habitat and Ecosystem Services Division during the public comment period.

7.0 Public Comments, Hearing Requests, and Permit Appeals

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:

Nathan Chien
EPA Region 1
5 Post Office Square, Suite 100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1649

Email: Chien.Nathan@epa.gov

Prior to the close of the public comment period, any person may submit a written request to EPA for a public hearing to consider the Draft Permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held if the criteria stated in 40 CFR § 124.12 are satisfied. In reaching a final decision on the Draft Permit, EPA will respond to all significant comments in a Response to Comments document attached to the Final Permit and make these responses available to the public at EPA's Boston office and on EPA's website.

Following the close of the comment period, and after any public hearings, if such hearings are held, EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who submitted written comments or requested notice. Within 30 days after EPA serves notice of the issuance of the Final Permit decision, an appeal of the federal NPDES permit may be commenced by filing a petition for review of the permit with the Clerk of EPA's Environmental Appeals Board in accordance with the procedures at 40 CFR § 124.19.

8.0 Administrative Record

The administrative record on which this Draft Permit is based may be accessed at EPA's Boston office by appointment, Monday through Friday, excluding holidays from Nathan Chien, EPA Region 1, 5 Post Office Square, Suite-100 (06-1), Boston, MA 02109-3912, or via email to Chien.Nathan@epa.gov.

July 12, 2022

Ken Moraff, Director
Water Division
U.S. Environmental Protection Agency

Figure 1: Location Map

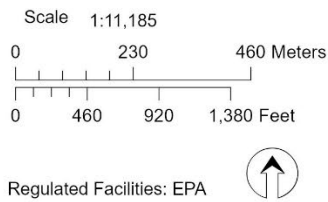
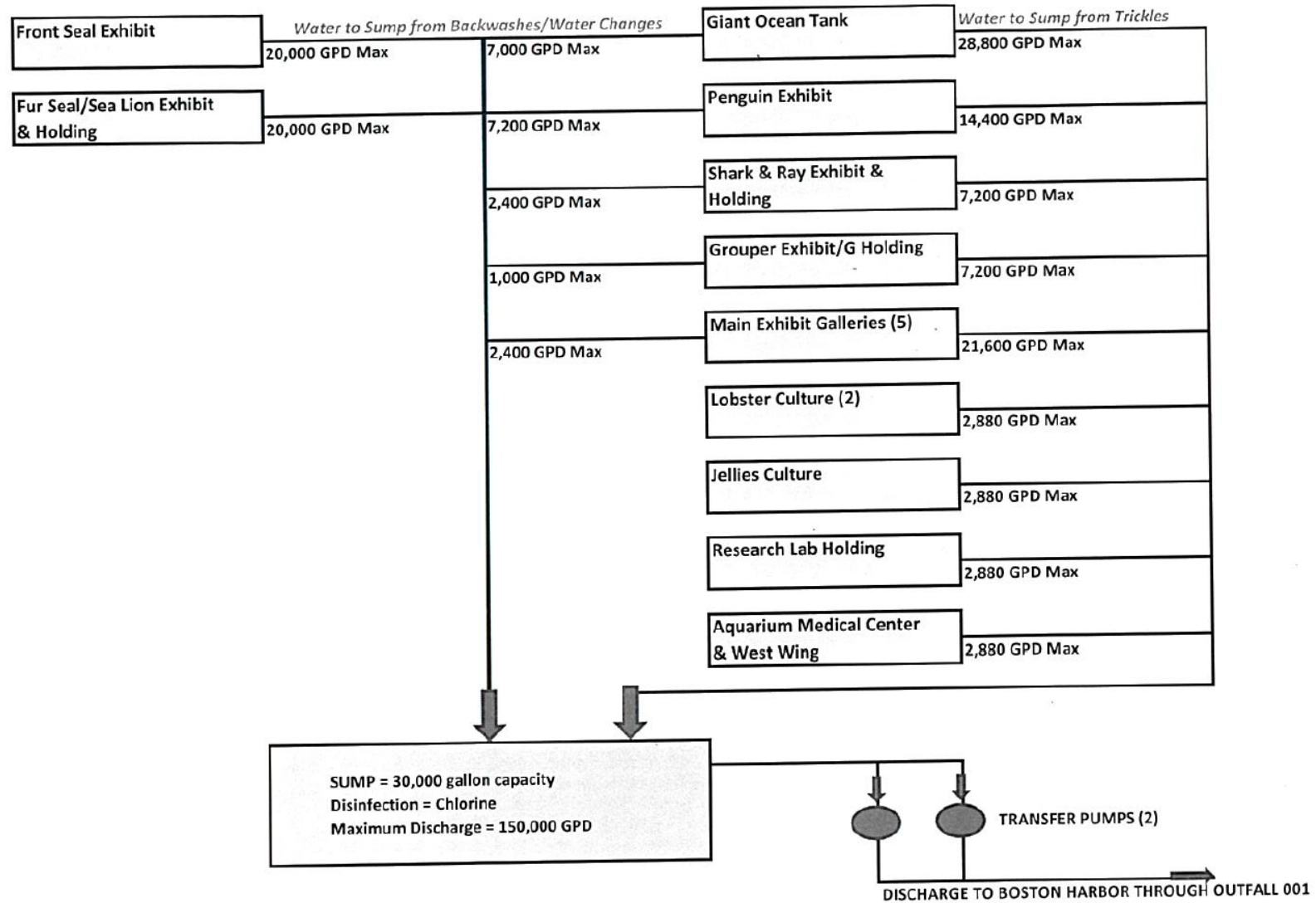


FIGURE 1
Site Location Map - New England Aquarium

MA0003123 - Main Facility
Central Wharf
Boston, MA 02110



Figure 2: Schematic of Water Flow



Appendix A: Discharge Monitoring Data

New England Aquarium Outfall Serial Number 001 Effluent Monitoring – Continued								
Parameter	Flow	Flow	TSS	TSS	TSS	TSS	pH	pH
	Monthly Avg	Daily Max	Monthly Avg	Monthly Avg	Daily Max	Daily Max	Minimum	Maximum
Units	gal/d	gal/d	lb/d	mg/L	lb/d	mg/L	SU	SU
Effluent Limit	100000	150000	25	30	75	60	6.5	8.5
Minimum	17989	22033	0	0	0	0	7.73	8.01
Maximum	33097	53469	2.15	12	5.27	24	8.04	8.42
Median	22749	28969	0.48	2.65	0.81	3.4	7.935	8.15
No. of Violations	0	0	0	0	0	0	0	0
Monitoring Period End Date								
3/31/2017	32224	38493	0.28	1.1	0.35	1.1	7.9	8.17
4/30/2017	32061	38919	1.88	7.1	4.12	12.7	7.94	8.1
5/31/2017	33097	41093	0.51	1.9	0.65	1.9	7.88	8.07
6/30/2017	28736	38941	0.59	2.5	0.88	2.7	7.83	8.1
7/31/2017	29370	35782	0.98	4	2.33	7.8	7.73	8.09
8/31/2017	26551	40510	1.87	8.5	3.41	10.1	7.76	8.09
9/30/2017	25267	31590	1.18	5.6	1.76	6.7	7.91	8.01
10/31/2017	25564	34430	1.28	6	2.76	9.6	7.89	8.1
11/30/2017	22719	31698	1.77	9.4	2.77	10.5	7.96	8.21
12/31/2017	24561	32010	1	4.9	2.24	8.4	7.98	8.12
1/31/2018	21657	28574	1.38	7.7	1.91	8	7.99	8.18
2/28/2018	23767	31238	0.39	2	0.73	2.8	8	8.36
3/31/2018	25841	29941	0.58	2.7	0.72	2.9	8.02	8.17

New England Aquarium Outfall Serial Number 001 Effluent Monitoring – Continued								
Parameter	Flow	Flow	TSS	TSS	TSS	TSS	pH	pH
	Monthly Avg	Daily Max	Monthly Avg	Monthly Avg	Daily Max	Daily Max	Minimum	Maximum
Units	gal/d	gal/d	lb/d	mg/L	lb/d	mg/L	SU	SU
4/30/2018	27765	31135	1.06	4.6	1.71	6.6	7.97	8.11
5/31/2018	26345	44966	1.07	4.9	2.44	6.5	7.89	8.18
6/30/2018	20959	26808	0.08	0.5	0.2	0.9	7.92	8.1
7/31/2018	22408	27063	1.75	9.4	3.32	14.7	7.89	8.12
8/31/2018	22135	28963	0.23	1.3	0.6	2.5	7.84	8.11
9/30/2018	22779	25060	1.47	7.8	3.07	14.7	7.77	8.1
10/31/2018	23282	26903	0.73	3.8	1.68	7.5	7.93	8.24
11/30/2018	23572	30657	0.5	2.6	1.18	4.6	8.01	8.24
12/31/2018	23131	28975	0.15	0.8	0.39	1.6	7.82	8.09
1/31/2019	22869	29371	0.17	0.9	0.44	1.8	7.85	8.17
2/28/2019	23361	29541	0.02	0.1	0.05	0.2	7.94	8.17
3/31/2019	24520	29768	0	0	0	0	7.97	8.16
4/30/2019	26476	30693	0.33	1.5	0.51	2	7.9	8.14
5/31/2019	22452	28077	0.7	3.8	1.08	4.6	7.93	8.15
6/30/2019	22060	24399	0.37	2	0.61	3	7.91	8.11
7/31/2019	21762	24410	0.37	2.1	0.49	2.4	7.95	8.13
8/31/2019	20923	25262	0.55	3.2	1.12	5.3	7.89	8.11
9/30/2019	21921	28455	0.3	1.7	0.55	2.3	7.88	8.15
10/31/2019	22886	53469	0.38	2	1.07	2.4	7.88	8.09
11/30/2019	21710	44281	0.42	2.3	1.26	3.4	8	8.09
12/31/2019	21901	27877	0.11	0.6	0.28	1.2	7.82	8.15
1/31/2020	24525	27333	1.29	6.3	1.73	7.6	7.79	8.24
2/29/2020	26025	30174	0.36	1.7	0.83	3.3	7.93	8.16

New England Aquarium Outfall Serial Number 001 Effluent Monitoring – Continued								
Parameter	Flow	Flow	TSS	TSS	TSS	TSS	pH	pH
	Monthly Avg	Daily Max	Monthly Avg	Monthly Avg	Daily Max	Daily Max	Minimum	Maximum
Units	gal/d	gal/d	lb/d	mg/L	lb/d	mg/L	SU	SU
3/31/2020	27335	34251	0.34	1.5	0.69	2.4	7.95	8.2
4/30/2020	26920	30616	0.1	0.5	0.23	0.9	7.99	8.13
5/31/2020	23768	28149	0.79	4	1.2	5.1	7.92	8.21
6/30/2020	21526	25766	0.48	2.7	0.79	3.7	7.98	8.1
7/31/2020	22356	24908	0.08	0.5	0.17	0.8	7.9	8.1
8/31/2020	21322	27565	0.13	0.8	0.23	1	7.84	8.07
9/30/2020	22376	26025	1.07	5.8	2.06	9.5	7.96	8.16
10/31/2020	20476	22257	0.39	2.3	0.69	3.7	7.99	8.2
11/30/2020	21520	26360	2.15	12	5.27	24	8	8.15
12/31/2020	21567	25806	0.37	2.1	0.49	2.3	7.98	8.14
1/31/2021	21698	27375	1.08	6	2.24	9.8	7.94	8.13
2/28/2021	19630	23797	0.48	3	0.65	3.3	7.86	8.3
3/31/2021	18946	26056	0.39	2.5	0.74	3.4	7.89	8.42
4/30/2021	20459	25755	0.46	2.7	0.64	3	7.94	8.19
5/31/2021	19520	22033	0.35	2.2	0.59	2.3	7.96	8.26
6/30/2021	19946	36884	1.51	9.1	4.43	14.4	7.97	8.26
7/31/2021	19943	26937	1.36	8.2	2.16	9.6	7.94	8.1
8/31/2021	18942	22535	1.65	10.5	3.31	17.6	7.95	8.09
9/30/2021	17989	22281	0.47	3.2	0.69	3.7	7.96	8.21
10/31/2021	21113	32808	0.72	4.1	1.5	5.5	7.98	8.18
11/30/2021	21405	31503	0.85	4.8	1.5	5.7	7.98	8.1
12/31/2021	24347	46850	0.06	0.3	0.16	0.4	8.04	8.29
1/31/2022	27644	30877	0.4	1.8	0.62	2.4	7.94	8.24

New England Aquarium Outfall Serial Number 001 Effluent Monitoring – Continued								
Parameter	Flow	Flow	TSS	TSS	TSS	TSS	pH	pH
	Monthly Avg	Daily Max	Monthly Avg	Monthly Avg	Daily Max	Daily Max	Minimum	Maximum
Units	gal/d	gal/d	lb/d	mg/L	lb/d	mg/L	SU	SU
2/28/2022	24423	27464	0.08	0.4	0.18	0.8	7.89	8.19

New England Aquarium Outfall Serial Number 001 Effluent Monitoring – Continued								
Parameter	Enterococci	Enterococci	Fecal Coliform	Fecal Coliform	TRC	TRC	Copper	Copper
	Monthly Geometric Mean	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
Units	CFU/100mL	CFU/100mL	CFU/100mL	CFU/100mL	mg/L	mg/L	ug/L	ug/L
Effluent Limit	35	276	Report	Report	1	1	Report	Report
Minimum	0	0	0	0	0.02	0.1	0	0
Maximum	31	479	416	416	0.37	3.32	45	45
Median	Non-Detect	Non-Detect	Non-Detect	Non-Detect	0.05	0.23	2.5	2.5
No. of Violations	0	2	N/A	N/A	0	3	N/A	N/A
Monitoring Period End Date								
3/31/2017	< 10	< 10	< 4	< 4	0.15	0.71	6	6
4/30/2017	< 10	< 10	< 4	< 4	0.2	0.92	3	3
5/31/2017	< 10	< 10	416	416	0.04	0.13	4	4
6/30/2017	< 10	< 10	< 4	< 4	0.34	3.32	5	5

New England Aquarium Outfall Serial Number 001 Effluent Monitoring – Continued								
Parameter	Enterococci	Enterococci	Fecal Coliform	Fecal Coliform	TRC	TRC	Copper	Copper
	Monthly Geometric Mean	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
Units	CFU/100mL	CFU/100mL	CFU/100mL	CFU/100mL	mg/L	mg/L	ug/L	ug/L
7/31/2017	< 26	479	24	24	0.03	0.16	4	4
8/31/2017	< 10	< 10	< 4	< 4	0.05	0.87	0	0
9/30/2017	< 10	< 10	4	4	0.13	0.98	7	7
10/31/2017	< 10	< 10	12	12	0.04	0.27	9	9
11/30/2017	< 10	< 10	4	4	0.02	0.13	7	7
12/31/2017	24	315	235	235	0.05	0.28	5	5
1/31/2018	< 10	< 10	< 4	< 4	0.18	1.39	7	7
2/28/2018	< 10	< 10	< 4	< 4	0.07	0.37	2	2
3/31/2018	< 10	< 10	< 4	< 4	0.06	0.38	2	2
4/30/2018	< 10	< 10	< 4	< 4	0.06	0.23	4	4
5/31/2018	< 10	< 10	< 4	< 4	0.03	0.21	10	10
6/30/2018	< 10	< 10	< 4	< 4	0.03	0.29	2	2
7/31/2018	< 10	< 10	< 4	< 4	0.02	0.12	2	2
8/31/2018	< 10	< 10	4	4	0.03	0.3	0	0
9/30/2018	31	31	24	24	0.04	0.19	6	6
10/31/2018	20	20	< 4	< 4	0.05	0.18	2	2
11/30/2018	< 10	< 10	4	4	0.08	0.43	1	1
12/31/2018	< 10	< 10	< 4	< 4	0.05	0.15	2	2
1/31/2019	< 10	< 10	< 4	< 4	0.07	0.26	0	0
2/28/2019	20	20	12	12	0.08	0.23	0	0
3/31/2019	< 10	< 10	< 4	< 4	0.04	0.11	1	1

New England Aquarium Outfall Serial Number 001 Effluent Monitoring – Continued								
Parameter	Enterococci	Enterococci	Fecal Coliform	Fecal Coliform	TRC	TRC	Copper	Copper
	Monthly Geometric Mean	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
Units	CFU/100mL	CFU/100mL	CFU/100mL	CFU/100mL	mg/L	mg/L	ug/L	ug/L
4/30/2019	10	10	< 4	< 4	0.06	0.26	2	2
5/31/2019	< 10	< 10	< 4	< 4	0.04	0.1	0	0
6/30/2019	< 10	< 10	< 4	< 4	0.03	0.27	8	8
7/31/2019	< 10	< 10	< 4	< 4	0.04	0.29	2	2
8/31/2019	< 10	< 10	24	24	0.03	0.14	3	3
9/30/2019	< 10	< 10	< 4	< 4	0.02	0.11	0	0
10/31/2019	< 10	< 10	< 4	< 4	0.2	0.47	0	0
11/30/2019	< 10	< 10	12	12	0.05	0.12	7	7
12/31/2019	10	10	20	20	0.03	0.12	1	1
1/31/2020	< 31	255	80	80	0.04	0.28	2	2
2/29/2020	< 10	< 10	< 4	< 4	0.06	0.19	1	1
3/31/2020	30	30	50	50	0.11	0.74	4	4
4/30/2020	< 10	< 10	< 4	< 4	0.06	0.27	7	7
5/31/2020	< 10	< 10	12	12	0.37	2.12	2	2
6/30/2020	< 10	< 10	< 4	< 4	0.06	0.22	0	0
7/31/2020	< 10	< 10	< 4	< 4	0.04	0.18	5	5
8/31/2020	< 10	< 10	< 4	< 4	0.06	0.29	0	0
9/30/2020	< 10	< 10	16	16	0.04	0.17	4	4
10/31/2020	< 10	< 10	< 4	< 4	0.02	0.11	3	3
11/30/2020	< 10	< 10	< 4	< 4	0.08	0.2	1	1
12/31/2020	< 10	< 10	< 4	< 4	0.11	0.24	5	5

New England Aquarium Outfall Serial Number 001 Effluent Monitoring – Continued								
Parameter	Enterococci	Enterococci	Fecal Coliform	Fecal Coliform	TRC	TRC	Copper	Copper
	Monthly Geometric Mean	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
Units	CFU/100mL	CFU/100mL	CFU/100mL	CFU/100mL	mg/L	mg/L	ug/L	ug/L
1/31/2021	< 10	< 10	< 4	< 4	0.07	0.2	0	0
2/28/2021	< 10	< 10	< 4	< 4	0.03	0.11	6	6
3/31/2021	< 10	< 10	12	12	0.05	0.53	3	3
4/30/2021	< 10	< 10	< 4	< 4	0.06	0.2	2	2
5/31/2021	< 10	< 10	< 4	< 4	0.14	0.42	2	2
6/30/2021	< 10	< 10	4	4	0.02	0.11	2	2
7/31/2021	< 10	< 10	< 4	< 4	0.03	0.14	3	3
8/31/2021	< 10	< 10	< 4	< 4	0.04	0.22	4	4
9/30/2021	< 10	< 10	< 4	< 4	0.05	0.29	2	2
10/31/2021	< 10	< 10	< 4	< 4	0.04	0.17	3	3
11/30/2021	< 10	< 10	< 4	< 4	0.05	0.27	1	1
12/31/2021	< 10	< 10	< 4	< 4	0.04	0.2	45	45
1/31/2022	< 10	< 10	< 4	< 4	0.13	0.33	15	15
2/28/2022	< 10	< 10	< 4	< 4	0.07	0.17	6	6

New England Aquarium Outfall Serial Number 001 Whole Effluent Toxicity Testing				
Parameter	LC50 Acute Menidia	LC50 Mysid. Bahia	Noael Static 48Hr Acute Menidia	Noael Static 48Hr Acute Mysid. Bahia
	Monthly Avg Min	Monthly Avg Min	Monthly Avg Min	Monthly Avg Min
Units	%	%	%	%
Effluent Limit	Report	Report	Report	Report
Minimum	100	100	100	100
Maximum	100	100	100	100
Median	100	100	100	100
No. of Violations	N/A	N/A	N/A	N/A
Monitoring Period End Date				
9/30/2017	100	100	100	100

Appendix B: Reasonable Potential Analysis

Methodology

A reasonable potential analysis is completed using a single set of critical conditions for flow and pollutant concentrations that will ensure the protection of water quality standards. To determine the critical condition of the effluent, EPA projects an upper bound of the effluent concentration based on the observed monitoring data and a selected probability basis. EPA generally applies the quantitative approach found in Appendix E of the *Technical Support Document for Water Quality-based Toxics Control* (TSD)¹ to determine the upper bound of the effluent data. This methodology accounts for effluent variability based on the size of the dataset and the occurrence of non-detects (i.e., samples results in which a parameter is not detected above laboratory minimum levels). EPA used this methodology to calculate the 95th percentile.

EPA uses the calculated upper bound of the effluent data and a concentration representative of the parameter in the receiving water outside of the zone of influence of the discharge to project the downstream concentration after complete mixing using the following simple mass-balance equation:

$$C_s(DF - 1) + C_e = C_d(DF)$$

Where:

C_d = downstream concentration

C_e = effluent concentration (95th percentile of effluent concentrations)

DF = dilution factor (See Available Dilution section of the Fact Sheet)

Solving for the receiving water concentration downstream of the discharge (C_d) yields:

$$C_d = \frac{C_s(DF - 1) + C_e}{DF}$$

Where there is no available dilution (i.e., DF = 1), the receiving water concentration downstream of the discharge (C_d) is equal to the effluent concentration.

When the downstream concentration exceeds the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above WQSs. *See* 40 CFR § 122.44(d). When EPA determines that a discharge causes, has the reasonable potential to cause, or contribute to such an excursion, the permit must contain WQBELs for the parameter. The limitation is calculated by rearranging the above mass balance equation to solve for the effluent concentration using the applicable criterion as the downstream concentration. The resulting effluent concentration then becomes the basis for the effluent limit. *See* 40 CFR § 122.44(d)(1)(iii).

Determination of Applicable Criteria

¹ USEPA, *Technical Support Document for Water Quality-Based Toxics Control*, Office of Water, Washington, D.C., March 1991.

State water quality criteria are found in 314 CMR 4.06: Table 29. Saltwater aquatic life criteria for copper are established in terms of dissolved metals and are converted to total recoverable using published conversion factors. The applicable criteria are summarized in the table below.

Summary of Applicable Criteria

Parameter	Conversion Factors ¹		Applicable Criteria	
	Acute	Chronic	Acute Criteria (CMC)	Chronic Criteria (CCC)
Units	—	—	µg/L	µg/L
Copper	0.83	0.83	5.78	3.73
Total Residual Chlorine	—	—	13	7.6

¹For dissolved to total recoverable metal conversion, see Appendix F of Table 29A in 314 CMR 4.06.

Calculation of Reasonable Potential

EPA first calculated the upper bound of expected effluent concentrations for each parameter. EPA then used the calculated upper bound of expected effluent concentrations, the median value of the available ambient data, the permitted daily maximum effluent flow and the dilution factor to project the in-stream concentration downstream from the discharge. When this resultant in-stream concentration (C) exceeds the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above water quality standards. The results are summarized in the table below.

The Facility did not collect any ambient copper data as part of WET testing. Therefore, EPA pulled data from the Sunoco permit (MA0004006), which discharges upstream of the offsite holding facility to the Chelsea River. Four WET samples were collected in the past 5 years with receiving water copper data in the Chelsea River with one detection of 2.53 µg/L and three non-detects. Therefore, a median upstream concentration of 0.0 µg/L was chosen for this analysis.

Summary of Reasonable Potential Results

Parameter	Effluent Conc ¹	Upstream Conc	Dilution Factor	Downstream Concentration	Acute Criterion	Chronic Criterion	Acute Reasonable Potential ²	Chronic Reasonable Potential ²
Units	µg/L	µg/L	—	µg/L	µg/L	µg/L	—	—
Copper	11.3	0.0	65	0.2	5.78	3.73	N	N
Total Residual Chlorine	888.4	0.0	65	13.7	13.0	7.5	Y	Y

¹Values represent the 95th percentile concentration calculated using the monitoring data reported by the Facility (See Appendix A).

²“Y” is indicated if downstream concentration exceeds the applicable criterion. “N” is indicated if downstream concentration does not exceed the applicable criterion.

Copper does not have a reasonable potential to cause or contribute to an excursion above water quality standards. However, total residual chlorine does.

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

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

PUBLIC NOTICE PERIOD: July 12, 2022 – August 11, 2022

NAME AND MAILING ADDRESS OF APPLICANT:

New England Aquarium
Central Wharf
Boston, MA 02110

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

New England Aquarium
Central Wharf
Boston, MA 02110

RECEIVING WATER AND CLASSIFICATION:

Boston Inner Harbor (Class SB)

PREPARATION OF THE DRAFT PERMIT AND EPA REQUEST FOR CWA § 401 CERTIFICATION:

EPA is issuing for public notice and comment the Draft NPDES Permit for the New England Aquarium, Central Wharf facility, which discharges wastewater from aquatic animal holding tanks to Boston Inner Harbor. The effluent limits and permit conditions have been drafted pursuant to, and assure compliance with, the CWA, including EPA-approved State Surface Water Quality Standards at 314 CMR 4.00. MassDEP cooperated with EPA in the development of the Draft NPDES Permit. MassDEP retains independent authority under State law to publish for public notice and issue a separate Surface Water Discharge Permit for the discharge, not the subject of this notice, under the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53.

In addition, EPA has requested that MassDEP grant or deny certification of this Draft Permit pursuant to Section 401 of the CWA and implementing regulations. Under federal regulations governing the NPDES program at 40 Code of Federal Regulations (CFR) § 124.53(e), state certification shall contain conditions that are necessary to assure compliance with the applicable provisions of CWA sections 208(e), 301, 302, 303, 306, and 307 and with appropriate requirements of State law, including any conditions more stringent than those in the Draft Permit that MassDEP finds necessary to meet these requirements. Furthermore, MassDEP may provide a statement of the extent to which each condition of the Draft Permit can be made less stringent without violating the requirements of State law.

INFORMATION ABOUT THE DRAFT PERMIT:

The Draft Permit and explanatory Fact Sheet may be obtained at no cost at <https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits> or by contacting:

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U.S. Environmental Protection Agency – Region 1
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Telephone: (617) 918-1649
Email: Chien.Nathan@epa.gov

Following U.S. Centers for Disease Control and Prevention (CDC) and U.S. Office of Personnel Management (OPM) guidance and specific state guidelines impacting our regional offices, EPA's workforce has been directed to telework to help prevent transmission of the coronavirus. While in this workforce telework status, there are practical limitations on the ability of Agency personnel to allow the public to review the administrative record in person at the EPA Boston office. However, any electronically available documents that are part of the administrative record can be requested from the EPA contact above.

PUBLIC COMMENT AND REQUESTS FOR PUBLIC HEARINGS:

All persons, including applicants, who believe any condition of this Draft Permit is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by August 11, 2022, which is the close of the public comment period. Comments, including those pertaining to EPA's request for CWA § 401 certification, should be submitted to the EPA contact at the address or email listed above. Upon the close of the public comment period, EPA will make all comments available to MassDEP. All commenters who want MassDEP to consider their comments in the state decision-making processes (i.e., the separate state permit and the CWA § 401 certification) must submit such comments to MassDEP during the state comment period for the state Draft Permit and CWA § 401 certification. For information on submitting such comments to MassDEP, please follow the instructions found in the state public notice at: <https://www.mass.gov/service-details/massdep-public-hearings-comment-opportunities>.

Any person, prior to the close of the EPA public comment period, may submit a request in writing to EPA for a public hearing on the Draft Permit under 40 CFR § 124.10. 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 if 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.

Due to the COVID-19 National Emergency, if comments are submitted in hard copy form, please also email a copy to the EPA contact above.

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 notify the applicant and each person who has submitted written comments or requested notice.

KEN MORAFF, DIRECTOR
WATER DIVISION
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY – REGION 1

LEALDON LANGLEY, DIRECTOR
DIVISION OF WATERSHED MGMT
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL PROTECTION