

**AUTHORIZATION TO DISCHARGE UNDER
THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Federal Clean Water Act as amended, 33 U.S.C. §§1251 et seq. (the “CWA”), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

Gulf Oil Limited Partnership

is authorized to discharge from a facility located at

**Gulf Oil Terminal
281 Eastern Avenue
Chelsea, MA 02150**

to receiving water named

**Chelsea River (MA71-06)
Mystic River Watershed**

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

This permit shall become effective on [DATE].¹

This permit expires at midnight on [DATE].

This permit supersedes the permit issued on September 24, 2014.

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 treated stormwater and hydrostatic test water through **Outfall Serial Number 003** to the Chelsea River. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	Effluent Limitation		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type
Flow Rate Oil/Water Separator ⁵	---	800 GPM	When Discharging	Estimate
Total Effluent Flow ⁶	---	Report MGal/Mo	When Discharging	Meter
Number of Events	---	Report #	When Discharging	Count
Total Suspended Solids (TSS)	30 mg/L	100 mg/L	2/Month	Grab
Turbidity	Report NTU	Report NTU	2/Month	Grab
pH ⁷	6.5 - 8.5 S.U.		1/Month	Grab
Chemical Oxygen Demand	---	Report mg/L	1/Month	Grab
Oil and Grease	---	15 mg/L	1/Month	Grab
Fecal Coliform	88 MPN	100 MPN	1/Month	Grab
<i>Enterococcus</i>	---	Report MPN	1/Month	Grab
Benzene ⁸	---	5 µg/L	1/Month	Grab

Effluent Characteristic	Effluent Limitation		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type
Ethylbenzene ⁸	---	Report µg/L	1/Year ⁹	Grab
Toluene ⁸	---	Report µg/L	1/Year ⁹	Grab
Total Xylenes ⁸	---	Report µg/L	1/Year ⁹	Grab
Benzo(a)pyrene ¹⁰	0.018 µg/L	Report µg/L	1/Month	Grab
Benzo(a)anthracene ¹⁰	---	Report µg/L	1/Year ¹⁰	Grab
Benzo(b)fluoranthene ¹⁰	0.018 µg/L	Report µg/L	1/Month	Grab
Benzo(k)fluoranthene ¹⁰	0.018 µg/L	Report µg/L	1/Month	Grab
Chrysene ¹¹	---	Report µg/L	1/Year ¹⁰	Grab
Dibenzo(a,h)anthracene ¹¹	---	Report µg/L	1/Year ¹⁰	Grab
Indeno(1,2,3-cd)pyrene ¹⁰	0.018 µg/L	Report µg/L	1/Month	Grab
Naphthalene	---	20 µg/L	1/Month	Grab
Acenaphthene	---	Report µg/L	1/Year ⁹	Grab
Acenaphthylene	---	Report µg/L	1/Year ⁹	Grab
Anthracene	---	Report µg/L	1/Year ⁹	Grab
Benzo(g,h,i)perylene	---	Report µg/L	1/Year ⁹	Grab
Fluoranthene	---	Report µg/L	1/Year ⁹	Grab

Effluent Characteristic	Effluent Limitation		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type
Fluorene	---	Report µg/L	1/Year ⁹	Grab
Phenanthrene	---	Report µg/L	1/Year ⁹	Grab
Pyrene	---	Report µg/L	1/Year ⁹	Grab
Total Residual Chlorine ¹¹	---	13 µg/L	1/Month	Grab
Methyl tert-butyl Ether	---	20 µg/L	1/Month	
Perfluorohexanesulfonic acid (PFHxS) ¹²	---	Report ng/L	1/Quarter	Composite
Perfluoroheptanoic acid (PFHpA) ¹²	---	Report ng/L	1/Quarter	Composite
Perfluorononanoic acid (PFNA) ¹²	---	Report ng/L	1/Quarter	Composite
Perfluorooctanesulfonic acid (PFOS) ¹²	---	Report ng/L	1/Quarter	Composite
Perfluorooctanoic acid (PFOA) ¹²	---	Report ng/L	1/Quarter	Composite
Perfluorodecanoic (PFDA) ¹²	---	Report ng/L	1/Quarter	Composite
Copper	---	5.8 µg/L	1/Month	Grab
Total Ammonia (as N) (April 1 through October 31)	---	1.8 mg/L	1/Month	Grab
Whole Effluent Toxicity (WET) Testing ^{13,14}				
LC ₅₀	---	Report %	1/Year	Grab
Total Residual Chlorine	---	Report mg/L	1/Year	Grab

Effluent Characteristic	Effluent Limitation		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type
Salinity	---	Report g/kg	1/Year	Grab
pH	---	Report SU	1/Year	Grab
Total Solids	---	Report mg/L	1/Year	Grab
Total Suspended Solids	---	Report mg/L	1/Year	Grab
Ammonia Nitrogen	---	Report mg/L	1/Year	Grab
Total Organic Carbon	---	Report mg/L	1/Year	Grab
Total Cadmium	---	Report µg/L	1/Year	Grab
Total Copper	---	Report µg/L	1/Year	Grab
Total Lead	---	Report µg/L	1/Year	Grab
Total Nickel	---	Report µg/L	1/Year	Grab
Total Zinc	---	Report µg/L	1/Year	Grab

Ambient Characteristic ¹⁵	Reporting Requirements		Monitoring Requirements ^{1,2,3}	
	Average Monthly	Maximum Daily	Measurement Frequency ⁴	Sample Type ⁵
Salinity	---	Report g/kg	1/Year	Grab

Ammonia Nitrogen	---	Report mg/L	1/Year	Grab
Total Cadmium	---	Report µg/L	1/Year	Grab
Total Copper	---	Report µg/L	1/Year	Grab
Total Nickel	---	Report µg/L	1/Year	Grab
Total Lead	---	Report µg/L	1/Year	Grab
Total Zinc	---	Report µg/L	1/Year	Grab
pH ¹⁶	---	Report SU	1/Year	Grab
Temperature ¹⁶	---	Report °C	1/Year	Grab
Benzene	---	Report µg/L	1/Year ¹⁷	Grab
Ethylbenzene	---	Report µg/L	1/Year ¹⁷	Grab
Toluene	---	Report µg/L	1/Year ¹⁷	Grab
Total Xylenes	---	Report µg/L	1/Year ¹⁷	Grab
Benzo(a)anthracene	---	Report µg/L	1/Year ¹⁷	Grab
Benzo(a)pyrene	---	Report µg/L	1/Year ¹⁷	Grab
Benzo(b)fluoranthene	---	Report µg/L	1/Year ¹⁷	Grab
Benzo(k)fluoranthene	---	Report µg/L	1/Year ¹⁷	Grab
Chrysene	---	Report µg/L	1/Year ¹⁷	Grab
Dibenzo(a,h)anthracene	---	Report µg/L	1/Year ¹⁷	Grab

Indeno(1,2,3-cd)pyrene	---	Report µg/L	1/Year ¹⁷	Grab
Acenaphthene	---	Report µg/L	1/Year ¹⁷	Grab
Acenaphthylene	---	Report µg/L	1/Year ¹⁷	Grab
Anthracene	---	Report µg/L	1/Year ¹⁷	Grab
Benzo(g,h,i)perylene	---	Report µg/L	1/Year ¹⁷	Grab
Fluoranthene	---	Report µg/L	1/Year ¹⁷	Grab
Fluorene	---	Report µg/L	1/Year ¹⁷	Grab
Naphthalene	---	Report µg/L	1/Year ¹⁷	Grab
Phenanthrene	---	Report µg/L	1/Year ¹⁷	Grab
Pyrene	---	Report µg/L	1/Year ¹⁷	Grab

Footnotes:

1. Grab samples for Outfall 003 shall be collected at the discharge point from the Facility's oil/water separator (OWS) prior to comingling with any other wastestream. Samples shall be collected during the first qualifying event that occurs for each required measurement frequency, after treatment through the stormwater treatment system and free from tidal influence. A qualifying event shall be defined as a discharge that occurs during daylight hours on an outgoing tide at least one hour from both the low and high slack tide. To identify a qualifying event, the permittee may use tide charts to predict the two four-hour intervals of an outgoing tide each day that are one hour from both low and high slack tide. If a measurable discharge does not occur such that sampling cannot be completed during the first qualifying event of the required sampling frequency, the permittee is to sample the next qualifying event. The qualifying event requirement does not apply to sampling for the measurement frequency "when discharging". Samples shall be grab samples taken within 15 minutes of the initiation of a discharge during a qualifying event where practicable, but in no case later than within the first hour of discharge from the outfall. Changes in sampling location must be approved in writing by the

Environmental Protection Agency Region 1 (EPA) and the State. 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 Code of Federal Regulations (CFR) § 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., $< 5 \mu\text{g/L}$, if the ML for a parameter is $5 \mu\text{g/L}$). 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 “when discharging” is defined as the sampling of any measurable discharge event, reported for each calendar month. Sampling frequency of 1/month is defined as the sampling of one discharge event in each calendar month. Sampling frequency of 1/year is defined as the sampling of one discharge event during one calendar year, unless otherwise specified. If no sample is collected during the measurement frequencies defined above, the Permittee must report an appropriate No Data Indicator Code.
5. For Flow Rate, the maximum daily value represents the maximum instantaneous flow rate measured by the Facility as passing through the OWS for each day that a discharge occurs during the reported period. The maximum instantaneous flow rate, which is to be reported in units of gallons per minute (GPM), shall be an estimate based on the summation of the pump curve value(s) for all pumps in operation which control the rate of flow through the OWS when discharge is occurring. The Permittee shall at no time exceed the design flow rate of the treatment system.
6. For Total Flow, the value reported represents the sum of the recorded discharge volume for each day that effluent is discharged during that month, measured at the OWS using a totalizer or similar device. Total Flow shall be reported in the units of millions of

gallons per month (Mgal/Mo). The Permittee shall also report the total number of days during the reporting period discharges from the outfall occurred (i.e., a measurable volume of effluent passes through the totalizer or similar device), noted on the discharge monitoring report (DMR) form under “Event Total” parameter. The required meter shall be operational no later than 180 days following the effective date of the permit. Following the effective date of the permit and until the required meter becomes operational, but no more than 180 days following the effective date of the permit, the Permittee may report Total Flow as an estimate based on the estimated flow rate and the total hours of pump operation.

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 ML for analysis for benzene, ethylbenzene, toluene and total xylenes shall be no greater than 2 µg/L.
9. The Permittee shall conduct annual monitoring of the effluent during the month of September for the following compounds: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene, toluene, ethylbenzene, and total xylenes. Sampling shall be performed concurrently with the monthly monitoring event. If no discharge occurs during the month of September, the Permittee shall sample the next qualifying event.
10. The ML for analysis for the Polycyclic Aromatic Hydrocarbons (PAHs) shall be no greater than the following: 0.1 µg/L for benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene and 5 µg/L for acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene. The ML for benzo(a)pyrene, 0.1 µg/L, shall represent the compliance level for that compound.
11. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated or which contain residual chlorine. For the purposes of this permit, TRC analysis must be completed using a test method in 40 CFR § 136 that achieves a minimum level of detection no greater than 20 µg/L. The compliance level for TRC is 20 µg/L.
12. This reporting requirement for the listed PFAS parameters takes effect six months after EPA’s multi-lab validated method for wastewater is made available to the public on EPA’s CWA methods program website. *See* <https://www.epa.gov/cwa-methods/other-clean-water-act-test-methods-chemical> and <https://www.epa.gov/cwa-methods>. After one year of monitoring, if all samples are non-detect for all six PFAS compounds, using EPA’s multi-lab validated method for wastewater, the Permittee may request to remove the requirement for PFAS monitoring. *See* Part I.D.3.

13. The Permittee shall conduct acute toxicity tests (LC₅₀) 1/year in the month of September in accordance with test procedures and protocol specified in **Attachment A** of this permit. LC₅₀ is defined in Part II.E. of this permit. The Permittee shall test the daphnid, *Ceriodaphnia dubia*, and the fathead minnow, *Pimephales promelas*. The complete report for each toxicity test shall be submitted as an attachment to the monthly DMR submittal immediately following the completion of the test. If no discharge occurs during the month of September, the Permittee shall sample the next qualifying event.
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.
17. The Permittee shall conduct annual monitoring of the receiving water during the month of April for the following compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene, benzene, toluene, ethylbenzene, and total xylenes. The ML for analysis shall be no greater than the following: 0.1 µg/L for Group I PAHs, 5 µg/L for Group II PAHs, and 2 µg/L for benzene, ethylbenzene, toluene and total xylenes. The receiving water sample for the pollutant scan shall be collected from the Chelsea River at a point immediately outside of Outfall 001's zone of influence at a reasonably accessible location. Sampling shall be performed concurrently with the monthly monitoring event and annual effluent monitoring described above.

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.
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 the Director 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 the Director 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 the Director 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).
2. The following discharges are expressly prohibited:
 - a. Discharge of tank bottom water and/or bilge water alone or in combination with stormwater discharge or other wastewater;
 - b. Discharge of any sludge and/or bottom deposits from any storage tank(s), basin(s), and/or diked area(s) to the receiving waters. Examples of storage tanks and/or basins include, but are not limited to: primary catch basins, oil/water separators, petroleum product storage tanks, baffled storage tanks collecting spills, and tank truck loading rack sumps;
 - c. Discharge of liquid hazardous waste alone or in combination with stormwater or other wastewater;
 - d. Discharges of runoff from any vehicle and equipment washing alone or in combination with stormwater or other wastewater, including from the leased property;
 - e. Discharges of ballast water alone or in combination with stormwater or other wastewater;
 - f. Runoff resulting from accidental spill or release, alone or in combination with stormwater or other wastewater;
 - g. Discharges of emulsion chemicals, including surfactants (e.g., detergents and soaps) alone or in combination with stormwater or other wastewater;
 - h. Discharges of contaminated groundwater, including, but not limited to wastewater generated during activities conducted under the Massachusetts Contingency Plan, alone or in combination with stormwater or other wastewater;
 - i. Discharges of aqueous film-forming foam and alcohol resistant foam either in concentrate form or as foam diluted with water during testing or maintenance of the fires suppression system at the Facility's marine vessel dock

C. SPECIAL CONDITIONS

1. Best Management Practices (BMPs)

- a. The Permittee shall design, install, and implement control measures to minimize pollutants discharged from stormwater associated with the Facility operations to the receiving water. At a minimum, the Permittee must implement control measures, both structural controls (e.g., OWS, containment areas, holding tanks) and non-structural (e.g., operational procedures and operator training) consistent with those described in Part 2.1.2 and of EPA's Multi-Sector General Permit (MSGP).² The control measures must ensure the following non-numeric effluent limitations are met:
- (1) Minimize exposure of processing and material storage areas to stormwater discharges;
 - (2) Design good housekeeping measures to maintain areas that are potential sources of pollutants;
 - (3) Implement preventative maintenance programs to avoid leaks, spills, and other releases of pollutants to stormwater that is discharged to receiving waters;
 - (4) Implement spill prevention and response procedures to ensure effective response to spills and leaks if or when they occur, including, but not limited to, those required by Section 311 of the CWA, 33 U.S.C. § 1321. The Permittee shall report immediately the appearance of any size sheen attributable to the discharge from the Facility to the appropriate agency of the United States Government in accordance with Section 311 of the CWA;
 - (5) Design of erosion and sediment controls to stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants;
 - (6) Utilize runoff management practices to divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff;
 - (7) Develop proper handling procedures for salt or materials containing chlorides that are used for snow and ice control;
 - (8) Conduct employee training to ensure personnel understand the requirements of this permit;
 - (9) Evaluate for the presence of non-stormwater discharges and require the elimination of any non-stormwater discharges not explicitly authorized in this permit or covered by another NPDES permit; and
 - (10) Minimize dust generation and vehicle tracking of industrial materials.
- b. In addition, the Permittee must design, install, and/or implement the following BMPs:

² The current MSGP was effective June 4, 2015 and is available <https://www.epa.gov/npdes/final-2015-msgp-documents>.

- (1) The Permittee shall comply with the inspection requirements in Part 3.1 and 3.2 of the 2021 MSGP and the corrective action requirements in Part 5.1 through 5.5 of the 2021 MSGP.³
- (2) The Permittee shall comply with the control measure requirements in Part 2.1 and 2.1.1 of the 2021 MSGP in order to identify pollutant sources and select, design, install and maintain the pollution control technology necessary to meet the effluent limitations in the permit that ensure dilution is not used as a form of treatment.
- (3) The Permittee shall avoid discharging stormwater, hydrostatic test water and groundwater during worst-case conditions (i.e., the hour before and after slack tide and during periods of lowest receiving water flow) and further avoid discharging concurrently with the other facilities located along Chelsea River to the maximum extent practicable. The Permittee shall discharge groundwater concurrently with stormwater;
- (4) The Permittee shall document the measures and methods used to control flow through both the stormwater and groundwater treatment systems to ensure that the design flow of the treatment system is not exceeded;
- (5) The Permittee shall design and implement response procedures for ethanol, materials that are used for spill and fire control (e.g. aqueous film-forming foam). This must include specific provisions for the treatment of ethanol and/or pollutants in materials that are used for spill and fire control, should release occur;
- (6) The Permittee shall implement structural improvements, enhanced/resilient pollution prevention measures, and other mitigation measures to minimize impacts from stormwater discharges from major storm events such as hurricanes, storm surge, extreme/heavy precipitation and flood events. If such stormwater control measures are already in place due to existing requirements mandated by other state, local or federal agencies, a brief description of the controls and a reference to the existing requirement(s) must be documented in the SWPPP. If the Facility may be exposed to or has previously experienced such major storm events, additional stormwater control measures include, but are not limited to:
 - i. Reinforce materials storage structures to withstand flooding and additional exertion of force;
 - ii. Prevent floating of semi-stationary structures by elevating to the Base Flood Elevation (BFE)⁴ level or securing with non-corrosive device;
 - iii. When a delivery of materials is expected, and a storm is anticipated within 48 hours, delay delivery until after the storm or store materials as appropriate (refer to emergency procedures);
 - iv. Temporarily store materials and waste above the BFE level;
 - v. Temporarily reduce or eliminate outdoor storage;
 - vi. Temporarily relocate any mobile vehicles and equipment to upland areas;

³ Where the MSGP refers to limitations, conditions or benchmarks, including the SWPPP, for the purposes of this permit, these shall refer to the limitations and conditions in this permit.

⁴ Base Flood Elevation (BFE) is the computed elevation to which floodwater is anticipated to rise during the base flood. BFEs are shown on the Federal Emergency Management Agency's Flood Maps and on the flood profiles, which can be access through <https://msc.fema.gov/portal/search>.

- vii. Develop scenario-based emergency procedures for major storms that are complementary to regular stormwater pollution prevention planning and identify emergency contacts for staff and contractors; and
 - viii. Conduct staff training for implementing your emergency procedures at regular intervals.
- (7) The Permittee shall document quality assurance/quality control (QA/QC) practices including, at a minimum:
- i. A summary of the monitoring requirements specified in the permit;
 - ii. A map and/or treatment system diagram indicating the location of each sampling location with a geographic identifier (i.e., latitude and longitude coordinates);
 - iii. Specifications for the number of samples, type of samples, type and number of containers, type of preservation, type and number of quality assurance samples, if applicable, type and number of field samples, if applicable, and sample storage, holding times, and shipping methods, including chain-of-custody procedures;
 - iv. Specifications for EPA-approved test methods and sufficiently sensitive minimum levels for each required parameter;
 - v. A schedule for review of sample results; and
 - vi. A description of data validation and data reporting processes.
- (8) The Permittee shall implement a stormwater system BMP that ensures the integrity of stormwater system components through elimination of the infiltration of groundwater to the stormwater conveyance system where such infiltration contributes pollutants but are not otherwise explicitly authorized (i.e., internal Outfall 003, above, or by another NPDES permit). This must include:
- (i) One-time cross-connection evaluation, to ensure that the stormwater conveyance system does not contribute pollutants to or convey pollutants from a municipal separate storm sewer system (MS4) to the receiving water;
 - (ii) Routine visual or video inspection of the readily accessible portions of the stormwater system installed below grade;
 - (iii) Routine measurement of the flow rate, and flow direction of known areas of groundwater contamination;
 - (iv) Routine sampling of the pollutants listed in Part I.A.3., except Whole Effluent Toxicity Testing, at groundwater monitoring points representative of groundwater conditions at the Facility, including known areas of contamination, collected during dry weather absent of tidal influence;
 - (v). Routine sampling of the pollutants listed in Part I.A.3., except Whole Effluent Toxicity Testing, at accumulation points within the stormwater system that are likely susceptible to groundwater infiltration, including points located in known areas of contamination, collected during dry weather absent of tidal influence; and
 - (vi). Procedure for implementation and confirmation of corrective actions in accordance with Part I.C.1.b.(1), above, to eliminate infiltration of groundwater to the stormwater conveyance system where such infiltration is identified through the routine sampling, above, as contributing pollutants to the stormwater conveyance system.

2. Stormwater Pollution Prevention Plan

The Permittee shall develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that documents the selection, design and installation of control measures, including BMPs designed to meet the effluent limitations required in this permit to minimize the discharge of pollutants from the Facility's operations to the receiving water. The SWPPP shall be a written document and consistent with the terms of this Permit.

- a. The SWPPP shall be developed and signed consistent with the signatory requirements in Part II.D.2 of this Permit within ninety (90) days after the effective date of this Permit.
- b. The SWPPP shall be consistent with the general provisions for SWPPPs included in Part 6 of EPA's MSGP. The SWPPP shall be prepared in accordance with good engineering practices and manufacturer's specifications and must take future conditions into consideration. The SWPPP must identify potential sources of pollution that may reasonably be expected to affect the quality of the stormwater discharges, and document the implementation of non-numeric technology based effluent limitations in Part I.C.1 that will be used to reduce the pollutants and assure compliance with this Permit, including any remedies taken when non-compliance occurs. Specifically, the SWPPP shall contain the elements listed in Parts 6.2.1 through 6.2.5 of the 2021 MSGP and briefly described below:
 - (1) Stormwater pollution prevention team;
 - (2) Site description;
 - (3) Drainage area site map;
 - (4) Summary of potential pollutant sources;
 - (5) Description of all stormwater control measures; and
 - (6) Schedules and procedures pertaining to implementation of stormwater control measures, inspections and assessments, and monitoring.
- c. The Permittee shall amend and update the SWPPP within fourteen (14) days of any changes at the Facility affecting the SWPPP. Changes that may affect the SWPPP include, but are not limited to: 1) a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States; 2) a release of a reportable quantity of pollutants as described in 40 CFR § 302; 3) a determination by the Permittee or EPA that the SWPPP appears to be ineffective in achieving the general objective of controlling pollutants in stormwater discharges associated with industrial activity; and 4) any revisions or improvements made to the Facility's stormwater management program based on new information and experiences with wet weather events, including major storm events and extreme flooding conditions. Any amended or updated versions of the SWPPP shall be re-certified by the Permittee. Such re-certifications also shall be signed in accordance with the requirements identified in Part II.D.2 of this Permit.
- d. The Permittee shall certify at least annually that the previous year's inspections, corrective actions, control measures, and training activities were conducted, results were recorded, and records were maintained, as described in the SWPPP. If the Facility is not in compliance with any limitations and/or BMPs described in the SWPPP, the annual

certification shall state the non-compliance and the remedies which are being undertaken. Such annual certifications also shall be signed in accordance with the requirements identified in Part II.D.2 of this Permit. The Permittee shall keep a copy of the current SWPPP and all SWPPP certifications (i.e., the initial certification, recertifications, and annual certifications) signed during the effective period of this Permit at the Facility and shall make them available for inspection by EPA. All documentation of SWPPP activities shall be kept at the Facility for at least five years and provided to EPA upon request.

3. Hydrostatic Test Water

Hydrostatic test water shall be monitored as described below and treated through the stormwater treatment system prior to being discharged through Outfalls 001, 002, to Chelsea River and Outfall 005 to Sales Creek, and is subject to the Effluent Limitations in Part I.A.1., above.

- a. The flow of hydrostatic test water into the stormwater treatment system shall be controlled to prevent it from exceeding the maximum design flow rate of the system (i.e., 700 gpm at OWS to Outfall 001, 830 gpm at OWS to Outfall 002, and 500 gpm at OWS to Outfall 005).
- b. The Permittee shall take a minimum of five representative samples of the hydrostatic test water:
 - (1) For Tanks, the Permittee shall take:
 - i. one grab sample of the influent (fill source) water during the first 10% of the estimated fill segment time at the intake;
 - ii. for tanks, one in-process sample of the tank water following maintenance or testing, but before draining. The operator shall analyze and review the results of the in-process sample prior to initiating discharge. If the analysis indicates that the tank water does not meet the effluent limitations in this permit, the operator shall not discharge the tank water unless treatment will reduce the pollutant levels below the effluent levels established in this permit;
 - iii. for pipelines, one in-process sample of the pipeline water following depressurization, but before draining. The operator shall analyze and review the results of the in-process sample prior to initiating discharge. If the analysis indicates that the pipeline water does not meet the effluent limitations in this permit, the operator shall not discharge the pipeline water unless treatment will reduce the pollutant levels below the effluent levels established in this permit; and
 - iv. three grab samples of the effluent (at the discharge point for the treatment system), one sample during the first 10% of discharge, one sample at the approximate midpoint of discharge, and one sample during the last 10% of discharge after treatment. If at any time analysis indicates that the hydrostatic test water does not meet the effluent limitations in this permit, corrective action must be taken in accordance with Part I.C.1.b(1), above.

- c. The influent, when required, and effluent samples of hydrostatic test water shall be analyzed for the following parameters:
- (1) Total Flow;
 - (2) Flow Rate;
 - (3) Total Suspended Solids (TSS);
 - (4) Oil & Grease (O&G);
 - (5) pH;
 - (6) Chemical Oxygen Demand (COD);
 - (7) Dissolved Oxygen (DO);
 - (8) Total Surfactants;
 - (9) VOCs (benzene, toluene, ethylbenzene, and total xylenes);
 - (10) PAHs (Group I and II PAHs listed in Part I.A.1., benzo(a)anthracene through pyrene);
 - (11) Metals (total recoverable iron, and total recoverable metals listed in Part I.A.1., Whole Effluent Toxicity, cadmium through zinc);
 - (12) Ethanol, if tank or line has been used to store and/or convey ethanol and/or petroleum products containing ethanol within the previous year; and
 - (13) Total Residual Chlorine.
- d. The Permittee shall submit a letter/report to EPA and the MassDEP, summarizing the results of the hydrostatic test **within 90 days of completion of the test**. This report shall contain:
- (1) The date(s) during which the hydrostatic testing occurred;
 - (2) The volume of hydrostatic test water discharged;
 - (3) A copy of the laboratory data sheets for each analysis, providing the test method, the detection limits for each analyte, and a brief discussion of whether all appropriate QA/QC procedures were met and were within acceptable limits; and
 - (4) A brief discussion of the overall test results and how they relate to the Effluent Limitations in this permit.
- f. EPA reserves the right to re-open this permit, in accordance with 40 CFR § 122.62(a)(2), to examine hydrostatic test water discharges in the event that sampling results indicate that the water quality standards for the assigned classification of the Chelsea River might not be attained.

4. Discharges of Chemicals and Additives

The discharge of any chemical or additive, including chemical substitution, which 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, chemicals and/or additives which 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 chemical or additive, 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), Chemical Abstracts Service (CAS) Registry number, and EPA registration number, if applicable, for each chemical/additive;
 - (4) The frequency (e.g., daily), magnitude (i.e., maximum application concentration), duration (e.g., hours), and method of application for the chemical/additive;
 - (5) The maximum discharge concentration; and
 - (6) The vendor's reported aquatic toxicity, if available (i.e., NOAEL and/or LC₅₀ in percent for aquatic organism(s)).
- b. Written rationale which demonstrates that the discharge of such chemicals and/or additives as proposed will not: 1) add any pollutants in concentrations which exceed any permit effluent limitation; and 2) add any pollutants that would justify the application of permit conditions different from, or in addition to those currently in this permit.
- c. Discharges of glutaraldehyde, ethylene glycol, butoxyethanol, alkylacrylate nitro styrene polymer, coco alkylamine, 1,2,3 and 4-trimethylbenzene, 1,3,5-trimethylbenzene and methyl isobutyl ketone are prohibited.

5. Bioassessment

The Permittee shall design and implement a bioassessment to characterize the extent to which, if any, pollutants discharged from the Facility to the receiving water affect the benthic morphology, substrate, and/or biota. Unless otherwise specified below, data collection activities shall be conducted: 1) quarterly for one year starting 60 days following the effective date of the permit; and 2) for the last four quarters in the five-year permit term. Within 30 days of the effective date of the permit, the Permittee shall submit a plan for conducting the bioassessment to EPA. EPA will provide any comments on the plan within 30 days of receipt of the plan, which comments will be reasonably considered by the Permittee for inclusion into the plan. The bioassessment must comply with applicable local, state and federal regulations, and shall consist of the following elements, at a minimum:

- a. Water Column Characterization
 - (1) One water quality monitoring station shall be established within the vicinity of Outfall 003. The station must be positioned to collect water quality data representative of incoming and outgoing tides.

- (2) For each monitoring period, relative water quality data must be collected at the water quality monitoring station during the months of January, April, July and October at approximately:
 - i. one foot below the surface;
 - ii. mid-depth; and
 - iii. one foot above the bottom.
- (3) At each collection depth, the following data shall be collected:
 - i. depth from the surface (feet);
 - ii. water temperature (degrees Fahrenheit);
 - iii. pH (Standard Units);
 - iv. dissolved oxygen (milligrams per liter);
 - v. salinity (parts per thousand);
 - vi. turbidity (nephelometric turbidity units);
 - vii. nutrients; and
 - viii. current velocity (feet per second).
- (4) During each quarterly data collection period, all water quality data at all station depths shall be collected over a 48-hour period during the apex of the spring tide and the neap tide.
 - i. Continuous recording data sondes shall be used to collect water quality data for all parameters (except where noted otherwise in Part I.C.6) at all depths. The recording frequency shall be at least one reading for all parameters, every 15 minutes over the course of the 48-hour sampling period.
 - ii. Current velocity data may be collected manually at the water monitoring station, at the three depths, every three hours (when deemed safe to do so), over the course of the 48-hour sampling period.
- (5) The following supporting environmental data, recorded concurrent with continuous water quality data collection, shall be obtained from a near-by official weather station and a near-by official tide gauge:
 - i. local air temperature (degrees Fahrenheit), collected at least once per hour, over the 48-hour sampling period;
 - ii. local total precipitation (inches) for each 24-hour period, beginning 48 hours before water quality data is collected through the end of the 48-hour sampling period (four days in total);
 - iii. the river level in relation to mean low water level when data is collected over the 48-hour sampling period; and
 - iv. the tidal stage (flood current, ebb current) when data is collected over the 48-hour sampling period.

b. Benthic Morphology Characterization

- (1) For each year that data collection is required, river channel morphology shall be measured once in the vicinity of the water quality monitoring station.
- (2) River channel measurements shall be taken along a minimum of three transects:
 - i. beginning from the bank in the vicinity of the outfall, to the opposite bank, that is representative of the benthic morphology;

- ii. from the bank upstream of the outfall to the approximate edge of the deep water navigation channel, that is representative of the conditions outside of the zone of influence of the discharge; and
 - iii. from the bank downstream of the outfall to the approximate edge of the deep water navigation channel, that is representative of the zone of influence of the discharge.
 - iv. All transects must be positioned perpendicular to the Chelsea River current.
- (3) Individual water depths (in feet) shall be recorded as follows:
- i. along the bank to bank transect, at a maximum of 50-foot intervals between water depth points and a minimum of 25 individual water depth points along the bank to bank transect.
 - ii. along the upstream and downstream transects, at a maximum of 15-foot intervals between water depth points and a minimum of 25 individual water depth points along the bank navigation channel transects.
 - iii. The depth information must be calibrated to the mean low water level.
- c. Substrate Characterization
- (1) For each year that data collection is required, substrate characterization shall be conducted once. The Permittee shall collect samples of the substrate as follows: Along the upstream and downstream transects of the Facility's Outfall.
 - (2) At each location, substrate samples must be collected at representative intervals between the shoreline and the edge of the main navigational channel.
 - (3) The location, depth, and analysis of each substrate sample shall be recorded. The depth information must be calibrated to the mean low water level.
 - (4) The analysis of each substrate sample must include, at a minimum, grain size composition (percent of silt, sand and clay); total organic carbon (TOC); and benthic infauna.
 - (5) Secchi disk readings shall be recorded at each location.
- d. Benthic Pollutant Analysis
- (1) Concurrent with substrate data collection and in the same locations, the Permittee shall collect additional substrate samples to determine contamination present within the benthic habitat. The parameters required for analysis shall include:
 - i. Table I.A.1 pollutants;
 - ii. Total volatile solids, acid volatile sulfides, sediment oxidation reduction potential; and
 - iii. Sediment toxicity test (i.e., 10-day static test).
 - (2) Analysis shall be performed using the test method for each constituent in accordance with EPA-600-R-97-072.⁵

⁵ Methods for the Determination of Chemical Substances in Marine and Estuarine Environmental Matrices - 2nd Edition: EPA-600-R-97-072. Office of Research and Development, U.S. EPA, Washington, D.C. 1997, as specified in 314 CMR 4.03(6)(f).

e. Qualitative Biological Monitoring

- (1) The permittee shall conduct a qualitative biological assessment to determine the organisms present in the vicinity of the water quality monitoring station.
- (2) The collection effort shall take place, at a minimum, in April, July and October, as specified above, and on a sequential basis during year three.
- (3) The biological survey shall be designed to collect:
 - i. fish (early life stages, juvenile, and adult);
 - ii. benthic macroinvertebrates;
 - iii. aquatic macrophytes;
 - iv. phytoplankton;
 - v. zooplankton;
 - vi. epibenthos; and
 - vii. paleoenvironmental remains (e.g., diatoms, dinoflagellates, and foraminifera)
- (4) The organisms shall be identified to species. For larger bodied organisms that are collected, an evaluation of overall condition shall be recorded (e.g., spawning condition, lesions, or deformities).

f. Summary Report

- (1) The permittee shall conduct a literature review of environmental information collected in the vicinity of the water quality monitoring station over the past five years. Information that is equivalent to the data requested in this assessment shall be summarized, referenced and included as part of the data collection report.
- (2) The Permittee shall prepare and submit a report to EPA within 60 days of the first and last collection date in accordance with Part I.D.3 of this Permit in coordination with the other petroleum bulk storage terminals along the Chelsea River (i.e. Chelsea Sandwich LLC, Sunoco Partners Marketing and Terminals L.P., Irving Oil Terminals, Inc., Global Companies LLC).
- (3) The summary report shall consist of the following, at a minimum:
 - i. A description of the sampling locations, including a figure depicting the geographic locations, a figure depicting the vertical distribution relative to mean low tide, and a copy of the laboratory data sheets for each analysis.
 - ii. A brief discussion of the overall bioassessment results and how they relate to the effluent limitations in this permit.
 - iii. A description of the results of water column characterization, and a table summarizing the sample results.
 - iv. A description of the results of benthic morphology characterization, and a table summarizing the sample results.
 - v. A description of the substrate characterization results, and a table summarizing the sample results.
 - vi. A description of the benthic pollutant analysis, and a table summarizing the sample results.
 - vii. A description of the biological monitoring results, and a table summarizing the the total number of each species of organisms found for each monitoring period,

the date they were collected, the depth (if available), and location where they were collected.

- viii. A brief discussion of whether any of the requirements of the QA/QC BMP were not met. If any QA/QC requirements impact the usability of data, the Permittee must repeat collection of the unacceptable data.

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 DMRs to EPA and the State no later than the 15th day of the month electronically using NetDMR. 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), 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) BMP/SWPPP reports and certifications;
 - (4) Request to discharge new chemicals or additives;
 - (5) Request for change in WET/PFAS testing requirements;
 - (6) Bioassessment reports; and
 - (6) Report on unacceptable dilution water/request for alternative dilution water.
- 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 Region 1's Enforcement and Compliance Assurance Division 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 MassDEP's Emergency Response at:

888-304-1133

E. REOPENER CLAUSE

1. This permit may be modified or revoked and reissued in accordance with 40 C.F.R. §122.62. The reason for modification or revocation may include, but is not limited to:
 - a. Material and substantial alterations or additions to the Terminal or activity have occurred.
 - b. New information is received which was not available at the time of permit issuance and that would have justified the application of different permit conditions at the time of issuance
 - c. An applicable effluent standard or limitation is issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWQ, which:
 - i. Contains different conditions or is otherwise more stringent than any effluent limitation in this permit; or
 - ii. Controls any pollutant not limited by this permit.
2. If the permit is modified or reissued, it shall be revised to reflect all currently applicable requirements of the CWA.

F. STATE PERMIT 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.

ATTACHMENT A
MARINE ACUTE
TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

**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: MA0001091

PUBLIC NOTICE START AND END DATES: 2/10/2021 – 4/11/2021

NAME AND MAILING ADDRESS OF APPLICANT:

Gulf Oil Limited Partnership
80 William Street, Suite 400
Wellesley Hills, MA 02481

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Gulf Oil Terminal
281 Eastern Avenue
Chelsea, MA 02150

RECEIVING WATER AND CLASSIFICATION:

Chelsea River (MA71-06)
Mystic River Watershed
SB (CSO)

SIC CODES: 5171 (Petroleum Bulk Stations & Terminals)
4491 (Marine Cargo Handlings)

**CONFIDENTIAL/DRAFT/PRE-DECISIONAL/INTER-AGENCY DELIBERATIVE
NOT FOR RELEASE**

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1.0 Proposed Action

Gulf Oil Limited Partnership (the Permittee) has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge from the Gulf Oil Terminal (the Facility) into the Chelsea River.

The permit currently in effect was issued on September 24, 2014 with an effective date of December 1, 2014 and expired on November 30, 2019 (the 2014 Permit). The Permittee filed an application for permit reissuance with EPA dated May 22, 2019, as required by 40 Code of Federal Regulations (CFR) § 122.6. Since the permit application was deemed timely and complete by EPA on November 19, 2019, the Facility's 2014 Permit has been administratively continued pursuant to 40 CFR § 122.6 and § 122.21(d). EPA and the State conducted a site visit on December 4, 2019.

This NPDES Permit is issued jointly by EPA and MassDEP under separate federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the Director of the Division of Watershed Management pursuant to M.G.L. Chap. 21, § 43.

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. Section 402(p) of the CWA, 33 U.S.C. § 1342(p) requires stormwater discharges associated with industrial activity to be authorized by a NPDES permit. *See also* 40 CFR § 122.26(a)(1)(ii).

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 regulations, entitled “Antidegradation Provisions,” are found in the State’s WQSs at 314 CMR 4.04. The Massachusetts policy for the implementation of these regulations 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 regulations. All existing in-stream designated uses of a receiving waterbody, and water quality necessary to protect the designated uses must be maintained and protected.

This permit is being reissued with effluent limitations sufficiently stringent to satisfy the State’s antidegradation regulations, including the protection of the designated 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

CWA § 305(b) and § 303(d). 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 CWA § 303. *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 the EPA 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 WQSs 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.

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

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).

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

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).

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 the EPA 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.

2.5 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 2014 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 Description of Facility and Discharge

3.1 Location and Type of Facility

Gulf Oil Terminal is located on a 48.5-acre site along Eastern Avenue in Chelsea, Massachusetts. The site is located along the northern bank of the Chelsea River approximately two miles east of the confluence of the Mystic and Chelsea Rivers. A location map is provided in Figure 1. The main features of the Facility are a tank farm, a terminal yard with truck loading rack, and a marine vessel dock. The terminal yard consists of the area outside of the tank farm. The terminal yard has an office building, locker room, two small warehouses, a garage, two vapor recovery units, a truck pump-off station, the truck fueling pad, a fire foam system house, and a remediation project area. A site plan for the Facility is provided as Figure 2.

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

The Facility receives, stores and distributes petroleum products, including gasoline, and distillate products (i.e., diesel, kerosene, and No. 2 fuel oil). In addition to these petroleum products, the Facility also handles and stores ethanol and other fuel additives specific to branded gasoline. The tank farm contains five fuel additive tanks, which have a total storage capacity of approximately 812 gallons. The Facility receives bulk quantities of petroleum products and ethanol via ship or barge at the Facility marine vessel dock located along the Chelsea River. Product is then transferred to 18 vertical aboveground storage tanks located within the Facility tank farm areas. The Facility also receives limited inventory by truck, including biofuel and butane, which is transferred and blended directly into the bulk petroleum storage tanks. Occasionally, petroleum distillates are transported off-site by ship at the marine vessel dock. Final distribution of product is conducted primarily at the Facility truck loading rack. The Facility is capable of blending some of the petroleum products (e.g., high and low octane grades of gasoline and kerosene and diesel fuel) at the truck loading rack. Attachment 1 shows the location of the Facility.

Additional above-ground storage tanks are located throughout the Facility that are used for the fire protection system, product recovery, and storing of diesel fuel for the Permittee's own use. There is a dedicated oil recovery tank, currently empty, for use during emergencies.

3.1.1 Effluent Limitation Guidelines

EPA has not promulgated technology-based ELGs for petroleum bulk stations and terminals (SIC 5171) in 40 CFR Subchapter N Parts 405 through 471 for the discharge of pollutants from petroleum bulk stations and terminals. 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 CWA § 402 (a)(1) 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.

To the extent applicable to the Facility, EPA considered the following information from other ELGs and/or NPDES permits.

- EPA promulgated technology-based ELGs for the Steam Electric Point Source Category in 1974, and amended the regulations in 1977, 1978, 1980, 1982 and 2015. *See* 40 CFR 423. This regulation applies to discharges resulting from the operation of a generating unit by an establishment whose generation of electricity is the predominant source of revenue or principal reason for operation, and whose generation of electricity results primarily from a process utilizing fossil-type fuel (coal, oil, or gas), fuel derived from fossil fuel (e.g., petroleum coke, synthesis gas), or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium. EPA considered ELGs for facilities that utilize tank farms for bulk fuel storage.

- EPA's *Technical Support Document for the 2004 Effluent Guidelines Program Plan*.⁵ In 2003, EPA evaluated whether a new subcategory, petroleum bulk stations and terminals (SIC 5171), was appropriate under the Petroleum Refining Point Source Category. *See* CWA Section 304(b). EPA deferred the development of effluent guidelines for petroleum bulk stations and terminals as a new subcategory under 40 CFR Part 419. EPA considered pollutant sources and/or control measures described in its case-by-case evaluation of technology-based effluent limitations.
- EPA promulgated technology-based ELGs for the Transportation Equipment Cleaning (TEC) Point Source Category in 2000. *See* 40 CFR 442. This regulation applies to discharges including interior cleaning of tank trucks and barges used for transporting petroleum cargo, specifically at marine cargo handling facilities (SIC 4491). The Permittee does not engage in washing tank trucks or barges at the Facility. However, the Permittee leases a portion of the property to Cumberland Farms, where tank trucks are washed onsite. The wash company uses a large containment pad and collects the water into a tote for removal. The Permittee confirmed that no wash water is treated through the Facility's treatment system or discharged via Outfall 003.
- EPA's *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* (MSGP)⁶ issued January 15, 2021 ("2021 MSGP"), and EPA's *General Permit for Remediation Activity Discharges* (RGP)⁷ effective April 8, 2017. EPA considered industrial sectors and/or activity categories with similar operations, pollutants, and/or treatment technologies in its case-by-case evaluation of technology-based effluent limitations.

3.2 Location and Type of Discharge

Outfall 003⁸ is located at Latitude 42° 23' 35" N Longitude 71° 01' 05" W, on the northern bank of Chelsea River approximately two miles east of the confluence of the Mystic and Chelsea Rivers. The Facility is located along the Chelsea River in Chelsea, Massachusetts. A site plan is provided in Figure 2. The Permittee has requested authorization to discharge wastewater from the Facility through Outfall 003 into the Chelsea River. The discharge consists of stormwater runoff and hydrostatic test water.

⁵ EPA Office of Science and Technology. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. EPA-821-R-04-014: August 2004, Section 7.12, p 81-126. EPA-821-R-04-014 is currently available at: <https://www.epa.gov/eg/effluent-guidelines-plan-support-documents>.

⁶ *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* (MSGP), currently available at: <https://www.epa.gov/npdes/stormwater-discharges-industrial-activities-epas-2021-msgp#>. The 2021 MSGP becomes effective on March 1, 2021.

⁷ EPA Region 1. *National Pollutant Discharge Elimination System (NPDES) General Permit for Remediation Activity Discharges* – the Remediation General Permit (RGP), currently available at <https://www.epa.gov/npdes-permits/remediation-general-permit-rgp-massachusetts-new-hampshire>.

⁸ Outfall 003, established in the 2005 Permit, replaced Outfalls 001 and 002, which were decommissioned.

There are two separator/baffle tanks in series that treat the stormwater runoff from the Facility's truck loading rack areas. Stormwater runoff, hydrostatic test water, and other non-stormwater discharges from the entire site are treated prior to being discharged to the Chelsea River via Outfall 003. The final treatment system consists of a lined two-stage surface water retention basin, and an 8,000-gallon oil/water separator (OWS). 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 December 1, 2014 through October 31, 2020, is provided in Appendix A of this Fact Sheet. A more detailed description of each wastestream follows.

Stormwater

Stormwater is collected at the Facility from the following areas: the terminal yard, the truck loading rack, within and between the secondary containment area of the tank farm, and the manifold area of the marine vessel dock.

Stormwater runoff within the terminal yard is directed toward several low elevation catch basins. The roof over the truck loading rack directs stormwater away from truck rack equipment and loading operations to perimeter drains and individual catch basins located along the perimeter of the loading rack area. Stormwater from the loading rack, pump back pad, and truck fueling pad, as well as stormwater in the terminal parking area, flows by gravity into two separator/baffle tanks. These tanks are designed to prevent any potentially spilled product from entering the stormwater collection system. From the separator/baffle tanks, stormwater continues to flow by gravity to lift station 1. There are two 800 gallon-per-minute (GPM) pumps located within lift station 1. Only one pump is typically operated at a time. The operation of this pump is automatically triggered through a high level alarm located within the lift station. Under flooding conditions, a second pump can be manually activated through a switch located in the Facility office building.

Stormwater runoff in areas between the secondary containment areas is directed toward several low elevation catch basins. This includes the area between the Tank 101/102 secondary containment area and the Tank 117 secondary containment area, the area between the Tank 101/102 secondary containment area and the Tank 105/107 secondary containment area, and the central area north of the Tank 118/119 secondary containment area. Stormwater from these areas flows by gravity to Lift Station 2 (discussed below).

Secondary containment for the tank farm consists of earthen berms surrounding each of the bulk above ground storage tanks (ASTs). The secondary containment is sized to hold at least 110 to 130 percent of the largest tank's storage capacity plus an added volume to hold any fire-extinguishing chemicals, water and/or precipitation. The berms are used to help prevent any potentially spilled petroleum products or additives from migrating from one secondary containment area to another or into surrounding waterways. Stormwater accumulating within these areas evaporates or is directed to low elevation catch basins. There is a valve located within each secondary containment area that can be manually opened to allow the stormwater to drain into the underground stormwater drainage line. Terminal personnel visually inspect accumulated water and if there is no visible sheen, the valve is opened, thereby allowing water to drain by

gravity into the stormwater drainage line. If personnel observe a sheen, the valve is closed to retain stormwater within that secondary containment area to be addressed.

Stormwater and any residual product accumulating on the concrete pad located underneath the manifold area at the Terminal marine vessel dock drain to a low elevation catch basin. This catch basin drains directly to the stormwater collection system. In addition, product spilled at the marine vessel dock can be collected in a spill pan and manually pumped to a 12,000-gallon spill recovery tank maintained within the Tank 117 secondary containment area.

Stormwater entering the underground drainage line from lift station 1, the tank farm, areas between the secondary containments, and the marine vessel dock flows by gravity to lift station 2. The operation of lift station 2 is similar to that of lift station 1. There are also two 800 GPM pumps located within lift station 2. Similarly, only one pump is typically operated at a time, but the second pump can be manually activated under flooding conditions. Water is pumped from lift station No. 2 through an aboveground pipe into the nearby upper stormwater retention basin. From the upper portion of the basin, stormwater flows by gravity to the lower portion of the retention basin through a single drainpipe. Both basins are lined with a high-density polyethylene material. The retention basins help provide flow equalization, additional storage capacity, and additional time for solids to settle out. The basins are cleaned once or twice per year; solids are hauled off-site. If a sheen is observed on the surface of the basins, booms and/or skimmers can be deployed.

Lastly, stormwater gravity feeds through the retention basin outlet pipe to the double-walled fiberglass OWS and through Outfall 003. The OWS has an approximately 8,000-gallon capacity with a maximum design flow rate of 800 gallons per minute (gpm). The diameter and slope of the basin outlet pipe were designed such that discharge into the OWS is at a rate less than or equal to the maximum design flow rate (800 gpm).

Hydrostatic Test Water

The aboveground storage tanks are subject to annual external inspections (502 CMR 5.00) and their integrity is certified annually by a licensed tank inspector. Internal inspections of the above ground storage tanks are conducted every 10 years. The testing procedures followed are detailed in API 653 Standard. In addition, repairs are occasionally made at the Facility to tanks and piping used for the storage and conveyance of petroleum products and additives. To ensure safe working conditions during this maintenance work, storage tanks and/or pipe networks are rigorously cleaned (e.g. "Poly Brushed", "Squeegee Pigged") and certified as being product-free. After completing certain maintenance work, the vessels and/or pipe networks may be hydrostatically tested for leaks. Hydrostatic testing involves filling the vessel or pipe with water under pressure and monitoring pressure drops over time. If the system maintains a constant pressure, there are no leaks. River water or potable water may be used as a source of hydrostatic test water. Thus, hydrostatic test water discharge may contain minimal amounts of foreign matter, trace amounts of hydrocarbons, background material found in the river, or residual chlorine. The Facility has conducted one hydrostatic test since the issuance of the 2014 Permit,

in November 2015. The Permittee used municipal drinking water as the source water for the test and used sodium bisulfate to adjust the pH prior to discharge.⁹

4.0 Description of Receiving Water and Dilution

4.1 Receiving Water

The Facility discharges through Outfall 003 to Chelsea River Segment (MA71-06), which flows from the north or south along the eastern edge of the Facility site, depending on the tidal stage. This segment is 0.37 square miles between the confluence with Mill Creek, in Chelsea/Revere to the confluence with Boston Inner Harbor, in Chelsea/East Boston/Charlestown. The Facility is located approximately two miles east of the inlet to Chelsea River at the confluence with the Mystic River and Boston Inner Harbor.

Chelsea River is classified as Class SB (CSO). Class SB waters are described in the Massachusetts Surface WQSs 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...These waters shall have consistently good aesthetic value.”* The Chelsea River is one of eleven Designated Port Areas (DPAs) established by the Massachusetts Office of Coastal Zone Management to promote and protect water-dependent industrial uses. The Chelsea River is part of the Mystic River Basin and the Boston Harbor Drainage Area.

Chelsea River is listed in the *Massachusetts Year 2016 Integrated List of Waters* (303(d) List) as a Category 5 “Waters Requiring a TMDL.”¹⁰ The pollutants and conditions requiring a TMDL are ammonia (un-ionized), fecal coliform, dissolved oxygen, polychlorinated biphenyls (PCBs) in fish tissue, petroleum hydrocarbons, sediment screening value, taste and odor, and turbidity. This segment is also impaired for debris/floatables/trash, but this category is considered a non-pollutant and does not require a TMDL. The status of each designated use described in the *Mystic River Watershed and Coastal Drainage Area 2004-2008 Water Quality Assessment Report* (WQAR)¹¹ is presented in Table 1.

Table 1: Summary of Designated Uses and Listing Status

Designated Use	Status	Cause of Impairment	Source(s)
Aquatic Life	Not Supporting	Sediment screening value, petroleum hydrocarbons,	Unspecified urban stormwater, CSOs, industrial point discharge,

⁹ EPA approved the use of sodium bisulfate by email on November 9, 2015.

¹⁰ *Massachusetts Year 2016 Integrated List of Waters*. MassDEP Division of Watershed Management Watershed Planning Program, Worcester, Massachusetts; December 2019.
<https://www.mass.gov/lists/integrated-lists-of-waters-related-reports#2016-integrated-list-of-waters->

¹¹ *Mystic River Watershed and Coastal Drainage Area 2004-2008 Water Quality Assessment Report*. MassDEP Division of Watershed Management, Worcester, Massachusetts; March 2010, Report Number: 71-AC-2.
<http://www.mass.gov/eca/docs/dep/water/resources/71wqar09/71wqar09.pdf>

		ammonia (un-ionized), dissolved oxygen	municipal (urbanized high density area), cargo loading/unloading, above ground storage tank leaks, accidental release, contaminated sediments
Aesthetics	Not Supporting	Taste and odor, turbidity, debris/floatable/trash, petroleum hydrocarbons	Unspecified urban stormwater, CSOs, industrial point discharge, municipal (urbanized high density area), cargo loading/unloading, above ground storage tank leaks, accidental release
Primary Contact	Not Supporting	Fecal coliform, turbidity, debris/floatable/trash, taste and odor, petroleum hydrocarbons	Unspecified urban stormwater, CSOs, industrial point discharge, cargo loading/unloading, above ground storage tank leaks, accidental release
Secondary Contact	Not Supporting	Fecal coliform, turbidity, debris/floatable/trash, taste and odor, petroleum hydrocarbons	Unspecified urban stormwater, CSOs, industrial point discharge
Fish Consumption	Not Supporting	PCB in fish tissue, other	Contaminated sediments, unknown
Shellfishing	Not Supporting	Fecal coliform	Unknown

As listed above, Chelsea River is not supporting designated uses for Aquatic Life, Aesthetics, Primary Contact, Secondary Contact and fish/shellfish consumption. The WQAR identified the sources of these impairments as aboveground storage tank leaks (from tank farms), accidental releases/spills and/or cargo loading/unloading associated with bulk petroleum terminals, and municipal sources (i.e., an urbanized high-density area). In the instance of the Aquatic Life and Aesthetics uses, the WQAR additionally notes contamination of groundwater as a result of petroleum releases. Pollutants related to materials currently and/or historically present at the Facility are explicitly listed as the cause of these impairments, and the sources of these pollutants have been attributed to one or more activities that occur at the Facility. Regarding contaminated sediments as an additional cause of the Aquatic Life impairment, a 2005 United States Geological Survey study identified chemicals present in sufficiently high concentrations in Chelsea River sediment to pose a threat to benthic organisms.¹² The Fish Consumption and Shellfishing Designated Uses are not supporting as a result of PCBs in fish tissue and fecal coliform, respectively. The WQAR also notes “other contaminants in fish and shellfish”. The source of these impairments is listed as contaminated sediments as well as unknown sources.

4.2 Ambient Data

¹² Breault, R.F., Durant, J.L., and Robbat, A, 2005. *Sediment quality of lakes, rivers, and estuaries in the Mystic River Basin, Eastern Massachusetts, 2001–03*. U.S. Geological Survey Scientific Investigations Report: 2005-5191, 110 p.

A summary of the ambient data collected in the receiving water in the vicinity of the Facility that are referenced in this Fact Sheet can be found in Appendix B of this Fact Sheet. Ambient data consist of the following:

- Receiving water chemical analysis conducted in accordance with Whole Effluent Toxicity testing requirements included in the 2014 Permit, conducted by the Permittee.
- Pollutant scan receiving water analysis requirements included in the 2014 Permit, conducted by the Permittee.
- Water quality data from the Massachusetts Water Resources Authority's (MWRA) monitoring program for sampling location 027, located near the Facility on Chelsea River.

Results indicate that, overall, the pollutants included in the monitoring required in the 2014 Permit are generally not present in the vicinity of the Facility's outfall. Pollutants detected on at least one occasion from December 1, 2014 through November 30, 2019 in the vicinity of Outfalls 003 were as follows:

- Seven of seven Group I PAHs;
- Five of nine Group II PAHs;
- Total residual chlorine;
- Total suspended solids;
- Ammonia; and
- Metals: cadmium, copper, lead, nickel, and zinc.

4.3 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.¹³

The critical flow in marine and coastal waters is determined on a case-by-case basis. State WQSs specify that, "the Department will establish extreme hydrologic conditions at which aquatic life criteria must be applied on a case-by-case basis. In all cases existing uses shall be protected and the selection shall not interfere with the attainment of designated uses." *See* 314 CMR 4.03(3)(c). State WQSs further specify that, "human health-based criteria may be applied at conditions the Department determines will result in protection at least equivalent to that provided for rivers and streams." *See* 314 CMR 4.03(3)(d). The State determined that the dilution factor for the Facility is zero (i.e., 1:1). EPA used this dilution factor (DF) in its quantitative derivation of WQBELs for pollutants in the Draft Permit.

5.0 Description of Effluent Limitations and Conditions

¹³ [EPA Permit Writer's Manual, Section 6.2.4](#)

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

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

EPA determined that it is appropriate to limit the design flow of the treatment system for Outfall 003. For the purposes of this permit, design flow is defined as the maximum flow rate through the treatment component with the lowest capacity. The design flow reflects the magnitude, frequency and duration of discharges treated within the specifications of the treatment system in use. EPA based this requirement on the treatment system specifications reported by the Permittee.

5.1 Indicator Parameters

During the development of the 2005, and/or 2014 Permits, EPA identified common groups of pollutants present or likely present at this and similar facilities. Further, EPA determined that it would be both impractical and unnecessary to attempt to evaluate and limit every possible individual pollutant among these common groups of pollutants. As a result, EPA determined that limiting "indicator parameters" in accordance with 40 CFR § 122.44(d)(1)(vi)(C) is reasonable and sufficiently stringent to carry out the provisions of the CWA and ensure compliance with applicable WQSs as required by CWA §401(a)(2) and 40 CFR §122.4(d).

For this Draft Permit, EPA maintains that:

- The Draft Permit identifies indicator parameters and which pollutants are intended to be controlled using the effluent limitations for these indicator parameters;
- This Fact Sheet sets forth the basis for the limitations, and finds that compliance with the effluent limitations on the indicator parameters will result in controls on the pollutants of concern which are sufficient to attain and maintain applicable water quality standards;
- The Draft Permit requires effluent and ambient monitoring necessary to show that during the term of the permit the limitations on the indicator parameters continue to attain and maintain applicable water quality standards; and
- The Draft Permit contains a reopener clause allowing the EPA to modify or revoke and reissue the permit if the limitations on the indicator parameters no longer attain and maintain applicable water quality standards.

EPA selected indicator parameters that: 1) are more common (i.e., more frequently detected in effluent from this and similar facilities); 2) are more toxic (e.g., priority pollutants in Appendix A to 40 CFR §423); 3) exhibit limiting physical and/or chemical characteristics with respect to susceptibility to treatment by pollution control technologies; and/or 4) exhibit physical and/or

chemical characteristics strongly representative of other pollutants, which ensures that other pollutants with similar characteristics would also be removed by pollution control technologies. Therefore, effluent limitations established to control indicator parameters, also control the pollutants the indicator parameters represent. EPA has grouped most indicator parameters, as shown below and described in the sections that follow. Stand-alone parameters included in the Draft Permit are noted as such (e.g., effluent flow, pH, ammonia).

- Conventional Pollutants
- Volatile Organic Compounds (VOCs)
- Semi-Volatile Organic Compounds (SVOCs)
- Chemicals and Additives
- Metals

The majority of indicator parameters included in the Draft Permit are unchanged from the indicator parameters included in the 2014 Permit. However, EPA has added, revised or removed indicator parameters if necessary and appropriate. The following sections describe the indicator parameters and the basis for the effluent limitations or monitor-only requirements for the selected indicator parameters, including justification for removal, if applicable.

5.2 Proposed Effluent Limitations and Monitoring Requirements

5.2.1 Effluent Flow

OWSs are the typical minimum treatment technology employed by petroleum bulk storage terminals for treatment of stormwater runoff. These devices use gravity to separate lower-density oils from water, resulting in an oil phase above the oil/water interface and a heavier particulate phase on the bottom of the separator. The sizing of an OWS is based upon the flow rate, density of oil to be separated, desired percent removal of oil, and the operating temperature range. The OWS for Outfall 003 has a design flow capacity of 800 gpm. Stormwater runoff and hydrostatic test water discharges to the Chelsea River through Outfall 003 after treatment.

From December 1, 2014 through October 31, 2020, total monthly flow reported for Outfall 003 ranged from 0.072 to 4.09 million gallons (Mgal). The daily maximum flow rate reported for Outfall 003 for this period ranged from 98 to 652 gpm. The number of discharge events reported for Outfall 003 ranged from 1 to 5 per month.

The Draft Permit maintains a maximum daily flow limit of 800 gpm for Outfall 003, as well as weekly monitoring for flow using a totalizer or similar device, when the Facility is discharging. The Draft Permit also maintains the reporting requirements for both total flow per month and total number of discharge events per month, in order to accurately characterize the magnitude and frequency of discharges from the Facility going forward. The Draft Permit continues to require effluent sampling when discharge occurs from the stormwater treatment system and is not associated with a specific sized precipitation event. The Permittee must document the measures and methods used to control flow through the treatment system in its Stormwater Pollution Prevention Plan (SWPPP). See Sections 5.3.1 and 5.3.2, below.

5.2.2 Conventional Pollutants

5.2.2.1 Total Suspended Solids (TSS)

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 2014 Permit included a daily maximum effluent limit of 100 mg/L and a monthly average effluent limit of 30 mg/L for TSS, monitored twice per month. From December 1, 2014 through October 31, 2020, maximum daily TSS levels have ranged from 1.9 mg/L to 91.7 mg/L at Outfall 003. The average monthly TSS levels reported for this period ranged from 1.9 mg/L to 80 mg/L at Outfall 003 (10 exceedances).

In establishing the technology-based limits in the 2005 permit, and continuing these limits in the 2014 Permit, EPA considered similar facilities and the Facility's use of an OWS. In the technology guidelines promulgated at 40 CFR § 423 for the Steam Electric Power Point Source Category, the storage of fuel oil at steam electric facilities at the time the technology guidelines were promulgated was similar to the storage of petroleum products at bulk stations and terminals. In developing effluent limits for the Steam Electric Power Point Source Category, EPA considered the level of treatment that could be technologically achieved for TSS using an OWS and set corresponding limits in the guidelines.¹⁴ EPA identified TSS as a potential pollutant due to the drainage associated with equipment containing fuel oil and/or the leakage associated with the storage of oil.¹⁵ See 40 CFR § 423.12(b)(3) and (12). In reviewing the technology-based limits for TSS for the Draft Permit, EPA determined that operations at the Facility remain consistent with the conditions under which the technology guidelines promulgated at 40 CFR § 423 can be achieved. Furthermore, EPA determined that the TSS limits in the Draft Permit are similar to technology-based limits established for other facilities in Region 1 and similar facilities in other regions, as described in the ELG documents cited above.

The Draft Permit maintains the maximum daily limit of 100 mg/L, and the average monthly limit of 30 mg/L for Outfall 003, monitored twice per month, consistent with anti-backsliding requirements found in 40 CFR §122.44(l).

¹⁴See Steam Electric Power Generating Category Effluent Guidelines and Standards. 39 Fed. Reg. 36186 (October 8, 1974).

¹⁵ See Development Document for Effluent Limitations Guidelines and Standards and Pretreatment Standards for the Steam Electric Point Source Category. EPA-440-1-82-029. Washington, DC. (November 1982).

5.2.2.2 Turbidity

Turbidity is a measure of relative water clarity, with relatively higher turbidity corresponding to relatively lower water clarity. Materials such as inorganic matter (e.g., silt, sand, and clay), organisms (e.g., algae, plankton, and microbes), and detritus can contribute turbidity. Highly turbid water can influence the amount of dissolved oxygen in the water by decreasing light penetration in the water, in turn reducing photosynthesis, by increasing water temperature as suspended particles absorb heat, or by oxygen depletion as bacteria consume dead plant matter. These materials can also have physical effects on aquatic life and waterbodies, clogging fish gills, reducing growth and disease resistance, smothering fish eggs and benthic macroinvertebrates, and causing sedimentation that may alter the nature of bottom sediments.

State WQSs for color and turbidity for Class SB waters states, “These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class.” 314 CMR 4.05(4)(b)6. A turbidity value of 25 NTU is consistent with the upstream turbidity cited in EPA’s *Quality Criteria for Water* to explain major increases in stream suspended solids.¹⁶ Impacts to aquatic life from elevated sediment and turbidity can take place both through direct mortality in the short term and reduced reproductive success in the long term.¹⁷ This value is also consistent with several states that have established numeric water quality criteria for turbidity, including the New England states of Vermont¹⁸ and New Hampshire.¹⁹

EPA has determined turbidity is a pollutant of concern under State WQSs for color and turbidity at 314 CMR 4.05(4)(b)6, for aesthetics at 314 CMR 4.05(5)(a) and for bottom pollutants or alterations at 314 CMR 4.05(5)(b), given: 1) the Facility operation, which involves the treatment of solids; 2) the occasionally elevated levels of TSS measured in the discharge; 3) turbidity is a listed cause of the aesthetics and primary and secondary contact impairments in the Chelsea River; and 4) turbidity is a pollutant that requires a TMDL in the Chelsea River. However, turbidity concentrations have not been measured in the Facility’s discharges. Therefore, the Draft Permit contains daily maximum and monthly average monitoring for turbidity in nephelometric turbidity units (NTUs) for Outfall 003, monitored twice per month by composite samples, in conjunction with TSS sampling.

This information is necessary to determine if discharges of turbidity from the Facility cause, or have the reasonable potential to cause, or contribute to an excursion above State WQSs in accordance with 40 CFR §122.44(d)(1)(ii).

5.2.2.3 pH

¹⁶ EPA 440/5-86-001, May 1, 1986. Solids (Suspended, Settleable) and Turbidity, p. 270 of 395.

¹⁷ *National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological And Conference Opinion* for EPA’s Multi-Sector General Permit for Stormwater Associated with Industrial Activity Pursuant to the National Pollutant Discharge Elimination System; Table 10; March 19, 2015.

¹⁸ See Vermont Water Quality Standards, Subchapter 3, § 29A-302(4), effective January 15, 2017.

¹⁹ See “Review of New Hampshire’s Water Quality Criteria for Turbidity (Env-Wq 1703.11),” State of New Hampshire Inter-Department Communication, October 6, 2011.

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 December 1, 2014 through October 31, 2020 (Appendix A), pH has ranged from 6.0 to 9.16 S.U. (2 exceedances). 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).

5.2.2.4 Chemical Oxygen Demand

Oxygen is measured in its dissolved form as dissolved oxygen (DO). Indirect indicators commonly used to measure the oxygen demand in wastewater include biological oxygen demand (BOD) and chemical oxygen demand (COD). BOD measures the amount of oxygen consumed by microorganisms in decomposing organic matter in water. COD measures the chemical oxidation of organic and inorganic matter (i.e., the extraction of dissolved oxygen from water via chemical reaction). The rate of oxygen consumption in a waterbody is affected by several variables: temperature, pH, the presence of microorganisms, and the type of organic and inorganic materials. Oxygen demand directly affects the amount of dissolved oxygen in rivers and streams. The greater the oxygen demand (i.e., the higher the concentration of BOD and/or COD), the more rapidly oxygen is depleted in the stream. Depletion of the in-stream oxygen levels cause aquatic organisms to become stressed, suffocate, and die.

As described above, the Chelsea River is listed in the Massachusetts Year 2016 Integrated List of Waters as impaired for its designated uses and DO is listed as a cause. The Massachusetts WQSs at 314 CMR 4.05(4)(b)4 requires DO levels in Class SB waters designated for shellfishing be no less than 5.0 mg/L. EPA does not currently have information regarding dissolved oxygen in discharges from the Facility.

Therefore, the Draft Permit includes a monitoring requirement for COD for Outfall 003, monitored monthly. This information is necessary to determine if discharges of COD from the Facility cause, or have the reasonable potential to cause, or contribute to an excursion above State WQSs.

5.2.2.5 Oil and Grease

Oil and Grease (O&G) is not a single chemical constituent, but includes a large range of organic compounds, which can be both petroleum-related (e.g., hydrocarbons) and non-petroleum (e.g., vegetable and animal oils and greases, fats, and waxes). These compounds have varying physical, chemical, and toxicological properties. Generally, oils and greases in surface waters

either float on the surface, are solubilized or emulsified in the water column, adsorb onto floating or suspended solids and debris, or settle on the bottom or banks. Oil and grease, or certain compounds within an oil and grease mixture, can be lethal to fish, benthic organisms and water-dwelling wildlife.

From December 1, 2014 through October 31, 2020, oil and grease levels reported for Outfall 003 have ranged from below the laboratory detection limits to 2.3 mg/L.

The 2005 Permit limit of 15 mg/L, continued in the 2014 Permit, is based on the benchmark level from EPA's guidance to, and as a means of establishing a categorization within, the petroleum marketing terminals and oil production-facilities categories.²⁰ Performance data from terminals in Massachusetts and Maine continue to support that this effluent limit can be achieved through the proper operation of a correctly-sized OWS and properly implemented best management practices (BMPs). In addition, a concentration of 15 mg/L is recognized as the level at which many oils produce a visible sheen and/or cause an undesirable taste in fish.²¹ As described above, the designated uses for aesthetics, primary and secondary contact recreation, and fish consumption are not supported in Chelsea River.

Consistent with anti-backsliding requirements found in 40 CFR §122.44(I), and to meet State WQSs, given the impairments to Chelsea River, the Draft Permit maintains the maximum daily limit for oil and grease at Outfall 003, monitored monthly.

5.2.2.6 Bacteria

While the Facility does not engage in activities that would be expected to generate large sources of bacteria, stormwater runoff can readily transport bacteria from surfaces susceptible to the waste products of warm-blooded animals or pathogens, which attach to organic and inorganic particles. Fecal coliform, *E. coli*, 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 and can impact water quality. As described above, the Chelsea River is a Class SB water. Where designated, Class SB waters shall be suitable for shellfish harvesting with depuration (Restricted and Conditionally Restricted Shellfish Areas). Waters with a shellfishing designated use have fecal coliform as the indicator bacteria for recreational uses and for shellfishing use. See 314 CMR 4.05(4)(b)(4). The Massachusetts Division of Marine Fisheries (DMF) Shellfish Sanitation and Management classifies the shellfish area including Chelsea River and the Mystic River (GBH4) as prohibited for shellfishing (closed to harvest of shellfish under all conditions, except gathering of seeds for municipal propagation programs under a DMF permit).²²

²⁰ See *Additional Guidance for Petroleum Marketing Terminals and Oil Production Facilities*. N-74-1. Washington, D.C. (July, 1974).

²¹ USEPA. 1976. *The Red Book – Quality Criteria for Water*. July 1976.

²² Massachusetts Division of Marine Fisheries Shellfish Area Classification Map. Growing Area Code GBH4. Available at <http://www.massmarinefisheries.net/shellfish/dsga/GBH4.pdf>.

The 2014 Permit included monitoring requirements for fecal coliform as part of the pollutant scan to determine if bacteria in stormwater discharges from the Facility could occur at concentrations that could cause or contribute to an excursion above WQSs. From December 1, 2014 through October 31, 2020, fecal coliform at Outfall 003 was detected in 12 of 17 samples, ranging from 0 colony forming units per 100 mL (cfu/100 mL) to 1100 cfu/100 mL.

The Massachusetts WQSs at 314 CMR 4.05(4)(b)(4)(a) limit fecal coliform in Class SB waters designated for shellfishing. The Massachusetts water quality standards limit fecal coliform to a geometric mean MPN (most probable number) of 88 organisms per 100 ml and not more than 10% of the samples exceeding an MPN of 260 organisms per 100 ml or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the *Guide For The Control of Molluscan Shellfish* (more stringent regulations may apply, *see* 314 CMR 4.06(1)(d)(5)). Monitoring over the past permit term demonstrates that the Facility has the potential to discharge levels of bacteria in excess of water quality standards.

The Massachusetts WQSs at 314 CMR 4.05(4)(b)(4)(a) limit fecal coliform in Class SB waters designated for shellfishing. The Massachusetts water quality standards limit fecal coliform to a geometric mean MPN (most probable number) of 88 organisms per 100 mL and not more than 10% of the samples exceeding an MPN of 260 organisms per 100 mL or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the *Guide For The Control of Molluscan Shellfish* (more stringent regulations may apply, *see* 314 CMR 4.06(1)(d)(5)). Monitoring over the past permit term demonstrates that the Facility has the potential to discharge levels of bacteria in excess of water quality standards.

The Massachusetts Year 2016 Integrated List of Waters indicates that Chelsea River is impaired for shellfishing and listed fecal coliform as a pollutant requiring a TMDL. However, shellfishing is currently prohibited in Chelsea River by the Massachusetts Department of Public Health. MassDEP released the Final Pathogen TMDL for the Boston Harbor, Weymouth-Weir, and Mystic Watersheds in October 2018.²³ The TMDL contains specific water quality targets for pathogens in the Mystic River sub-basin, including the Chelsea River (MA71-06). According to the TMDL, bacteria problems persist over much of the area due to a combination of point and non-point source pollution, including wastewater treatment plant effluent, piped discharges of stormwater from Phase I and Phase II communities, and discharges from CSOs. Most of the bacteria sources are believed to be stormwater related. The TMDL identifies the Chelsea River (MA71-06, SB/CSO) as a high priority with wet and dry weather bacteria issues as indicated by fecal coliform sampling. High priority segments are indicative of the potential presence of raw sewage and pose a greater risk to the public. CSOs, such as those in Chelsea River, have historically been a significant contributor to bacteria pollution. As aggressive efforts to control CSO discharges reduce bacteria loads from these sources, stormwater discharges will be a dominant source of bacteria pollution along with non-point sources. Fecal coliform samples

²³ Final Pathogen TMDL for the Boston Harbor, Weymouth-Weir, and Mystic Watersheds. October 2018.
<https://www.mass.gov/total-maximum-daily-loads-tmdls>

collected under the 2014 Permit contain relatively high pathogen counts. Given the pathogen levels in the effluent and the requirements of the TMDL, the Draft Permit establishes fecal coliform effluent limitations of 88 organisms per 100 mL and not more than 10% of the samples exceeding an MPN of 260 organisms per 100 mL for Outfall 001.

At the same time, Massachusetts WQSs use *Enterococcus* as the preferred indicator for recreational designated uses. See 314 CMR 4.05(4)(b)(4)(b). The Boston Harbor Final Pathogen TMDL also specifies enterococci as the indicator bacteria for Chelsea River (Class SB(CSO)). Therefore, the Draft Permit establishes monitoring requirements for *Enterococcus* consistent with the TMDL and State WQSs. The Draft Permit specifies monthly monitoring to provide data necessary to further evaluate pathogen issues in Chelsea River. After one year, if all monitoring results are below the applicable WQS, the monitoring frequency may be reduced to once per year, in conjunction with the annual monitoring event.

5.2.3 Volatile Organic Compounds

5.2.3.1 Benzene, Toluene, Ethyl benzene, and Xylenes

Refined petroleum products contain numerous types of volatile organic compounds (VOCs). Effluent limitations for the VOCs present in refined petroleum products are typically established for the compounds most difficult to remove from the environment and that demonstrate the greatest degree of toxicity. VOCs partition to environmental media based on physical and chemical properties, including solubility and vapor pressure. Generally, the higher the solubility of a VOC in water, the more difficult it is to remove. Relative to other VOCs, the VOCs benzene, toluene, ethylbenzene, and the three xylene compounds (i.e., total xylenes) – collectively known as BTEX – exhibit high solubility, are more toxic, and are found at high concentrations in gasoline and light distillates such as diesel fuel. BTEX concentrations generally decrease in heavier grades of petroleum distillate products such as fuel oils.

In developing the 2014 Permit, benzene was selected as the indicator parameter for volatile petroleum-related organic compounds. Benzene was selected because this compound has the highest solubility, is one of the most toxic petroleum constituents, is found at relatively high concentrations in light distillate products and a recommended water quality criterion has been published. The concentration of benzene in gasoline is approximately 20,000 parts per million.²⁴ The concentration in diesel fuel, although several orders of magnitude smaller than that found in gasoline, is still environmentally significant. The average percent by weight of benzene in diesel fuel is approximately 0.03 percent which is equivalent to a concentration of benzene of approximately 300 parts per million. These values exceed EPA's recommended "organism only" human health water quality criterion for benzene, 51 µg/L (or 51 parts per billion).²⁵

²⁴ See "Composition of Petroleum Mixtures", Total Petroleum Hydrocarbon Criteria Working Group Series, T.L. Potter and K.E. Simmons, Vol. 2, p. 52 (May 1998).

²⁵ see *National Recommended Water Quality Criteria*:

<http://water.epa.gov/scitech/swguidance/standards/current/index.cfm>

As a result, the 2014 Permit included a water quality-based monthly average effluent limit of 51 µg/L for benzene at Outfall 003, monitored monthly. The 2014 Permit also required monthly monitoring, without limits for the daily maximum concentration. Finally, quarterly monitoring for benzene, toluene, ethyl benzene, and the three xylene compounds at Outfall 003 and in the Chelsea River was required to ensure that selection of benzene as an indicator parameter is sufficiently stringent to meet State WQSs. This monitoring requirement automatically reduced to annually after three years.

The Final Massachusetts Year 2016 Integrated List of Waters also lists Chelsea River as impaired for petroleum hydrocarbons. The bulk petroleum storage facilities that discharge to the Chelsea River are explicitly noted as one of the sources of these pollutants. From December 1, 2014 through October 31, 2020, ethylbenzene was not detected above the laboratory detection limits at Outfall 003. Total xylenes were detected above laboratory detection limits in one sample at 1 µg/L and toluene was detected above laboratory detection limits in two samples (2.8 µg/L and 16.6 µg/L). Benzene was not detected above the laboratory detection limits for the quarterly sampling events but was detected above laboratory detection limits in 5 monthly samples ranging from 0.5 µg/L to 2.5 µg/L at Outfall 003 during this time period.

In 2015, EPA updated human health criteria for benzene using both noncarcinogenic and carcinogenic toxicity endpoints. The updated human health criteria for noncarcinogenic effects for benzene are 90 µg/L for consumption of organisms only. The updated human health for carcinogenic effects (at a 10^{-6} cancer risk level) for benzene are 16 µg/L using the lower cancer slope factor and 58 µg/L using the upper cancer slope factor for consumption of organisms only. EPA recommended the lower criterion, based on the carcinogenic effects of benzene, as the updated human health criterion. These updated criteria replaced EPA's previously published values (i.e., 2002). The State issued proposed revised surface WQSs for public notice and comment from October 4, 2019, through November 8, 2019, that would adopt EPA's recommended criteria. The revised surface WQSs have not been finalized, however. If the proposed benzene criterion, 16 µg/L, is finalized prior to issuance of the Final Permit, EPA will consider the applicability of the 16 µg/L criterion to discharges from this Facility when establishing the appropriate effluent limitation.

Further, EPA is required to apply the more stringent of applicable water quality-based effluent limits and technology-based limits. In 2017, EPA issued a revised benzene limitation in EPA's RGP of 5 µg/L. In establishing this revised limitation, EPA considered the presence of benzene at contaminated or formerly contaminated sites. EPA identified benzene as a pollutant based on: 1) the type of activity taking place, which includes dewatering, remediation and/or hydrostatic testing; and 2) available data showing the presence of benzene in discharges of contaminated groundwater and certain surface waters, which may include stormwater, surface water and potable water. EPA then considered the types of treatment typically used for dewatering, remediation and/or hydrostatic testing. Treatment types considered in the RGP, which are required at RGP sites if necessary to meet effluent limitations, include: 1) adsorption/absorption; 2) advanced oxidation processes; 3) air stripping; 4) granulated activated carbon/liquid phase carbon adsorption; 5) ion exchange; 6) precipitation/coagulation/flocculation; and 7)

separation/filtration. Free product recovery, air stripping,²⁶ mechanical pre-treatment, flow equalization, oil/water separation, membrane, and adsorptive media²⁷ remove benzene.

In reviewing the applicability of a 5 µg/L technology-based limitation for benzene to this Facility, EPA finds that discharges from bulk stations and terminals are consistent with the type of discharges considered under the RGP, which include hydrostatic testing discharges from dewatering of pipelines, tanks, and similar structures and appurtenances that store or convey petroleum products, and dewatering and/or remediation discharges from collection structures (e.g., dikes) utilized for collecting miscellaneous sources of water from contaminated or formerly contaminated sites or sources, including when contamination is a result of the infiltration of contaminated groundwater or stormwater. Further, conditions at the Facility are consistent with those under which this limitation can be achieved. Specifically, the combination of best management practices and treatment are used at the Facility. Finally, EPA finds that a benzene concentration of 5 µg/L is consistent with monitoring results from this and other facilities in Region 1 with similar activities and discharges. Specifically, the concentrations of benzene reported by the bulk petroleum storage facilities that discharge directly to Chelsea River and Sales Creek from December 1, 2014 through November 30, 2019 are summarized in Table 2, below.

Since monitoring results indicate that the concentrations of toluene, ethylbenzene, and xylene compounds do not exceed applicable criteria, EPA has determined that the use of benzene as an indicator parameter and the effluent limitation imposed meets State WQSs. Therefore, the Draft Permit maintains the effluent limitation for benzene of 51 µg/L for Outfall 003, monitored monthly, consistent with anti-backsliding requirements found in 40 CFR § 122.44(l). The Draft Permit also maintains an annual monitoring requirement for toluene, ethylbenzene and xylenes in the discharge and all BTEX compounds in the receiving water, as well as the reopener clause, in accordance with 40 CFR § 122.44(d)(1)(vi)(C).

Table 2: Summary of Benzene Concentrations in Discharges from the Bulk Petroleum Storage Facilities located along Chelsea River

Permit Number (Facility)	Outfall Number	Number of Detections	Maximum of Detected Values (µg/L)	Number of Values >5 µg/L
MA0000825 (former Global South, Revere)	001	10	3.8	0
MA0001091 (Gulf, Chelsea)	003	4	64	1
MA0001929 (Irving, Revere)	001	13	58.7	5
MA0003280 (Chelsea Sandwich, Everett)	001	0	---	---

²⁶ See *Model NPDES Permit for Discharges Resulting From The Cleanup of Gasoline Released From Underground Storage Tanks*, June 1989.

²⁷ See benzene entries in *Industrial Wastewater Treatment Technology Database (IWTT)* at <https://watersgeo.epa.gov/iwtt/guided-search>.

MA0003280 (Chelsea Sandwich, Everett)	002	1	48.2*	1
MA0003425 (former Global Petroleum, Revere)	002	8	5.95	1
MA0003425 (Global Petroleum, Revere)	Former Petroleum internal 002	29	56.8**	10
MA0003425 (Global Petroleum, Revere)	003	0	---*	---
MA0003298 (former Global REVCO, Revere)	004	0	---	---
MA0003298 (former Global REVCO, Revere)	005	4	4.2	0
MA0004006 (Sunoco, East Boston)	001	9	9.1	2
MA0004782 (CITGO, Braintree)***	001	21	13.3	16
MA0004782 (CITGO, Braintree)***	002	0	--*	---
MA0028037 (Sprague Twin Rivers)***	001	0	---	---
MA0020869 (Sprague Quincy)***	002	0	---	---

Note: *This outfall is already limited to 5 µg/L for benzene.

** This outfall has been eliminated and was limited to 5 µg/L for benzene.

*** The reporting period is July 1, 2015 through June 30, 2020. Reporting periods differ for these facilities due to differences in when draft permits were developed.

During the monitoring period from December 1, 2014 through October 31, 2020, the Facility detected benzene above 5 µg/L once at Outfall 003 (at a concentration of 32 µg/L), with all remaining data either detected below 5 µg/L (3 samples) or not detected (63 samples). Therefore, based on available information, EPA has determined that discharges containing benzene at this outfall can achieve a limitation of 5 µg/L using existing controls. *See* 40 CFR § 125.3(d). The Draft Permit proposes a daily maximum technology-based effluent limitation for benzene of 5 µg/L for Outfall 001 on a case-by-case basis using best professional judgement, consistent with requirements found in CWA § 402(a)(1)(B). The Draft Permit requires monthly monitoring. The Draft Permit also maintains the annual monitoring requirements for toluene, ethylbenzene and xylenes in the discharge and all BTEX compounds in the receiving water, as well as the reopener clause, in accordance with 40 CFR § 122.44(d)(1)(vi)(C).

The Permittee has requested elimination of monitoring requirements for VOCs associated with the pollutant scan included in the 2014 Permit. The Commonwealth, however, has identified the Chelsea River as impaired, listing petroleum hydrocarbons as among the causes of impairment and identifying stormwater, industrial point discharges, above ground storage tank leaks, and accidental releases listed as among the sources contributing to the impairments. Given the impairments to the Chelsea River and that petroleum hydrocarbons – which contain numerous types of VOCs – have been identified as a pollutant contributing to these impairments, as well as the use of indicator parameters, the proposed effluent limitations and continued monitoring requirements are necessary and appropriate to carry out the provisions of the CWA and ensure compliance with State WQSs. *See* CWA §308(a), 33 U.S.C. §1318(a).

5.2.4 Semi-Volatile Organic Compounds

5.2.4.1 Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) are a group of semi-volatile organic compounds (SVOCs) that form through the incomplete combustion of hydrocarbons and are present in petroleum derivatives and residuals. Discharge of these materials can introduce PAHs into surface water where they may volatilize, photolyze, oxidize, biodegrade, bind to suspended particles or sediments, or accumulate in aquatic organisms.²⁸ In soils, PAHs may also undergo degradation, accumulation in plants, or transport via groundwater. In an estuarine environment, volatilization and adsorption to suspended sediments with subsequent deposition are the primary removal processes for medium and high molecular weight PAHs. Several PAHs are well known animal carcinogens, while others can enhance the response of the carcinogenic PAHs.

There are 16 PAH compounds identified as priority pollutants under the CWA. *See* Appendix A to 40 CFR Part 423. Group I PAHs are comprised of seven known animal carcinogens. They are: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Group II PAHs are comprised of nine priority pollutant PAHs which are not considered carcinogens, but which can enhance or inhibit the response of the carcinogenic PAHs. They are: acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene.

In developing the 2014 Permit, one Group I PAH, benzo(a)pyrene, and one Group II PAH, naphthalene, were selected as the indicator parameters for semi-volatile petroleum-related organic compounds at Outfall 003. While the distillation process removes a greater proportion of Group I PAHs by weight, these compounds can still be present in low concentrations, particularly benzo(a)pyrene. Benzo(a)pyrene has been used extensively as a model carcinogen and as a positive control in a variety of risk assessment tests. EPA has designated this compound as a known animal carcinogen and probable human carcinogen. Relative to the other Group I PAHs, it is strongly carcinogenic. Of Group II PAHs, naphthalene, like benzo(a)pyrene poses high calculable risk relative to other PAHs. It is included as a priority pollutant under the CWA and is classified as a possible human carcinogen. In middle and heavy distillates, naphthalene is one of the most commonly found compounds, present in diesel fuel and No. 2 fuel oil at up to approximately 0.8 and 0.4 percent by weight, respectively.²⁹ Naphthalene is only slightly soluble in water, but is highly soluble in benzene and other solvents.

The 2014 Permit included a water quality-based monthly average effluent limit of 0.018 µg/L for benzo(a)pyrene and 100 µg/L for naphthalene at Outfall 003, monitored monthly. The 2014 Permit also required monthly monitoring and reporting, without limits, for the daily maximum concentrations. Finally, quarterly monitoring for benzo(a)anthracene, benzo(a)pyrene,

²⁸ Bioconcentration factors generally range from 10-10,000.

²⁹ See Agency for Toxic Substances and Disease Registry Toxic Substances Portal entries for naphthalene at <http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=240&tid=43>.

benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene at Outfall 003 and in the Chelsea River was required to ensure that selection of benzo(a)pyrene and naphthalene as indicator parameters is sufficiently stringent to meet State WQSs, which automatically reduced to annually after three years.

As described above, the Aquatic Life, Aesthetics, Primary and Secondary Contact Recreation designated uses are not supported in Chelsea River. The bulk petroleum storage facilities that discharge to the Chelsea River are explicitly noted as one of the sources of these pollutants. From December 1, 2014 through October 31, 2020, for Outfall 003, Group I and Group II PAH compounds were detected above the laboratory detection limits, as shown in Table 2, below. Benzo(a)pyrene was detected above laboratory detection limits in two samples ranging from 0.089 µg/L to 0.09 µg/L at Outfall 003 during this time period. Naphthalene was not detected above laboratory detection limits in any of the samples taken from Outfall 003 during this time period.

Table 3: Summary of Detected PAH Compounds

Parameter	Number of Detections	Minimum of Detected Values (µg/L)	Maximum of Detected Values (µg/L)
Benzo(a)anthracene	0	---	---
Benzo(a)pyrene	3	0.089	0.09
Benzo(b)fluoranthene	2	0.063	0.074
Benzo(k)fluoranthene	1	---	0.055
Chrysene	0	---	---
Dibenzo(a,h)anthracene	0	---	---
Indeno(1,2,3-cd)pyrene	2	0.063	0.104
Acenaphthene	0	---	---
Acenaphthylene	0	---	---
Anthracene	0	---	---
Benzo(g,h,i)perylene	2	0.053	0.063
Fluoranthene	4	0.054	0.064
Fluorene	0	---	---
Naphthalene	0	---	---
Phenanthrene	0	---	---
Pyrene	5	0.058	0.081

Group I PAHs

Group I PAH compounds are listed as priority pollutants in Appendix A to 40 CFR Part 423. Concentrations of each of the Group I PAH compounds exceed applicable criteria; therefore, EPA has determined that discharges of these priority pollutants cause, or have a reasonable potential to cause or contribute to an excursion above WQSs. This determination is based on the monitoring data collected during the permit term, as well as the Chelsea River impairments for the Aquatic Life, Aesthetics, Primary Contact and Secondary Contact Uses due to the presence

of petroleum hydrocarbons. Further, the bulk petroleum storage facilities that discharge to the Chelsea River, including the Facility, are explicitly noted as one of the sources of these pollutants. Therefore, effluent limitations are required.

The Draft Permit proposes an effluent limitation for benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene of 0.018 µg/L, monitored monthly. This effluent limitation is based on the “organism only” human health WQC for each individual compound, selected because the uses designated for Chelsea River includes fishing (i.e., consumption of organisms). The Draft Permit also requires annual monitoring for Group I PAHs in the receiving water to ensure these limitations are sufficiently stringent to meet WQSs.

Where effluent limits have been established in NPDES permits but compliance cannot be determined using currently approved analytical methods (e.g. if WQBELs are less than the analytical capability of the methods), EPA must establish a compliance level. The *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*³⁰ requires the use of an EPA-approved method that is sufficiently sensitive. Therefore, the Draft Permit requires that the quantitative methodology used for PAH analysis must achieve the ML of ≤0.1 µg/L for each Group I PAH compound and this ML is the compliance level for each Group I PAH compound. This ML is based on the method that has the lowest ML of the analytical methods approved under 40 CFR Part 136,³¹ and is consistent with EPA’s TSD, page 111, which recommends, “the compliance level be defined in the permit as the minimum level (ML

Group II PAHs

Group II PAH compounds are listed as priority pollutants in Appendix A to 40 CFR Part 423. Although several Group II PAH compounds were detected, since monitoring results indicate that the concentrations of individual Group II PAHs do not exceed applicable criteria (i.e., acenaphthene human health organism-only criteria of 990 µg/L, anthracene human health organism-only criteria of 40,000 µg/L, fluoranthene human health organism-only criteria of 140 µg/L, fluorene human health organism-only criteria of 5,300 µg/L and pyrene human health organism-only criteria of 4,000 µg/L), EPA has determined that discharges of these priority pollutants do not cause, or have a reasonable potential to cause or contribute to an excursion above WQSs and WQBELs for additional Group II PAHs are not required. However, EPA is required to apply the more stringent of applicable water quality-based effluent limits and technology-based limits. See CWA § 301(b)(1)(C) and 40 CFR §§ 122.44(d)(1), 122.44(d)(5), 125.84(e) and 125.94(i). In 2017, EPA reissued a naphthalene limitation in EPA’s RGP of 20 µg/L. In establishing this limitation, EPA considered the presence of naphthalene in discharges from contaminated or formerly contaminated sites. EPA identified naphthalene as a pollutant based on: 1) the type of activity taking place, which includes dewatering, remediation and/or hydrostatic testing; and 2) available data showing the presence of naphthalene in discharges of contaminated groundwater and certain surface waters, which may include stormwater, surface

³⁰ Fed. Reg. 49,001 (Aug. 19, 2014).

³¹ Method 624 with the selected ion monitoring modification.

water and potable water. EPA then considered the types of treatment typically used for dewatering, remediation and/or hydrostatic testing. Treatment types considered in the RGP, which are required at RGP sites if necessary to meet effluent limitations, include: 1) adsorption/absorption; 2) advanced oxidation processes; 3) air stripping; 4) granulated activated carbon/liquid phase carbon adsorption; 5) ion exchange; 6) precipitation/coagulation/flocculation; and 7) separation/filtration. Granular activated carbon and air stripping³² are appropriate treatment technologies for naphthalene, and flow equalization, oil/water separation, aeration and membrane³³ remove naphthalene.

In reviewing the applicability of a 20 µg/L technology-based limitation for naphthalene to this Facility, EPA finds that discharges from bulk stations and terminals are consistent with the type of discharges considered under the RGP, which include hydrostatic testing discharges from dewatering of pipelines, tanks, and similar structures and appurtenances that store or convey petroleum products, and dewatering and/or remediation discharges from collection structures (e.g., dikes) utilized for collecting miscellaneous sources of water from contaminated or formerly contaminated sites or sources, including when contamination is a result of the infiltration of contaminated groundwater or stormwater. Further, conditions at the Facility are consistent with those under which this limitation can be achieved, specifically, the combination of applicable best management practices and treatment are used at the Facility. Finally, EPA finds that a naphthalene concentration of 20 µg/L is consistent with monitoring results from this and other facilities in Region 1 with similar activities and discharges. Specifically, the concentrations of naphthalene reported by the bulk petroleum storage facilities that discharge directly to Chelsea River and Sales Creek from December 1, 2014 through October 31, 2020 are summarized in Table 4, below.

Table 4: Summary of Naphthalene Concentrations in Discharges from the Bulk Petroleum Storage Facilities located along Chelsea River

Permit Number (Facility)	Outfall Number	Number of Detections	Maximum of Detected Values (µg/L)	Number of Values >20 µg/L
MA0000825 (Global South, Revere)	001	10	0.8	0
MA0001091 (Gulf, Chelsea)	003	3	46	1
MA0001929 (Irving, Revere)	001	2	19.6	0
MA0003280 (Chelsea Sandwich, Everett)	001	2	3.87	0
MA0003280 (Chelsea Sandwich, Everett)	002	1	0.082*	---
MA0003298 (Global REVCO, Revere)	004	6	0.416	0
MA0003298 (Global REVCO, Revere)	005	3	0.566	0
MA0003425 (Global Petroleum, Revere)	002	4	0.82	0
MA0003425 (Global Petroleum, Revere)**	former Petroleum	20	7.3	0

³² U.S. EPA. *Contaminant Candidate List Regulatory Determination Support Document for Naphthalene*. EPA-815-R-03-14: July 2003.

³³ See naphthalene entries in *Industrial Wastewater Treatment Technology Database (IWTT)* at <https://watersgeo.epa.gov/iwtt/guided-search>.

	internal outfall			
MA0003425 (Global Petroleum, Revere)	003	0	---	---
MA0004006 (Sunoco, East Boston)	001	6	5*	0
MA0004782 (CITGO, Braintree)***	001	2	0.457	0
MA0004782 (CITGO, Braintree) ***	002	---	---	---
MA0028037 (Sprague Twin Rivers) ***	001	0	---	---
MA0020869 (Sprague Quincy) ***	002	0	---	---

Note: *This outfall is already limited to 10 or 20 ug/L for naphthalene.

** This outfall has been eliminated and was limited to 20 µg/L for naphthalene.

*** The reporting period is July 1, 2015 through June 30, 2020. Reporting periods differ for these facilities due to differences in when draft permits were developed.

Relative to the monitoring data from December 1, 2014 through October 31, 2020, Outfall 001 has recorded naphthalene concentrations less than 20 µg/L 99% percent of the time (in 66 of 67 samples). Therefore, based on available information, EPA has determined that discharges at this Facility can achieve a limitation of 20 µg/L using existing controls. *See* 40 CFR § 125.3(d). Therefore, since the TBEL of 20 µg/L is more stringent than the existing WQBEL of 100 µg/L, the Draft Permit proposes a revised effluent limitation of 20 µg/L for naphthalene, monitored monthly. The Draft Permit also maintains the annual monitoring requirements for acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene, and pyrene in the discharge and all Group II PAHs in the receiving water, as well as the reopener clause, in accordance with 40 CFR §122.44(d)(1)(vi)(C).

The Permittee has requested relaxation of monitoring requirements for PAHs. Given the impairments to the Chelsea River and petroleum hydrocarbons having been identified as a pollutant contributing to these impairments, the proposed effluent limitations and continued monitoring requirements are necessary and appropriate to carry out the provisions of the CWA and ensure compliance with State WQSs. *See* CWA §§ 308(a), 402(a)(1) and (2), 33 U.S.C. §§ 1318(a), 1342(a)(1) and (2).

5.2.5 Chemicals and Additives

5.2.5.1 Total Residual Chlorine

Chlorine and chlorine compounds are toxic to aquatic life. Free chlorine is directly toxic to aquatic organisms and can react with naturally occurring organic compounds in receiving waters to form toxic compounds such as trihalomethane. Potable water sources are typically chlorinated to minimize or eliminate pathogens. 40 CFR § 141.72 stipulates that a public water system's residual disinfectant concentration in the water entering the distribution system cannot be less than 0.2 mg/L for more than four hours. The 2014 Permit included monitoring requirements for total residual chlorine (TRC) in conjunction with Whole Effluent Toxicity testing at Outfall 003. From December 1, 2014 through October 31, 2020, (Appendix A), TRC was detected in six samples, and concentrations have ranged from below laboratory detection limits to 0.079 mg/L.

The *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 23, 1990) specifies that “Waters shall be protected from unnecessary discharges of excess chlorine.” State WQSs further require the use of federal water quality criteria where a specific pollutant could reasonably be expected to adversely affect existing or designated uses. See 314 CMR 4.05(5)(e). Because the discharge occurs intermittently, EPA considered the acute criterion. The EPA *National Recommended Water Quality Criteria* for aquatic life in saltwater for TRC is as follows:

13 µg/L (0.013 mg/L) acute criterion

Given that the dilution factor for the Chelsea River is zero (i.e., 1:1), the TRC effluent limitations are equivalent to these criteria as follows:

Acute TRC limit = 13 µg/L

When detected, TRC concentrations were consistently higher than the water quality criterion (ranging from 24 to 79 µg/L). Since the concentrations measured in the discharge from Outfall 003 exceed the acute TRC criterion, the discharge of effluent has a reasonable potential to cause or contribute to excursions of the acute criterion for TRC (Appendix C). The Draft Permit proposes a daily maximum TRC effluent limitation of 13 µg/L, monitored monthly by grab samples. The proposed effluent limitation and continued monitoring requirements are necessary and appropriate to carry out the provisions of the CWA and ensure compliance with State WQSs. See CWA §308(a), 33 U.S.C. §1318(a); 40 CFR §§ 122.4(d), 122.44(d)(1). Because the minimum level of detection for TRC is above the criterion, and similar to the approach discussed above for PAHs, EPA has set a compliance level of 30 µg/L.³⁴ This ML is based on the method that has the lowest method detection limit of the analytical methods approved under 40 CFR Part 136,³⁵ and is calculated in accordance with 40 CFR Part 136.

5.2.5.2 Ethanol

Ethanol (EtOH) is an oxygenate blended with gasoline. EtOH is a clear, colorless liquid, miscible with water and many organic solvents. When released into surface water, it will volatilize or biodegrade rapidly and does not generally adsorb to sediment or bioaccumulate in fish. However, large releases of ethanol may deplete dissolved oxygen concentrations resulting in levels unable to support aquatic life. EPA has not promulgated ELGs for EtOH at bulk petroleum storage facilities although ELGs exist for EtOH as a non-conventional pollutant in the pharmaceutical manufacturing point source category (40 CFR Part 439). EPA has also not established human health or aquatic life water quality criteria for EtOH. However, the New England Interstate Water Pollution Control Commission utilized guidance included in EPA’s *Final Water Quality Guidance for the Great Lakes System* (1995), referred to as Tier II procedures, to calculate conservative water quality benchmark concentrations for EtOH in the absence of sufficient data to derive water quality criteria. These represent the concentrations at

³⁴ Standard Method 4500-Cl E, low-level amperometric direct method (low-level amperometric titration method).

³⁵ EPA Method 624.1 using the selected ion monitoring test method modification.

which EtOH would be expected to deplete dissolved oxygen levels below those necessary to sustain aquatic life or cause acute and chronic effects, conditions that would violate Massachusetts WQSs. These levels are 13 mg/L for depletion of in stream dissolved oxygen in a large river (most conservative), and 564 mg/L and 63 mg/L for acute and chronic effect concentrations, respectively.³⁶ Safety Data Sheets for ethanol indicate lethal effects to aquatic life occur at concentrations between approximately 11,000 mg/L to 34,000 mg/L.

The 2014 Permit maintains monitoring of EtOH for Outfall 002 and has added a monitoring requirement for Outfall 003 and specified that the minimum level for analysis of EtOH achieve 0.4 mg/L. The 2014 Permit also included a non-numeric technology-based limitation specific to EtOH in the Facility's SWPPP requirement. From December 1, 2014 through October 31, 2020, EtOH was not detected above laboratory detection limits in any samples collected from Outfall 003.

The Permittee requested to eliminate monitoring requirements for EtOH on the basis that the parameter has not been detected in the sampling conducted since the 2014 Permit was issued. EPA concurs; therefore, EtOH monitoring is not required in the Draft Permit. However, EPA has included a site-specific technology-based BMP to address the potential discharge of EtOH.

5.2.5.3 Tert-Butyl Alcohol

Similar to ethanol, tert-butyl alcohol (TBA) is an oxygenated compound that is added to petroleum fuels to enhance their performance. TBA, which can be present as both a fuel additive and as a breakdown product of methyl tert-butyl ether in the environment, is essentially miscible in water, has a much lower Henry's law constant (10^{-5}) and a low Koc value. As a result, TBA is expected to be even more difficult than MtBE to control to low concentrations. Massachusetts established an Action Level of 1,000 µg/L for TBA and monitoring for the compound is required for certain sites under EPA's RGP.

The 2014 Permit included a monitoring requirement for TBA as part of the pollutant scan to ensure it is not present in quantities that could cause or contribute to an excursion above State WQSs. From December 1, 2014 through October 31, 2020, TBA was not detected above laboratory detection limits in any samples collected from Outfall 003.

The Permittee requested to eliminate monitoring requirements for TBA on the basis that the parameter has not been detected in the sampling conducted since the 2014 Permit was issued. EPA concurs; therefore, TBA monitoring is not required in the Draft Permit.

5.2.5.4 Methyl tert-butyl Ether

³⁶ New England Interstate Water Pollution Control Commission, *Health, Environmental, and Economic Impacts of Adding Ethanol to Gasoline in the Northeast States, Volume 3, Water Resources and Associated Health Impacts*. July 2001, 129 pp.

Methyl tert-butyl Ether (MtBE) is a synthetic volatile organic compound used as an anti-knock and octane boosting additive in fuels to replace tetraethyl lead. MtBE was typically added in concentrations less than 1 percent by volume in regular gasoline, and two to nine percent by volume in premium gasoline. When the additional oxygen content requirements of the 1990 Clean Air Act were enacted, MtBE concentrations increased to 11-15 percent by volume. MtBE has a relatively high solubility in water and small molecular size. While MtBE is no longer in widespread use, MtBE has been detected in significant concentrations in groundwater impacted by releases of petroleum fuels.

Although MtBE is no longer in widespread use, MtBE-blended gasoline was stored at the Facility until ethanol came into use. Historic groundwater samples at the Facility have indicated up to 10,000 µg/L of MtBE. Because MtBE has been detected in significant concentrations in groundwater impacted by releases of petroleum fuels, As a result, MtBE serves as an indicator parameter of the infiltration of contaminated groundwater at this Facility.

The concentrations of MtBE reported by the bulk petroleum storage facilities that discharge directly to Chelsea River and Sales Creek from December 1, 2014 through October 31, 2020 are summarized in Table 5, below.

Table 5: Summary of MtBE Concentrations in Discharges from the Bulk Petroleum Storage Facilities located along Chelsea River

Permit Number (Facility)	Outfall Number	Number of Detections	Maximum of Detected Values (µg/L)	Number of Values >20 µg/L
MA0000825 (Global South, Revere)	001	6	3	0
MA0001091 (Gulf, Chelsea)	003	---	---	---
MA0001929 (Irving, Revere)	001	7	5.99*	0
MA0003280 (Chelsea Sandwich, Everett)	001	---	---	---
MA0003280 (Chelsea Sandwich, Everett)	002	---	---	---
MA0003298 (Global REVCO, Revere)	004	1	0.2	0
MA0003298 (Global REVCO, Revere)	005	4	1.4*	0
MA0003425 (Global Petroleum, Revere)	002	1	2*	0
MA0003425 (Global Petroleum, Revere)	former Petroleum internal outfall	31	54.6	3
MA0003425 (Global Petroleum, Revere)	003	3	1.1*	0
MA0004006 (Sunoco, East Boston)	001	16	68.5	10
MA0004782 (CITGO, Braintree)	001	6	0.92	0
MA0004782 (CITGO, Braintree)	002	27	58	9
MA0028037 (Sprague Twin Rivers)	001	---	---	---

MA0020869 (Sprague Quincy)	002	---	---	---
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Note: *This outfall is already limited to 20 µg /L for MtBE.

** This outfall has been eliminated and was limited to 70 µg/L for MtBE.

*** The reporting period is July 1, 2015 through June 30, 2020. Reporting periods differ for these facilities due to differences in when draft permits were developed.

Relative to the monitoring data from December 1, 2014 through October 31, 2020, Outfall 001 has contained MtBE concentrations less than 20 µg/L in 100% of samples (21 of 21 samples).

State WQSs do not include numeric criteria for MtBE, but the narrative criterion for toxic pollutants at 314 CMR 4.05(5)(e) states that, “All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.” The narrative criterion is further elaborated on at 314 CMR 4.05 (5)(e)2, which states, “Where EPA has not set human health risk levels for a toxic pollutant, the human health based regulation of the toxic pollutant shall be in accordance with guidance issued by the Department of Environmental Protection’s Office of Research and Standards. The Department’s goal is to prevent all adverse health effects which may result from the ingestion, inhalation or dermal absorption of toxins attributable to waters during their reasonable use as designated in 314 CMR 4.00.” EPA has issued lifetime health advisories for MtBE in drinking water based on taste and odor thresholds, also considered protective of human health. EPA’s health advisory for MtBE established a concentration of 20 µg/L based on the odor threshold and 40 µg/L based on the taste threshold. These values are the State secondary maximum contaminant levels for MTBE.³⁷ As previously mentioned, the aesthetics and primary and secondary contact designated uses are not supported in Chelsea River as a result of taste and odor, and the industrial point sources in the segment are specifically identified as a cause.

The 2014 Permit required quarterly monitoring, without limits, for the daily maximum concentration to determine if the discharges of MtBE cause, have reasonable potential to cause, or contribute to an excursion above WQC. From December 1, 2014 through October 31, 2020, concentrations of MtBE were detected once at 0.2 ug/L at Outfall 001. EPA finds that conditions at the Facility are consistent with those under which EPA’s health advisory values can be achieved, specifically, the combination of applicable best management practices and treatment are used at the Facility. Further, EPA finds that a MtBE concentration of 20 µg/L is consistent with monitoring results from this and other facilities in Region 1 with similar activities and discharges. Therefore, EPA has determined that discharges at this Facility can achieve a limitation of 20 µg/L using existing controls. *See* 40 CFR § 125.3(d). Therefore, the Draft Permit proposes a daily maximum effluent limitation of 20 µg/L for MtBE, monitored monthly. The Draft Permit also maintains the reopener clause, in accordance with 40 CFR §122.44(d)(1)(vi)(C).

5.2.5.5 Phenol

³⁷ *Standards and Guidelines for Contaminants in Massachusetts Drinking Waters*. Massachusetts Department of Environmental Protection, Office of Research and Standards: Winter 2020.

Phenol and phenolic compounds are widely used chemical intermediates and occur in the environment as a result of manufacturing, use of products containing phenols, from combustion sources, coal gas, and natural decay of organic matter. Phenol can also be present at low concentrations in gasoline, diesel and kerosene. Phenol and a number of other compounds including nitro-phenols and chlorinated phenols are listed as priority pollutants in Appendix A to 40 CFR Part 423. Further, phenol and other phenolic compounds are included in EPA's *National Recommended Water Quality Criteria* as having organoleptic (i.e., taste and odor) effects in water at low levels. The threshold at which phenol has an effect on taste and odor in water is 300 µg/L.

The 2014 Permit included in a monitoring requirement for phenol in the pollutant scan to ensure it is not present in quantities that could cause or contribute to an excursion above WQSs. From December 1, 2014 through October 31, 2020, phenol was not detected above laboratory detection limits in any samples collected from Outfall 003. The Permittee requested to eliminate monitoring requirements for phenol on the basis that the parameter has not been detected in the sampling conducted since the 2014 Permit was issued. EPA concurs; therefore, phenol monitoring is not required in the Draft Permit.

5.2.5.6 Vinyl Chloride

Vinyl chloride is a manufactured substance that does not occur naturally; however, it can be formed in the environment when other manufactured substances, such as trichloroethylene, trichloroethane, and tetrachloroethylene, are broken down by certain microorganisms. Most of the vinyl chloride produced in the United States since the 1970's is used to make the polymer polyvinyl chloride (PVC). Liquid vinyl chloride evaporates. Vinyl chloride in water or soil evaporates if it is near the surface. Some vinyl chloride can dissolve in water. Vinyl chloride can migrate to groundwater and can be in groundwater due to the breakdown of other chemicals. Many salts can form complexes with vinyl chloride and therefore increase its water solubility – greatly influencing the amount of vinyl chloride remaining in the water. Vinyl chloride is a known human carcinogen.³⁸

The occurrence of vinyl chloride at the Facility is the result of a small volume reportedly released, in a small geographic area. However, due to its toxicity, its known release at the Facility, and the potential for the compound to come into contact with stormwater, the 2014 Permit included in a monitoring requirement for vinyl chloride in the pollutant scan to ensure it is not present in quantities that could cause or contribute to an excursion above WQSs. From December 1, 2014 through October 31, 2020, vinyl chloride was not detected above laboratory detection limits in any samples collected from Outfall 003. Since this parameter has not been detected in the sampling conducted since the 2014 Permit was issued, vinyl chloride monitoring is not required in the Draft Permit.

5.2.5.7 Per- and polyfluoroalkyl substances (PFAS)

³⁸ See Agency for Toxic Substances and Disease Registry Toxic Substances Portal entries for vinyl chloride at <https://www.atsdr.cdc.gov/ToxProfiles/tp.asp?id=282&tid=51>.

As explained at <https://www.epa.gov/pfas>, PFAS are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products. PFAS manufacturing and processing facilities, facilities using PFAS in production of other products, airports, and military installations can be contributors of PFAS releases into the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. Exposure to some PFAS above certain levels may increase risk of adverse health effects.³⁹

Although the Massachusetts WQSs do not include numeric criteria for PFAS, the Massachusetts narrative criterion for toxic substances at 314 CMR 4.05(5)(e) states that:

[a]ll surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

The narrative criterion is further elaborated for human health risk levels at 314 CMR 4.05(5)(e)2, which states:

[w]here EPA has not set human health risk levels for a toxic pollutant, the human health-based regulation of the toxic pollutant shall be in accordance with guidance issued by the Department of Environmental Protection's Office of Research and Standards. The Department's goal is to prevent all adverse health effects which may result from the ingestion, inhalation or dermal absorption of toxins attributable to waters during their reasonable use as designated in 314 CMR 4.00.

On November 22, 2020, EPA issued an “*Interim Strategy for Per- and Polyfluoroalkyl Substances in Federally Issued National Pollutant Discharge Elimination System Permits*.” This guidance memo sets out the EPA workgroup’s recommendation for including phased-in monitoring and best management practices (as appropriate), when PFAS compounds are expected to be present in point source wastewater discharges. Facilities that have been identified as potential point sources of PFAS include:

- Platers/Metal Finishers
- Paper and Packaging Manufacturers
- Tanneries and Leather/Fabric/Carpet Treaters
- Manufacturers of parts with Polytetrafluoroethylene (PTFE) (i.e. teflon-type coatings and bearings)
- Landfill Leachate
- Centralized Waste Treatment Facilities
- Contaminated Sites
- Fire Fighting Training Facilities
- Airports

³⁹ EPA, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan*, EPA 823R18004, February 2019. Available at: <https://www.epa.gov/pfas/epas-pfas-action-plan>.

Since PFAS chemicals are persistent in the environment and may lead to adverse human health and environmental effects, the Draft Permit requires that the Facility conduct quarterly effluent sampling for PFAS chemicals, six months after appropriate, multi-lab validated test methods are made available by EPA to the public. This monitoring requirement includes the following PFAS chemicals:

- Perfluorohexanesulfonic acid (PFHxS)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorononanoic acid (PFNA)
- Perfluorooctanesulfonic acid (PFOS)
- Perfluorooctanoic acid (PFOA)
- Perfluorodecanoic acid (PFDA)

The purpose of this monitoring and reporting requirement is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of water quality-based effluent limits on a facility-specific basis. EPA is authorized to require this monitoring and reporting by CWA § 308(a), which states:

“SEC. 308. (a) Whenever required to carry out the objective of this Act, including but not limited to (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition, or effluent standard, pretreatment standard, or standard of performance under this Act; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, pretreatment standard, or standard of performance; (3) any requirement established under this section; or (4) carrying out sections 305, 311, 402, 404 (relating to State permit programs), 405, and 504 of this Act—

...the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require...”

Since an EPA method for sampling and analyzing PFAS in wastewater is not currently available, the PFAS sampling requirement in the Draft Permit includes a compliance schedule that delays the effective date of this requirement until six months after EPA’s multi-lab validated method for wastewater is made available to the public on EPA’s CWA methods program website. For wastewater see <https://www.epa.gov/cwa-methods/other-clean-water-act-test-methods-chemical> and <https://www.epa.gov/cwa-methods>. EPA expects this method will be available by the end of 2021. This approach is consistent with 40 CFR § 122.44(i)(1)(iv)(B), which states that “[i]n the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring shall be conducted according to a test procedure specified in the

permit for such pollutants or pollutant parameters.” After one year of monitoring, if all samples are non-detect for all six PFAS compounds, using EPA’s multi-lab validated method for wastewater, the Permittee may request to remove the requirement for PFAS monitoring.

5.2.6 Metals

Metals are naturally occurring constituents in the environment and generally vary in concentration according to local geology. Metals are neither created nor destroyed by biological or chemical processes. However, metals can be transformed through processes including adsorption, precipitation, co-precipitation, and complexation. Some metals are essential nutrients at low levels for humans, animals, plants and microorganisms, but toxic at higher levels (e.g., copper and zinc). Other metals have no known biological function (e.g., lead). The environmental chemistry of metals strongly influences their fate and transport in the environment and their effects on human and ecological receptors. Toxicity results when metals are biologically available at concentrations affecting the survival, reproduction and behavior of an organism.

The Permittee has obtained monitoring data for total recoverable cadmium, copper, lead, nickel and zinc in the discharge and the receiving water in conjunction with Whole Effluent Toxicity testing and total recoverable chromium in the discharge in conjunction with pollutant scan requirements. From December 1, 2014 through October 31, 2020 (Appendix A) for Outfall 003, total recoverable cadmium was not detected above laboratory detection limits in the discharge but was detected in the receiving water. During this same time period, total recoverable copper, lead, nickel, zinc, and chromium were detected in the discharge and total recoverable copper, lead, nickel, and zinc were detected in the receiving water (the receiving water was not analyzed for chromium). EPA completed an analysis to determine if these discharges cause, or have a reasonable potential to cause, or contribute to an excursion above State WQSs using EPA’s 2002 *National Recommended Water Quality Criteria* for metals (Appendix C). State WQSs contain minimum criteria applicable to all surface waters for toxic pollutants, which requires the use of EPA’s *National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002* where a specific pollutant is not otherwise listed in 314 CMR 4.00. *See* 314 CMR 4.05(5)(e). Because the discharge occurs intermittently, EPA considered the acute saltwater aquatic life criteria, and because the receiving water is not a public water supply, EPA considered the human health organism-only criteria. The acute saltwater aquatic life and human health organism-only EPA *National Recommended Water Quality Criteria* for metals, expressed in terms of the dissolved metal in the water column, are as follows:

Copper:

Saltwater acute (Class SB) = 4.8 µg/L

Lead:

Saltwater acute (Class SB) = 210 µg/L

Nickel:

Saltwater acute (Class SB) = 74 µg/L

Organism-only = 4,600 µg/L

Zinc:

Saltwater acute (Class SB) = 90 µg/L

Organism-only = 26,000 µg/L

Chromium: (chromium 6+ shown)

Saltwater acute (Class SB) = 1,100 µg/L

Given the impairment in the Chelsea River for taste and odor, EPA also considered criteria for metals listed in EPA's *National Recommended Water Quality Criteria* that cause an organoleptic effect (i.e., taste and odor). The organoleptic effect EPA *National Recommended Water Quality Criteria* for metals are as follows:

Copper:

1,000 µg/L

Zinc:

5,000 µg/L

The results of EPA's analysis (Appendix C) indicate discharges of cadmium, lead, nickel, zinc, and chromium do not cause, 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 these metals. Monitoring for total recoverable cadmium, lead, nickel, and zinc in the discharge and the receiving water continue to be required in conjunction with Whole Effluent Toxicity testing, discussed further below. The monitoring requirement for total recoverable chromium, which is not required in the saltwater Whole Effluent Toxicity testing protocol, has been eliminated.

However, the results of EPA's analysis (Appendix C) indicate discharges of copper cause, have a reasonable potential to cause, or contribute to an excursion above the acute aquatic life water quality criterion. Because regulations at 40 CFR § 122.45(c) require, with limited exceptions, that effluent limits for metals in NPDES permits be expressed as total recoverable metals, effluent limitations are expressed as total recoverable metals.⁴⁰ As a result, the Draft Permit includes an effluent limitation of 5.8 µg/L for daily maximum total recoverable copper, monitored monthly. In addition, annual monitoring for total recoverable copper in the discharge and the receiving water continue to be required in conjunction with Whole Effluent Toxicity Testing, discussed further below.

5.2.7 Ammonia

Ammonia (NH₃) is the un-ionized form of ammonia nitrogen. Elevated levels of ammonia can be toxic to aquatic life. Temperature and pH affect the toxicity of ammonia to aquatic life. The toxicity of ammonia increases as temperature increases and ammonia concentration and toxicity

⁴⁰ See EPA-823-B96-007, *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*:1996.

increase as pH increases. Ammonia can affect fish growth, gill condition, organ weights and hematocrit, and can result in excessive plant and algal growth, which can cause eutrophication. Ammonia can also affect dissolved oxygen through nitrification, in which oxygen is consumed as ammonia is oxidized. Low oxygen levels can then, in turn, increase ammonia by inhibiting nitrification. Total ammonia-nitrogen concentrations in surface waters tends to be lower during summer than during winter due to uptake by plants and decreased ammonia solubility at higher temperatures.

As described above, the Chelsea River is impaired and requires a TMDL for ammonia (un-ionized). EPA's recommended criteria for ammonia in saltwater are based on temperature, pH and salinity in the receiving water. Higher temperatures and higher (more basic) pH values are of greater environmental concern because these conditions result in higher concentrations of the more toxic neutral form of ammonia (NH_3) rather than the ammonium ion (NH_4^+). Based on receiving water sampling from December 1, 2014 through October 31, 2020, the surface water pH in Chelsea River ranged from 7.5 SU to 8.1 SU and the salinity ranged from about 19 to 30 grams per kilogram (g/kg) (or parts per thousand (ppt)) (one value of <1 that is considered an outlier). Water quality data from the Massachusetts Water Resources Authority's (MWRA) monitoring program for sampling location 027, located near the Facility on Chelsea River⁴¹ indicates that the surface water temperature in the Chelsea River from June to October during the years 2008 through 2018 ranged from 1.5°C to 24.7°C. The salinity at MWRA sampling location 027 ranged from 7 to 33 ppt with a median value of 30 ppt. EPA determined applicable criteria for ammonia representative of the worst-case scenario using values for pH set at 8.5 SU, which is the maximum allowable water quality standard for Class SB waters, a median salinity of 30 ppt, and maximum and minimum temperature of 24.7°C and 1.5°C, respectively, representative of warm and cold water conditions.

Stormwater discharges from the Facility are intermittent and do not pose a chronic water quality issue. EPA has assessed the potential for discharges of stormwater from the Facility to exceed the acute criterion. According to the 1989 *Ambient Aquatic Life Water Quality Criteria for Ammonia (Saltwater)*⁴², when the receiving water temperature is 24.7°C, the maximum allowable pH of the receiving water is 8.5 SU, and the receiving water salinity is 30 ppt, the recommended warm-water acute criterion value is 1.8 mg/L. When the cold-water temperature is 1.5°C, the recommended cold-water acute criterion value is 9.4 mg/L. The 2014 Permit included quarterly monitoring for ammonia associated with WET testing. From December 1, 2014 through October 31, 2020, daily maximum ammonia levels have ranged from non-detect (i.e., below laboratory minimum levels) to 3.36 mg/L. Based on available information, the results of EPA's analysis indicate discharges of ammonia have a reasonable potential to cause or contribute to an excursion above the State WQS (Appendix C). As a result, the Draft Permit includes a seasonal, maximum daily effluent limitation for ammonia (as N) of 1.8 mg/L. The proposed effluent limitation and continued monitoring requirements are necessary and

⁴¹ Massachusetts Water Resources Authority Water Quality Monitoring Program Water Quality Data available at: http://www.mwra.state.ma.us/harbor/html/wq_data.htm

⁴²

http://water.epa.gov/scitech/swguidance/standards/upload/2001_10_12_criteria_ambientwqc_ammoniasalt1989.pdf

appropriate to carry out the provisions of the CWA and ensure compliance with State WQSs. See CWA §308(a), 33 U.S.C. §1318(a); 40 CFR §§ 122.4(d), 122.44(d)(1).

5.2.8 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.

The regulations at 40 CFR §122.44(d)(ii) state, “*When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution...(including) the sensitivity of the species to toxicity testing...*” 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.*” Further, State implementation policy⁴³ specifies WET testing requirements as part of its interpretation of the narrative criteria for toxic pollutants, stating that “[w]hole effluent toxicity testing will be used to complement specific chemical testing.” This State implementation policy establishes numeric criteria for toxicity. The State recommended criterion to prevent acutely toxic effects is 0.3 toxic units (T.U.). This is based on an adjustment factor of one-third used to extrapolate the LC₅₀ to an LC₁ (concentration at which 1% of the test organisms die).

EPA considered WET testing in addition to chemical specific criteria when evaluating whether discharges from the Facility meet WQSs. The 2014 Permit required acute WET testing for effluent and chemical analysis requirements for the receiving water quarterly for three years, and once per year thereafter. The 2014 Permit required that testing be conducted for both the Mysid Shrimp (*Americamysis bahia*) and Inland Silverside (*Menidia beryllina*). From December 1, 2014 through October 31, 2020, WET testing results indicate a LC₅₀ of 100% in each of the tests completed for both test species. Since no toxicity was detected in the effluent, there is no reasonable potential to cause an excursion above the acute criterion for toxicity, and numeric effluent limitations for toxicity are not required. The Permittee has requested elimination of WET testing.

⁴³ *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters*. February 23, 1990.

In accordance with EPA guidance,⁴⁴ and as described in the Fact Sheet issued with the draft 2014 Permit, EPA determined that WET testing is warranted because: 1) the receiving water is impaired for its designated uses; 2) the discharge is a source of these pollutants; and 3) one or more of these pollutants are known to exhibit additive, synergistic or antagonistic effects. These conditions have not changed since the issuance of the 2014 Permit. Therefore, EPA maintains that WET testing is necessary to ensure WQSs are met when the discharge contains pollutants not limited through chemical-specific testing, pollutants that have additive, synergistic or antagonistic effects, for which bioavailability can vary. WET testing will also address monitoring necessary for additional pollutants required in this permit reissuance for the discharge, the receiving water, or both (e.g., metals in the discharge and receiving water). Therefore, the requirement to conduct WET testing is necessary and appropriate to carry out the provisions of the CWA and ensure compliance with State WQSs. *See CWA §308(a), 33 U.S.C. §1318(a).*

With regard to the request for elimination of WET testing requirements, as described in the Response to Comments issued with the final 2014 Permit, while EPA agreed that WET testing frequency could be reduced or eliminated in the future, it was explicitly stated that elimination is not warranted if WET testing is not completed using the receiving water as the diluent. The existing tests, in which alternate dilution water was used in accordance with agency regulation and guidance, measured toxicity in only the discharge. While an alternate dilution water can still demonstrate the effect of the discharge alone, use of the receiving water is necessary to evaluate the effect of the effluent in combination with existing conditions, which is necessary to ensure compliance with WQSs.

In accordance with current EPA guidance and State implementation policy cited above, whole effluent acute effects are regulated by limiting the concentration that is lethal to 50% of the test organisms, known as the LC₅₀. Therefore, the Draft Permit maintains the annual monitoring requirement for WET and requires that the LC₅₀ be reported. The Mysid Shrimp (*Americamysis bahia*) and Inland Silverside (*Menidia beryllina*) continue to be the required test species. EPA will continue to evaluate WET results to determine if the effluent alone or in combination exhibits toxicity which chemical-specific limitations inadequately address. Toxicity testing must be performed in accordance with the EPA Region 1 test procedures and protocols specified in **Attachment A, Marine Acute Toxicity Test Procedure and Protocol** (July 2012) of the Draft Permit. The Permittee must collect the required receiving water sample (i.e., diluent) from the Chelsea River at a point immediately outside of the permitted discharge's zone of influence at a reasonably accessible location. A receiving water control (0% effluent) must also be tested. If toxicity is indicated, the Permittee may use alternate dilution water in accordance with the provisions in the Draft Permit. Results of these toxicity tests will demonstrate compliance with State WQSs.

5.3 Special Conditions

⁴⁴ See *Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants*, 49 FR 9016, March 9, 1984, *NPDES Permit Writer's Manual*, EPA-833-K-10-001, September 2010, and *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991 (Second Printing).

5.3.1 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 stormwater 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). Stormwater at the Facility has the potential to come into contact with materials stored at the Facility or contamination in soil or groundwater from historical and/or current activities. The Facility also periodically discharges hydrostatic test water.

The Draft Permit requires the selection, design, installation, and implementation of control measures for stormwater associated with the Facility operations to comply with the non-numeric technology-based effluent limits in the Draft Permit. In essence, the Draft Permit requires the Permittee to implement and continually evaluate the Facility's structural controls (e.g., OWS, containment areas, holding tanks), operational procedures, and operator training. Proper implementation of BMPs will minimize the potential discharge of pollutants in stormwater related to inadequate treatment, human error, and/or equipment malfunction. The non-numeric limitations in the Draft Permit, listed below, have been updated based on the limitations specified in Part 2.1.2 of EPA's MSGP.⁴⁵ Non-numeric limitations include:

- Minimize exposure of processing and material storage areas to stormwater discharges;
- Design good housekeeping measures to maintain areas that are potential sources of pollutants;
- Implement preventative maintenance programs to avoid leaks, spills, and other releases of pollutants to stormwater that is discharged to receiving waters;
- Implement spill prevention and response procedures to ensure effective response to spills and leaks if or when they occur;
- Design erosion and sediment controls to stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants; the Draft Permit also proposes a site-specific enhancement that the Permittee incorporate control measures to ensure bank stabilization, including, but not limited to, the marine vessel dock and any seawall areas owned or controlled by the Permittee;
- Utilize runoff management practices to divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff;
- Develop proper handling procedures for salt or materials containing chlorides that are used for snow and ice control;

⁴⁵ The 2021 MSGP is currently available at: <https://www.epa.gov/npdes/stormwater-discharges-industrial-activities-epas-2021-msgp#>.

- Conduct employee training to ensure personnel understand the requirements of this permit;
- Evaluate for the presence of non-stormwater discharges. Any non-stormwater discharges not explicitly authorized in the Draft Permit or covered by another NPDES permit must be eliminated; and
- Minimize dust generation and vehicle tracking of industrial materials.

In addition to the general limitations described above, the Draft Permit also includes BMPs, either continued from the 2014 Permit or based on EPA's *Technical Support Document for the 2004 Effluent Guidelines Program Plan*, EPA's MSGP, and/or EPA's RGP.⁴⁶ BMP requirements include:

- Administrative control BMP: requires the Permittee to comply with the inspection and visual assessment requirements in Part 3.1 and 3.2 of the 2021 MSGP and the corrective action requirements in Part 5.1 through 5.3 of the 2021 MSGP;⁴⁷
- Control Measure BMP: requires the Permittee to comply with the control measure requirements in Part 2.1 and 2.1.1 of the 2021 MSGP in order to identify pollutant sources and select, design, install and maintain the pollution control technology necessary to meet the effluent limitations in the permit and[?] that ensure dilution is not used as a form of treatment;⁴⁸
- Discharge practices BMP: requires the Permittee, to the maximum extent practicable, to avoid discharging stormwater, hydrostatic test water and groundwater during worst-case conditions (i.e., the hour before and after slack tide and during periods of lowest receiving water flow). The Draft Permit also proposes that the Permittee further avoid discharging concurrently with the other facilities located along Chelsea Creek.
- Effluent Flow BMP: requires the Permittee to document the measures and methods used to control flow through both the stormwater and groundwater treatment systems to ensure that the design flow of the treatment system is not exceeded;
- Flammable Material/Fire Control BMP: requires the Permittee to design and implement response procedures for ethanol, materials that are used for spill and fire control (e.g. aqueous film-forming foam). This must include specific provisions for the treatment of ethanol and/or pollutants in materials that are used for spill and fire control, should release occur;
- Major Storm Events BMP: requires the Permittee to implement structural improvements, enhanced/resilient pollution prevention measures, and other mitigation measures can help

⁴⁶ EPA-821-R-04-014 is currently available at: <https://www.epa.gov/eg/effluent-guidelines-plan-support-documents>; The 2021 MSGP is currently available at: <https://www.epa.gov/npdes/stormwater-discharges-industrial-activities-epas-2021-msgp#>; The 2017 RGP is currently available at: <https://www.epa.gov/npdes-permits/remediation-general-permit-rgp-massachusetts-new-hampshire>.

⁴⁷ Where the MSGP refers to limitations, conditions or benchmarks, including the SWPPP, for the purposes of this permit, these shall refer to the limitations and conditions in this permit.

⁴⁸ Page 7-113 of EPA-821-R-04-014 states, "[w]astewater requiring primary and/or secondary treatment (because it is contaminated with oil and grease and total petroleum hydrocarbons) is typically tank bottom water, loading/unloading rack water, a portion of the tank basin water, wastewater generated during remediation, and water used for hydrostatic testing." See Part 2.5.2.d of the 2017 RGP for example technologies and additional resources.

to minimize impacts from stormwater discharges from major storm events such as hurricanes, storm surge, extreme/heavy precipitation and flood events.⁴⁹ This BMP requirement is based on a similar provision in EPA's 2021 MSGP,⁵⁰ and

- Quality Assurance/Quality Control BMP: requires the Permittee to document monitoring requirements, sample collection procedures, sample analysis procedures,⁵¹ a schedule for the review of sample results and data validation and reporting processes.
- Stormwater system BMP: requires the Permittee to eliminate discharges of groundwater to the stormwater conveyance system if such discharges contribute pollutants and are not otherwise explicitly authorized (e.g., internal Outfall 003) and implement routine inspection and sampling to ensure identification and elimination. The Draft Permit also proposes that the Permittee complete a cross-connection evaluation, to ensure that the stormwater conveyance system does not contribute pollutants to or convey pollutants from a municipal separate storm sewer system (MS4) to the receiving water.

The non-numeric effluent limitations support, and are as equally enforceable as, the numeric effluent limitations included in the Draft Permit. The purpose of these requirements is to reduce or eliminate the discharge of pollutants to waters of the United States. They have been selected on a case-by-case basis based on those appropriate for this specific facility. *See* CWA §§ 304(e), 402(a)(1); 40 CFR § 122.44(k). These requirements will also ensure that discharges from the Facility will meet State WQSs pursuant to CWA § 301(b)(1)(C) and 40 CFR § 122.44(d)(1). Unless otherwise stated, the Permittee may select, design, install, implement and maintain BMPs as the Permittee deems appropriate to meet the permit requirements. The selection, design, installation, implementation and maintenance of control measures must be in accordance with good engineering practices and manufacturer's specifications and must take future conditions into consideration.

As noted previously, the 2014 Permit included a site-specific discharge practices BMP, which required the Permittee to avoid discharges during worst-case conditions, relative to slack tide and periods of lowest receiving water flow, specifically. EPA requests comment on whether it is also appropriate for the permit to require the Facility to avoid discharging at the same time as the other petroleum bulk storage facilities along Chelsea River and/or whether it would be best to require a permittee to sequence its discharge starting from the uppermost Facility (i.e., Global Companies, LLC) and progressing downstream (i.e., (i.e. Irving Oil Terminals, Inc., Gulf Oil Limited Partnership, Sunoco Partners Marketing and Terminals L.P.) to the confluence with Boston Inner Harbor (i.e., Chelsea Sandwich, LLC). EPA believes this type of control could reduce the potential for cumulative impacts.

⁴⁹ If such stormwater control measures are already in place due to existing requirements mandated by other state, local or federal agencies, the Permittee must document in the SWPPP a brief description of the controls and a reference to the existing requirement(s). If the Facility may be exposed to or has previously experienced such major storm events, additional stormwater control measures that must be considered are specified in the Draft Permit.

⁵⁰ 85 Fed. Reg. 04254 (March 2, 2020).

⁵¹ Sample analysis must comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*. *See* Fed. Reg. 49,001 (Aug. 19, 2014).

One approach could be to use EPA's *Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Implementation Guidance*.⁵² The Draft Permit for the Facility implements controls on the near-field effects of discharges, that is, the predicative impact of discharges from the Facility immediately downstream based on effluent and ambient data, and no available dilution. However, regulated point source discharges to the Chelsea River are located throughout the watershed in relatively close proximity. Therefore, the control of watershed-wide loading from far-field lends itself to a larger-scale approach to worst-case conditions and ensures water quality standards are met. EPA requests comment regarding how such controls should be identified and implemented in the permit. It is in the interests of the watershed and all stakeholders for EPA to make as informed a decision as possible on this critically important issue, in order for EPA to select an appropriate permit regime (i.e., one that will be effective on a watershed-wide basis).

EPA also requests comment on whether it is appropriate for the permit to require the Facility to consider implementing enhanced controls to minimize impacts from stormwater discharges from major storm events. EPA requests information on structural improvements, enhanced pollution prevention measures, and other mitigation measures that the permit could require the Facility to consider. EPA also requests comment on how the Permittee might identify areas of the Facility that are at the highest risk for stormwater impacts from major storms that cause extreme flooding conditions.

One approach could be to use the Federal Emergency Management Agency's (FEMA) Flood Map Service Center (found at <https://msc.fema.gov/portal/search>) to determine if a facility (or portions thereof) is in a "Special Flood Hazard Area" (SFHA) or "Other Area of Flood Hazard." SFHAs are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. "Other flood hazard areas" (or moderate flood hazard areas) labeled Zone B or Zone X (shaded) are also shown on the Flood Map and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded). More information on FEMA flood zones can be found at <https://www.fema.gov/flood-zones>.

According to the FEMA map(s) covering the location of the Facility, the terminal yard, including the truck loading rack, as well as the marine vessel dock, are within the SFHA and are classified Zone AE. See <https://msc.fema.gov/portal/search>. The tank farm, however, is not within the SFHA and is classified Zone X. *Id.* EPA seeks comment on whether it should use the FEMA maps to identify areas for which the Major Storm Events BMP should apply and, if so, which classifications EPA should use and why. EPA also invites comment on whether it should

⁵² EPA 833-B-03-004, December 2003. Currently available at: https://www3.epa.gov/npdes/pubs/watershedpermitting_finalguidance.pdf

consider other data or information and, if so, requests that commenters identify any such data and information with particularity.

As noted previously, the 2014 Permit included a site-specific stormwater system BMP, which required the Permittee to evaluate the integrity of the stormwater collection system, and to determine the relative contribution of pollutants, if any, from contact with potentially contaminated groundwater and soil. The Permittee was specifically required to document any stormwater system components that are potentially located below the annual high groundwater table that are susceptible to groundwater infiltration and assess through appropriate measures the level of infiltration that occurs (e.g., conduct a visual inspection of the readily accessible portions of the stormwater collection system, and/or measurement of groundwater and stormwater accumulation points as verification of segregation). EPA expects that these activities have been completed, except the proposed evaluation of potential MS4 cross-connections. Therefore, this BMP requirement has been updated in the Draft Permit as listed in this section, above.

This stormwater system BMP is necessary because the Draft Permit only explicitly authorizes discharges of remediation wastewater, where captured and treated, and discharges of uncontaminated groundwater or spring water (i.e., groundwater infiltration that does not contribute pollutants). See Section 5.5.3, below. To further clarify the groundwater discharges authorized under the Draft Permit, the Draft Permit explicitly prohibits discharges of remediation wastewater, except via internal Outfall 003. In the event prohibited wastewater remediation discharges (i.e., groundwater infiltration that contributes pollutants) have been identified or are identified in the future, this discharge is now considered prohibited under the Draft Permit, and the Permittee must follow the corrective action requirements described above to eliminate such discharges. See also Section 5.5.6, below.

Finally, the 2014 Permit included a site-specific spill control BMP, which required the Permittee to document methods and measures intended to reduce, minimize or eliminate the occurrence and impact of spills, document the procedure for informing the appropriate entity of accidental releases, and maintain a record of reportable releases. Since both the spill prevention and response and non-stormwater discharges limitations are included in full by reference from EPA's 2021 MSGP, these site-specific BMPs are redundant. As a result, EPA has not included them in the Draft Permit. Where duplicative, activities documented under spill prevention and response regulations (e.g., Spill Prevention Control and Countermeasure (SPCC) plan and Facility Response Plan (FRP)) may be incorporated into the Facility's SWPPP.

5.3.2 Stormwater Pollution Prevention Plan

On September 9, 1992, EPA issued its general permit for stormwater discharges associated with industrial activity, which, among other things, required all facilities to implement technology-based pollution prevention measures in lieu of numeric limitations and to prepare a Stormwater Pollution Prevention Plan (SWPPP) documenting the implementation of these measures.⁵³ The general permit established a process whereby the operator of the industrial facility evaluates

⁵³ Fed. Reg. 41264 (September 9, 1992).

potential pollutant sources at the site and selects and implements appropriate measures designed to prevent or control the discharge of pollutants in stormwater runoff.⁵⁴ This Draft Permit contains BMPs for stormwater associated with industrial activity at the Facility. In addition to BMPs, the Draft Permit also requires the Permittee to develop, implement, and maintain a SWPPP for stormwater discharges associated with the operation of the Facility. These requirements are consistent with Part 5 of EPA's 2021 MSGP. The Draft Permit specifies that the SWPPP must include the following, at a minimum:

- Stormwater pollution prevention team;
- Site description;
- Drainage area site map;
- Summary of potential pollutant sources;
- Description of all stormwater control measures; and
- Schedules and procedures pertaining to implementation of stormwater control measures, inspections and assessments, and monitoring.

The development and implementation of the SWPPP is an enforceable element of the permit. The Draft Permit directs the Permittee to incorporate BMPs, as described above, directly into the SWPPP, which serves to document the selection, design and installation of control measures selected to meet the permit effluent limitations. The goal of the SWPPP is to document the implementation of BMPs designed to reduce or prevent the discharge of pollutants to waters of the United States either directly or indirectly through stormwater runoff.

The Draft Permit requires the Permittee within ninety (90) days of the effective date of the permit to certify that the SWPPP has been prepared, meets the requirements of the permit, and documents the control measures, including BMPs, that have been implemented to reduce or eliminate the discharge of pollutants from stormwater associated with the operation of the Facility. The Permittee must also certify at least annually that the Facility has complied with the BMPs described in the SWPPP, including inspections, maintenance, and training activities. The Permittee is required to amend and update the SWPPP if any change occurs at the Facility affecting the SWPPP, such as changes in the design, construction, operation, or maintenance of the Facility, or revisions and improvements are made to the stormwater management program based on new information and experiences with wet weather events, including major storm events and extreme flooding conditions. The SWPPP must be maintained on site at the Facility and provided to EPA and/or the State upon request. All SWPPP records must be maintained on-site for at least three years.

5.3.3 Hydrostatic Testing

The tanks and/or pipe networks used for the storage and conveyance of petroleum products at the Facility sometimes require maintenance or repair. To ensure safe working conditions during this maintenance work, storage tanks and/or pipe networks are rigorously cleaned (e.g., "Poly

⁵⁴ Fed. Reg. 41242 (September 9, 1992).

Brushed”, “Squeegee Pigged”) and certified as being product-free. After completing maintenance work, the vessels and/or pipe networks may be hydrostatically tested for leaks. Hydrostatic testing involves filling the vessel or pipe with fluid under pressure and monitoring pressure drops over time. If the system maintains a constant pressure, there are no leaks. River water or potable water may be used as a source of hydrostatic test water. Thus, hydrostatic test water discharge may contain minimal amounts of foreign matter, trace amounts of hydrocarbons, background material found in the river or residual chlorine.

As a precaution, the Draft Permit requires any hydrostatic test water to be monitored as described in Part I.C.3 of the Draft Permit and treated through the stormwater treatment system prior to being discharged to the Chelsea River. In addition, the Draft Permit requires control of the flow of hydrostatic test water to prevent exceeding the maximum design flow rate of 800 GPM of the pump. The Draft Permit requires the collection of a minimum of five representative samples of the hydrostatic test water, and specifies the pollutants required. These pollutants include those limited in the Draft Permit and the additional parameters that were included in the 2014 Permit, based on requirements for this type of discharge surveyed in EPA’s ELG Document and/or included in EPA’s RGP, Category IV – Pipeline and Tank Dewatering.⁵⁵

The Draft Permit requires the hydrostatic test waters released from the tank(s) and/or pipelines and treated through the stormwater treatment system meet the effluent limitations and satisfy all other conditions of the Draft Permit. In addition, the Draft Permit requires the Permittee to routinely observe the surface of the OWS during discharge of hydrostatic test waters, in order to detect any increases in the separated oil layer and to prevent inadvertent release of hydrocarbons to the receiving water. In the event that there is evidence of such a release (e.g., visible oil sheen and/or noticeable increase in turbidity of discharge water), the Draft Permit requires the Permittee to immediately halt the transfer of hydrostatic test water and take steps to correct the problem.

These requirements are intended to provide adequate characterization of the influent, in-process, and effluent hydrostatic test water and are similar to requirements for similar facilities that discharge hydrostatic test water to Massachusetts receiving waters under EPA’s RGP. Sampling of the above parameters is necessary to identify whether there are any residual contaminants present in the hydrostatic test water that might require the permit to be modified or reopened. All discharges of hydrostatic test water are subject to the numeric and non-numeric effluent limitations in the Draft Permit.

5.3.4 Allowable Non-Stormwater Discharges

The 2014 Permit specified additional non-stormwater discharges allowed in discharges from the Facility, provided the additional non-stormwater discharges meet all effluent limitations in the

⁵⁵ EPA Region 1. *National Pollutant Discharge Elimination System (NPDES) General Permit for Remediation Activity Discharges* – the Remediation General Permit (RGP): March 9, 2017. The Permittee does not have separate coverage for hydrostatic test water discharges under the RGP.

Draft Permit. These discharges, listed below, have been updated based on the non-stormwater discharges allowable under EPA's 2021 MSGP.⁵⁶

- Discharges from emergency/unplanned fire-fighting activities;
- Fire hydrant flushings;
- Potable water, including water line flushings (unless associated with hydrostatic testing);
- Uncontaminated condensate from air conditioners, coolers/chillers, and other compressors and from the outside storage of refrigerated gases or liquids;
- Irrigation drainage;
- Landscape watering provided all pesticides, herbicides, and fertilizers have been applied in accordance with the approved labeling;
- Pavement wash waters where no detergents or hazardous cleaning products are used (e.g., bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols) and the wash waters do not come into contact with oil and grease deposits, sources of pollutants associated with industrial activities, or any other toxic or hazardous materials, unless residues are first cleaned up using dry clean-up methods (e.g., applying absorbent materials and sweeping, using hydrophobic mops/rags) and appropriate control measures have been implemented to minimize discharges of mobilized solids and other pollutants (e.g., filtration, detention; settlement);
- Routine external building washdown/power wash water that does not use detergents or hazardous cleaning products (e.g., those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols);
- Uncontaminated groundwater or spring water;
- Foundation or footing drains where flows are not contaminated with process materials; and
- Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the Facility, but not intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown; drains).

EPA notes that the routine washdown of the exterior of the tanks at the Facility is allowable under these conditions. EPA believes this activity is encompassed by "building washdown/power wash water" provided chemicals and/or additives are not added, unless in accordance with the conditions pertaining to discharges of chemicals and additives, below.

EPA also notes, as previously described, the 2014 Permit contained non-numeric requirements for the Permittee to identify infiltration of groundwater into the stormwater system. EPA expects that these activities have been completed. The 2014 Permit authorized uncontaminated groundwater or spring water (i.e., groundwater infiltration that does not contribute pollutants). The Draft Permit continues to authorize discharges of uncontaminated groundwater or spring water (i.e., groundwater infiltration that does not contribute pollutants). To further clarify the groundwater discharges authorized under the Draft Permit, the Draft Permit explicitly prohibits

⁵⁶ See Part 1.2.2.1 of EPA's 2021 MSGP.

discharges of remediation wastewater (i.e., groundwater infiltration that contributes pollutants). See Section 5.5.6, below.

5.3.5 Discharges of Chemicals and Additives

Chemicals and additives include, but are not limited to: algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, and surfactants. The Draft Permit allows the discharge of only those chemicals and additives specifically disclosed by the Permittee to EPA and the State. The following chemicals and additives were disclosed to EPA:

- pH adjustment – sodium bisulfate
- Firefighting foam – AR-AFFF
- Herbicide – Red River 90, Krovar I DF, Rodeo, Esplande 200 SC

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

- Product name, chemical formula, and manufacturer of the chemical/additive.
- Purpose or use of the chemical/additive.
- Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive.
- The frequency (e.g., hourly, daily), magnitude (e.g., maximum and average), duration (e.g., hours, days), and method of application for the chemical/additive.
- 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 which demonstrates that the discharge of such chemical or additive: 1) will not add any pollutants in concentrations which 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.

Assuming these requirements are met, discharge of a new chemical or additive is authorized under the permit upon notification to EPA and the State unless otherwise notified by EPA or the State.

EPA notes that the 2014 Permit expressly prohibited the discharge of the following additives: glutaraldehyde, ethylene glycol, butoxyethanol, alkyl acrylate nitrito styrene polymer, coco alkylamine, 1,2,3 and 4-trimethylbenzene, 1,3,5-trimethylbenzene and methyl isobutyl ketone. These additives continue to be prohibited in the Draft Permit.

5.3.6 Bioassessment

EPA recognizes that the Chelsea River aquatic habitats have been impacted by industrial activity in the watershed. This includes the designated use for aquatic life and designated essential fish habitat in the vicinity of the Facility's outfalls. As described above, the Chelsea River is impaired for, and listed as not supporting, the Aquatic Life designated use due to sediment screening value. See Section 4.1 above. Contaminated sediments are explicitly noted as one of the sources of this cause, and activities at the Terminals are listed among the sources of the impairment to the Aquatic Life designated use (i.e., cargo loading/unloading, above ground storage tank leaks, accidental release). In addition, the Chelsea River is impaired for the Fish Consumption designated use, and while the cause of the impairment is noted as "other," contaminated sediments are also identified as a source. State WQSs at 314 CMR 4.05(5)(b) include narrative criteria for bottom pollutants or alterations, which states, "[a]ll surface waters shall be free from pollutants in concentrations or combinations or from alterations that adversely affect the physical or chemical nature of the bottom, interfere with the propagation of fish or shellfish, or adversely affect populations of non-mobile or sessile benthic organisms." State WQSs at 314 CMR 4.05(5)(e)3 also contain narrative criteria for accumulation of pollutants applicable to all classes, which states, "[w]here appropriate the Department shall use an additional margin of safety when establishing water quality based effluent limits to assure that pollutants do not persist in the environment or accumulate in organisms to levels that: a. are toxic to humans, wildlife or aquatic life; or b. result in unacceptable concentrations in edible portions of marketable fish or shellfish or for the recreational use of fish, shellfish, other aquatic life or wildlife for human consumption.

As referenced above, a 2005 United States Geological Survey study identified chemicals present in sufficiently high concentrations in Chelsea River sediment to pose a threat to benthic organisms. As described above, the types of pollutants in the discharges from the Facility include sediment/solids, and pollutants that exhibit physical and chemical characteristics that can accumulate in sediments. While the 2014 Permit included a site-specific ambient monitoring program that required the Permittee to collect data regarding ambient water chemistry in the vicinity of the Facility to address the impairments to the Chelsea River, this monitoring was limited to the water column and did not address impairments related to contaminated sediments. EPA has determined that such an assessment is needed to inform the extent of ongoing and/or cumulative impacts to the waterbody and its designated uses, including as habitat for fish and other aquatic life.

Specifically, the bioassessment requires the Permittee to collect: water quality data (e.g., water temperature, turbidity); supporting environmental data (e.g., air temperature, precipitation); river channel morphology data (e.g. cross sectional profile of the river depth); substrate characterization data (e.g. grain size composition, total organic carbon (TOC) and benthic infauna); benthic pollutant data (e.g. Part I.A.1 list of pollutants); and qualitative biological data (e.g., macroinvertebrates, fish, aquatic macrophytes). These requirements have been proposed largely based on EPA's *Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria*

*Technical Guidance.*⁵⁷ An example of a summary report and procedures, for reference, may be found in the 2018 Boston Harbor Benthic Monitoring Report.⁵⁸ Test methods used for analysis of water samples must be sufficiently sensitive. Water analysis must utilize test methods in 40 CFR Part 136. Sediment and biological sampling must follow *Methods for the Determination of Chemical Substances in Marine and Estuarine Environmental Matrices - 2nd Edition*, whenever possible.⁵⁹

These data will enable EPA to complete a comparative analysis during subsequent permit development regarding the extent to which discharges from the Facility cause, or have a reasonable potential to cause or contribute, to excursions above State WQSs. These data will further inform whether the numeric and non-numeric effluent limitations (e.g., BMPs) in the Draft Permit result in measurable improvement in the habitat and whether additional limitations are necessary. Therefore, the proposed effluent monitoring requirements are necessary and appropriate to carry out the provisions of the CWA and ensure compliance with applicable WQSs as required by CWA § 402(a)(2) and 40 CFR § 122.4(d). See CWA §308(a), 33 U.S.C. §1318(a). The 2005 data noted above, to the extent possible, will be used to inform the baseline conditions.

The objective of the CWA, Section 101, is to “restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” 33 U.S.C. § 1251(a). Thus, the Act mandates the restoration and maintenance of biological integrity in the Nation’s waters. The combination of performing biological assessments and comparing the results with established biological criteria is an efficient approach for evaluating the biological integrity of aquatic ecosystems. *See also* CWA §§ 305(b), 301(h), and 403(c). Section 9.1.1 of EPA’s Permit Writer’s Manual notes that, “[a]dditional monitoring requirements and special studies generally are used to supplement numeric effluent limitations or support future permit development activities. Examples of the types of special studies that could be required in an NPDES permit include...[s]ediment monitoring,” included in a permit if pollutants contained in discharges may accumulate in the sediments of the receiving water.⁶⁰ The application of sediment and biological monitoring in this case will inform:

- Measuring improvement or lack of improvement of mitigation efforts (e.g., BMPs).
- Developing protocols that demonstrate the relationship of biological metrics to effluent characteristics.
- Performing aquatic life use compliance monitoring.
- Helping to verify that NPDES permit limits are resulting in achievement of State WQSs.

⁵⁷ EPA Office of Water. *Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance*. EPA-822-B-00-024: December 2000.

⁵⁸ Massachusetts Water Resources Authority, Environmental Quality Report No. 2019-09: July 2019.

⁵⁹ EPA Office of Research and Development. *Methods for the Determination of Chemical Substances in Marine and Estuarine Environmental Matrices - 2nd Edition*. EPA/600/R-97/072, as may be revised.

⁶⁰ EPA Office of Wastewater Management, Water Permits Division. *NPDES Permit Writer’s Manual*. EPA-833-K-10-001: September 2010.

EPA requests comment on: 1) the degree to which the permit requires the Facility to assess the physical, chemical and biological condition of the bottom sediments, for example, utilizing a different guidance; 2) whether this assessment is better conducted in conjunction with the other petroleum bulk storage facilities along Chelsea River; 3) whether it would be best to require permittees to sequence assessment over the entire permit term (e.g., starting from the uppermost Facility (i.e., Global Companies, LLC) and progressing downstream (i.e., Irving, Gulf and Sunoco) to the confluence with Boston Inner Harbor (i.e., Chelsea Sandwich, LLC); 4) the extent to which existing data substitution should be allowed; 5) if a comparative analysis should include hydrodynamic modelling conducted by the Permittee.

5.3.7 Prohibited Discharges

The 2014 Permit specified several discharges that are explicitly prohibited. These discharges continue to be prohibited in the Draft Permit and have been revised as described below. These prohibited discharges are based on EPA's *Technical Support Document for the 2004 Effluent Guidelines Program Plan*⁶¹ and are necessary to protect the receiving water from the discharges that are most likely to contain toxic pollutants.

5.3.7.1 Tank Bottom Water

The 2014 Permit prohibited discharges of tank bottom water. Tank bottom water is generally a layer of water that has separated from the stored petroleum product in storage tanks due to the density difference between the product and water. Because there is much more product than water in a storage tank, as this water settles to the bottom of the tank, it can become highly concentrated with water-soluble materials in the product (e.g., BTEX and PAHs). Whereas stormwater primarily contacts only those hydrocarbons present at the ground surface and then generally only for short periods of time, tank bottom water remains in contact with petroleum products for prolonged periods. Facility operators drain this layer of water to prevent transfer with the finished product as well as to free up storage space. As a result, EPA considers tank bottom water process wastewater, since soluble toxic materials may partition from the petroleum product into the water over time. Discharges of any tank bottom water, either alone or in combination with stormwater or other wastewater discharges, are prohibited in the Draft Permit.

5.3.7.2 Solid Hazardous Waste

The 2014 Permit prohibited discharges of sludge and bottom deposits from any storage tank(s), basin(s), and/or containment area(s) to the receiving water, such as the removal and disposal of accumulated sludge during tank cleaning. While not necessarily emptied specifically for cleaning purposes, a storage tank may be cleaned if it is emptied for maintenance or if it is needed to store a different product. Examples of storage tanks and/or basins include, but are not limited to: primary catch basins, oil/water separators, petroleum product storage tanks, baffled storage tanks collecting spills, and tank truck loading rack sumps. The Draft Permit uses the term "solid and hazardous waste" to refer not just to sludge and solid bottom deposits but to also more broadly

⁶¹ EPA-821-R-04-014 is currently available at: <https://www.epa.gov/eg/effluent-guidelines-plan-support-documents>.

include any solids generated at the Facility that must be managed as hazardous waste. Discharges of any solid hazardous waste, either alone or in combination with stormwater or other wastewater discharges, are prohibited in the Draft Permit.

5.3.7.3 Liquid Hazardous Waste

Several liquid hazardous waste sources are described in EPA's *Technical Support Document for the 2004 Effluent Guidelines Program Plan*, which are common at bulk petroleum storage facilities. For example, tank cleaning may include the recovery of water or detergents used for cleaning. Product sampling may include small volumes of product released from sampling nozzles and stations when the piping is purged of dead volume to obtain a representative sample. Equipment drainage may include pocketing (i.e., product trapped in low points in the piping that is not able to drain in either direction). Waste product (i.e., slop oil) is generated when petroleum product does not meet product specifications and cannot be used or distributed as is. Discharges of these, or any other liquid hazardous waste, either alone or in combination with stormwater or other wastewater discharges, are prohibited in the Draft Permit.

5.3.7.4 Vehicle and Equipment Washing

Vehicle maintenance and equipment washing wastewater sources are described in EPA's *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. Vehicles and other product transferring equipment typically generate detergents or petroleum product residues. Such wastewater could also contain oil, antifreeze, brake fluid, or other vehicle fluids. This wastewater is also handled separately from other process wastes. The Permittee has previously reported that vehicle washing occurs at the Facility in a portion of the site leased to Cumberland Farms. The Permittee confirmed that no wash water is treated through the Facility's treatment system or discharged via Outfall 003. Therefore, discharges of runoff from any vehicle and equipment washing alone or in combination with stormwater or other wastewater are prohibited in the Draft Permit.

5.3.7.5 Ballast Water

The 2014 Permit prohibited discharges of bilge water (i.e., ballast water). Tankers transporting petroleum products may contain ballast water, which may result in wastewater contaminated with product. These wastewaters are typically dilute and very large in volume and usually require treatment such as oil/water separation, dissolved air flotation, biological treatment, and air stripping. The effluent concentration of oil and grease reported for a facility that discharges ballast water ranged from 3 to 5 mg/L. Discharges of ballast water, either alone or in combination with stormwater or other wastewater discharges, are prohibited in the Draft Permit.

5.3.7.6 Accidental Spill and Release

The 2014 Permit prohibited discharges of runoff from spills and releases of petroleum products, excepting conditions that meet the requirements defined in Part II., Standard Conditions. Several sources are described in EPA's *Technical Support Document for the 2004 Effluent Guidelines Program Plan*, including leaks, tank deterioration, and product transfer mishaps. There are

various types of leaks, such as pump seal leaks, valve seal leaks, and piping leaks. Tanks can deteriorate over time, causing leaks and rupture. Product transfer mishaps, such as tank overfilling and accidental opening of nozzles can result in accidental releases. Discharges of runoff from any accidental spill or release alone or in combination with stormwater or other wastewater are prohibited in the Draft Permit. *See* CWA § 311.

5.3.7.7 Emulsion Chemicals

Emulsions, the dispersion of product in water or vice versa, are commonly referred to as “rag” or “cuff.” Emulsions typically accumulate at the product/water interface because their density is in between the densities of the product and water. Emulsions are stabilized by surfactants (e.g., detergent and soaps) collecting at the product/water interface, which reduce the surface tension and inhibit phase separation. Several sources of emulsions are described in EPA’s *Technical Support Document for the 2004 Effluent Guidelines Program Plan*, including product droplets, surfactants, and fine solids. The 2014 Permit prohibited the discharge of surfactants, as well as detergents, and emulsifiers, that were not disclosed in the permit application. However, because petroleum product is separated from wastewater in an OWS by gravity separation, the addition of surfactants, detergents and emulsifiers to the wastewater could adversely affect the separation of petroleum product from wastewater. As a result, discharges of emulsion chemicals, including surfactants (e.g., detergents and soaps), either alone or in combination with stormwater or other wastewater discharges, are prohibited in the Draft Permit.

5.3.7.8 Fire Protection Foam

Aqueous fire protection foam is used for fire and vapor suppression of liquid fuel fires. This includes but is not limited to aqueous film-forming foam (AFFF) and alcohol-resistant foam. AFFF is a low expansion foam and can contain surfactants, solvents, or other additives such as corrosion inhibitors. Through 2001, surfactants used in the manufacturing of AFFF included the perfluorinated alkyl acid perfluorooctane sulfonate (PFOS). By 2002, manufacturers also began voluntary phase-out of perfluorooctanoic acid (PFOA).⁶² Alcohol-resistant foams contain polymers that prevent alcohols from breaking down the foam. The 2014 Permit prohibited discharges of AFFF either in concentrate form or as foam diluted with water during testing or maintenance of the fire suppression system at the Facility. The Draft Permit continues this prohibition. Refer to Section 5.3.4 for information regarding allowable non-stormwater discharges related to emergency fire-fighting activities.

5.3.8 Reopener Clause

The 2014 Permit included a reopener clause because of the use of indicator parameters. Since indicator parameters are included in the Draft Permit and in accordance with 40 CFR §122.44(d)(1)(vi)(C), the Draft Permit continues to include a reopener clause. The reopener clause in the Draft Permit allows EPA to modify or revoke and reissue the permit in accordance

⁶² U.S. EPA. *Technical Fact Sheet – Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA)*. November 2017.

with 40 CFR § 122.62, including if the limits on the indicator parameters no longer attain and maintain applicable water quality standards.

5.3.9 Compliance Schedule

Several new or more stringent effluent limitations are proposed in the Draft Permit (e.g., TRC, ammonia, copper). The Draft Permit does not propose a compliance schedule. However, in order for discharges from the Facility to meet the proposed effluent limitations, physical modification of the existing treatment system may be necessary. Therefore, EPA encourages public comment regarding whether the permit should include a compliance schedule(s) and, if so, what the terms of any schedule(s) should be. Federal regulations provide that any such schedule must require compliance “as soon as possible, but not later than the applicable statutory deadline under the CWA.” 40 CFR § 122.47(a)(1). Thus, while a NPDES permit may not include a compliance schedule to meet technology-based effluent limits, a permit may include compliance schedules for meeting water quality-based effluent limits, provided that the schedule would achieve compliance with such limits “as soon as possible.” *See id.* § 125.3(a)(2). Further, if a permit establishes a schedule of compliance which exceeds one year from the date of permit issuance, the schedule must include interim requirements and the dates for their achievement. *Id.* § 122.47(a). Massachusetts regulations for schedules of compliance can be found at 314 CMR 3.11(10).

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 to and imposes requirements on Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (listed species) and any habitat of such species that has been designated as critical under the ESA (i.e., “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 (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 Facility, which discharges treated: 1) stormwater runoff; and 2) hydrostatic test water through Outfall 003 into the Chelsea River. Outfall 003 is located at Latitude 42° 23’ 35” N Longitude 71° 01’ 05” W, on the western bank of Chelsea River approximately two miles east of the confluence of the Mystic and Chelsea Rivers. The Draft Permit is intended to replace the 2014 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 with the Services, when required under § 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. For protected species under the jurisdiction of the USFWS, no threatened or endangered species are expected to be present in the general area encompassing the Chelsea River and the confluence of the Mystic and Chelsea Rivers.⁶³ EPA has determined that no USFWS federally protected species or their critical habitat overlap with the action area of the Facility. Therefore, ESA section 7 consultation will not be required.

Regarding protected species under the jurisdiction of NOAA Fisheries, a number of anadromous and marine species and life stages are present in coastal Massachusetts waters. Various life stages of the following fish, sea turtles and whales have been documented in these near shore waters: Atlantic sturgeon (*Acipenser oxyrinchus*), shortnose sturgeon (*Acipenser brevirostrom*), protected sea turtles such as leatherback sea turtles (*Dermochelys coriacea*), loggerhead sea turtles (*Caretta caretta*), Kemp's ridley sea turtles (*Lepidochelys kempii*) and green sea turtles (*Chelonia mydas*), along with North Atlantic right whales (*Eubalaena glacialis*) and fin whales (*Balaenoptera physalus*).

According to general information from the NOAA Fisheries website, Atlantic sturgeon, shortnose sturgeon, North Atlantic right whales and fin whales may be present in the general area of the bulk oil storage facility (Chelsea River and Inner Boston Harbor).⁶⁴ However, when more detailed NOAA Fisheries species tables were reviewed, none of the protected species identified above are expected to be present in the Chelsea or Mystic Rivers or the Inner Boston Harbor.⁶⁵

Based on this assessment, EPA has determined that no NOAA Fisheries federally protected species are likely to be present in the action area. No taking of a listed species is anticipated or exempted. Therefore, consultation with NOAA Fisheries or the USFWS under Section 7 of the ESA is not required. Initiation of consultation is required and shall be requested by EPA or by NOAA Fisheries where discretionary Federal involvement or control over the action has been retained or is authorized by law and if: 1) New information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the analysis; 2) 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 this analysis; 3) A new species is listed or critical habitat designated that may be affected by the identified action; or 4) There is any incidental taking of a listed species.

6.2 Essential Fish Habitat

⁶³ See §7 resources for USFWS at <https://ecos.fws.gov/ipac/>.

⁶⁴ See §7 resources for NMFS at <https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27>

⁶⁵ <https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-species-critical-habitat-information-maps-greater#species-tables>

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". 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". 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), or site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

EFH is only designated for fish species for which federal Fisheries Management Plans exist.¹⁶ *See* U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. In a letter to EPA New England dated October 10, 2000, NOAA Fisheries agreed that for NPDES permit actions, EFH notification for purposes of consultation can be accomplished in the EFH section of the Draft Permit's supporting Fact Sheet.

EPA has determined that the Chelsea River is covered by the EFH designation for estuarine systems at Latitude 42°23'1" N, Longitude 72°57'21" W, as determined by the NOAA Fisheries EFH Mapper.⁶⁶ A list of the managed species and associated life stages expected to occur within the EFH area, as well as a Habitat Area of Particular Concern, are included in Appendix D.

EPA specifically noted that the documentation in support of the Boston Harbor Inner Harbor Maintenance Dredging Project identified a "potential winter flounder spawning area" near the confluence of the Chelsea and Mystic Rivers.⁶⁷ Egg, juvenile, larva and adult life stages of winter flounder are covered under Essential Fish Habitat regulations and identified as occurring in the Chelsea River (see Appendix D). This species is a commercially fished, federally managed, bottom dwelling fish. Winter flounder eggs and larvae are typically found near the benthic habitat in shallow areas. However, since winter flounder are expected to spawn on clean sand, the deep navigation channels of the Chelsea and Mystic Rivers, with more silt by composition, would not be expected to be high quality spawning habitat for winter flounder in the vicinity of the oil storage terminal.

EPA has determined that the limits and conditions contained in this Draft Permit minimize adverse effects to the EFH and the associated managed species, if present, for the following reasons:

- This Draft Permit action does not constitute a new source of pollutants. It is the reissuance of an existing NPDES permit;

⁶⁶ NOAA Fisheries EFH Mapper available at <https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper>

⁶⁷ *See Final Summary Report Plume Monitoring, Boston Harbor Inner Harbor Maintenance Dredging Project*. June 2009 for U.S. Army Corps of Engineers New England District.

- No water is withdrawn from the Chelsea or Mystic Rivers, so no life stages of EFH species are vulnerable to impingement or entrainment from this facility;
- Acute toxicity tests will be conducted annually to confirm that the discharge does not present toxicity problems;
- The frequency of discharge from the Facility is intermittent, resulting almost entirely from the accumulation of stormwater;
- The Draft Permit proposes limits on the oil/water separator flow, pH, total suspended solids, oil and grease, benzene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene, naphthalene, chlorine, copper, and ammonia;
- The effluent limitations and other permit requirements identified in this Fact Sheet are designed to be protective of all aquatic species, including those with EFH designations;
- The permit prohibits any violation of Massachusetts WQSs; and
- The Draft Permit proposes a bioassessment special condition.

EPA believes that the conditions and limitations contained within the Draft Permit adequately protect all aquatic life, including those species with EFH designation in the Chelsea and Mystic Rivers. Further mitigation is not warranted. Should adverse impacts to EFH be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NOAA Fisheries Habitat Conservation Division will be contacted and an EFH consultation will be re-initiated.

In addition to this Fact Sheet and the Draft Permit, information to support EPA's finding is included in a letter under separate cover that will be sent to the NOAA Fisheries Habitat Conservation Division during the public comment period.

As described above, EPA has proposed a special condition in the Draft Permit that requires additional information that may inform the federal permit action's essential fish habitat consultation responsibilities under the Magnuson–Stevens Act.⁶⁸ Specifically, site-specific environmental data are proposed to be collected in the vicinity of the Facility's outfalls that are the subject of EPA's EFH consultation under the Magnuson–Stevens Act.⁶⁹ For more information regarding this special condition, see Section 5.3.7, above.

6.3 Environmental Justice

Executive Order 12898 entitled "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations" states in relevant part that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...." The

⁶⁸ 50 CFR 600.920 (e)(4) Additional information.

⁶⁹ 50 CFR 600.920 (e)(4)(i); The results of an on-site inspection to evaluate the habitat and the site-specific effects of the project.

order also provides that federal agencies are required to implement the order consistent with and to the extent permitted by existing law.

In addition, in May 2013, EPA Region 1 issued the *EPA Region 1 Regional Implementation Plan to Promote Meaningful Engagement of Overburdened Communities in Permitting Activities* which describes actions that the Region's permitting programs will take when issuing EPA permits in order to promote greater participation in the permitting process by communities that have historically been underrepresented in the process.⁷⁰ It addresses four elements: 1) what types of permits will be prioritized, 2) how these permits will be reviewed for EJ concerns, 3) roles and responsibilities within Region 1 to carry out this plan, and 4) what actions Region 1 will take to ensure enhanced meaningful involvement where there are EJ concerns. Conducting enhanced outreach for permits that impact communities that have been historically underrepresented in the permitting process is a key element of Region 1's efforts to help ensure meaningful involvement.

Consistent with this plan, EPA's enhanced outreach activities for the Draft Permit will include: the release of a detailed EJ Analysis; phone calls and email notification to community stakeholders; a 60-day public comment period; the release of a concise information sheet for the benefit of the community, explaining in simple language the Draft Permit and the public process; designating an EPA point of contact that the community can contact to discuss EJ concerns; and translating key documents into the primary languages spoken by community members. EPA will also host a virtual public meeting during which EPA will present an overview of the Draft Permit and the EJ Analysis and answer questions from meeting participants. EPA will also host a separate virtual public hearing to allow the public an opportunity to provide oral comments for the record. In order to adhere to current COVID-19 guidance from the Centers for Disease Control and state and local restrictions on large gatherings presently in effect, the meeting and the hearing will be conducted virtually and will be accessible by computer, mobile device or telephone. EPA will provide necessary translation and interpretation services in the primary languages spoken by community members during the meeting and the hearing.

The Draft Permit implements water pollution prevention and control requirements, including applicable technology-based and water quality-based limits, standards, and practices to ensure compliance with applicable CWA requirements, and meet State WQSs. Where EPA determined that a pollutant is discharged at a level that will cause, has a reasonable potential to cause, or contribute to an excursion above WQSs, EPA has maintained or added numeric WQBELs. The monitoring program is designed to obtain additional information, which can be used in ongoing surveillance of permitted activities and in future permit decisions. Several additional special conditions continue to be included in the Draft Permit to ensure adverse impacts do not occur because of discharges from the Facility alone or in combination with other discharges from similar facilities to Chelsea River. Additionally, the Draft Permit includes new numeric limits (e.g., total residual chlorine, copper, zinc, ammonia, fecal coliform) that were derived from data

⁷⁰ Available at: <https://www.epa.gov/environmentaljustice/epa-region-1-regional-implementation-plan-promote-meaningful-engagement>

required in the 2014 Permit in response to concerns expressed by the public in public comments. EPA has the authority to modify a permit if the threat of adverse environmental impact from the discharges were to occur, that is, a discharge which violates State WQSs. EPA therefore determined that the pollutant discharge levels authorized by the Draft Permit will not cause, have the reasonable potential to cause, or contribute to an excursion above WQSs.

The water pollution prevention and control requirements in the Draft Permit will address current adverse impacts to aquatic life, aesthetics and recreation in the Chelsea River, and the Draft Permit will lead to continued water quality improvements in the river. EPA therefore has determined that the facility's discharges will not result in disproportionately high and adverse human health or environmental effects on minority or low-income populations within the meaning of Executive Order 12898. EPA's evaluation and determination are discussed in more detail in the November 2020 *Environmental Justice Analysis for Clean Water Act National Pollutant Discharge Elimination System Permits for Chelsea River Bulk Petroleum Storage Facilities*, which is included in the administrative record associated with the Draft Permit (MA0001091).

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:

Shauna Little
EPA Region 1
5 Post Office Square, Suite 100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1989
Email: little.shauna@epa.gov

Cathy Vakalopoulos
MassDEP
Surface Water Discharge Permit Program
One Winter Street, 5th Floor
Boston, MA 02108
Telephone: (617) 348-4026
Email: catherine.vakalopoulos@mass.gov

EPA intends to hold a public hearing in consideration of the Draft Permit. Any person may submit oral or written comments to EPA and the State Agency at the public hearing, scheduled for March 29, 2021. 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 the public hearing, 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 and/or oral 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 Shauna Little, EPA Region 1, 5 Post Office Square, Suite-100 (06-1), Boston, MA 02109-3912, or via email to little.shauna@epa.gov.

2/11/2021

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

Figure 1: Location Map

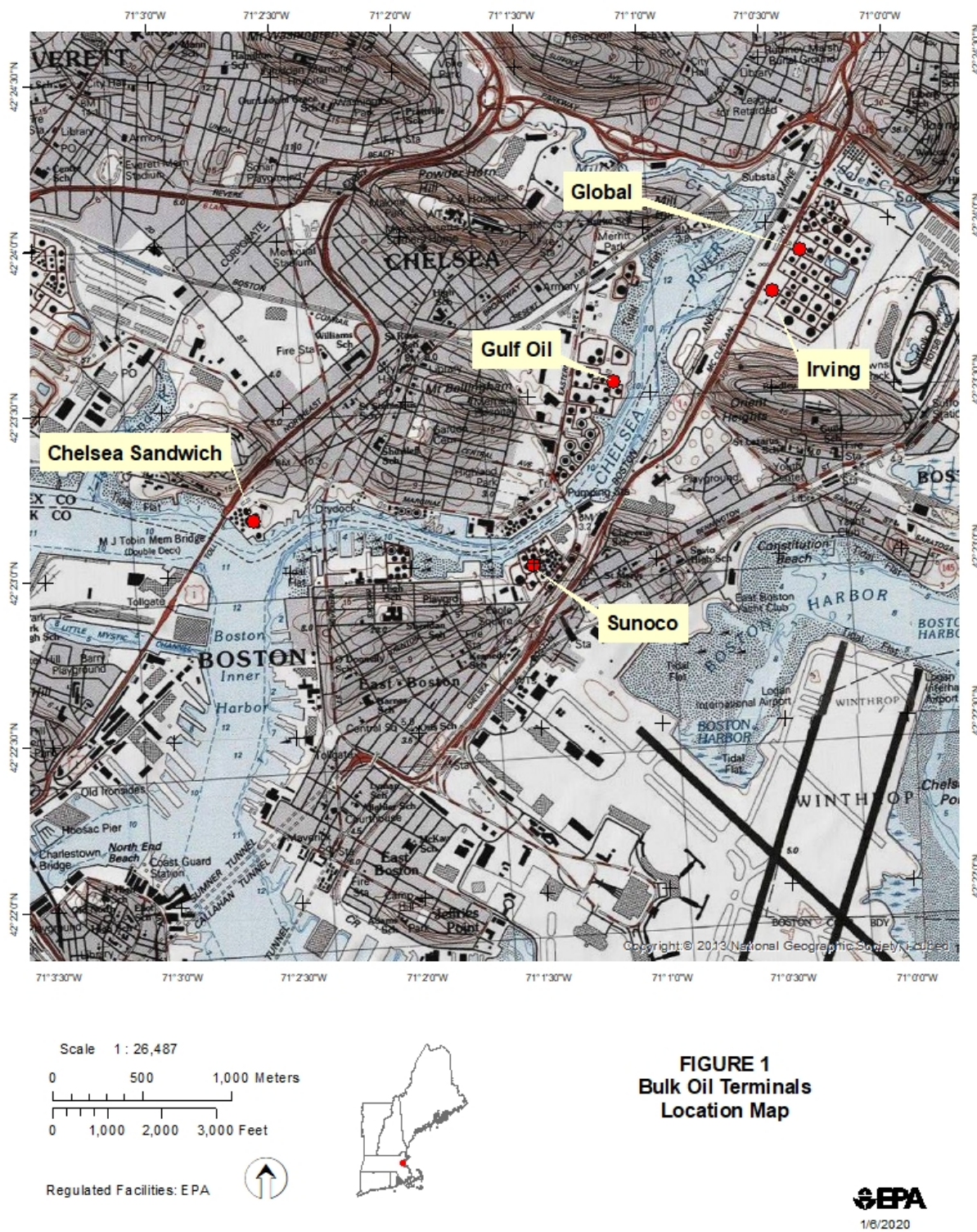


Figure 2: Site Plan

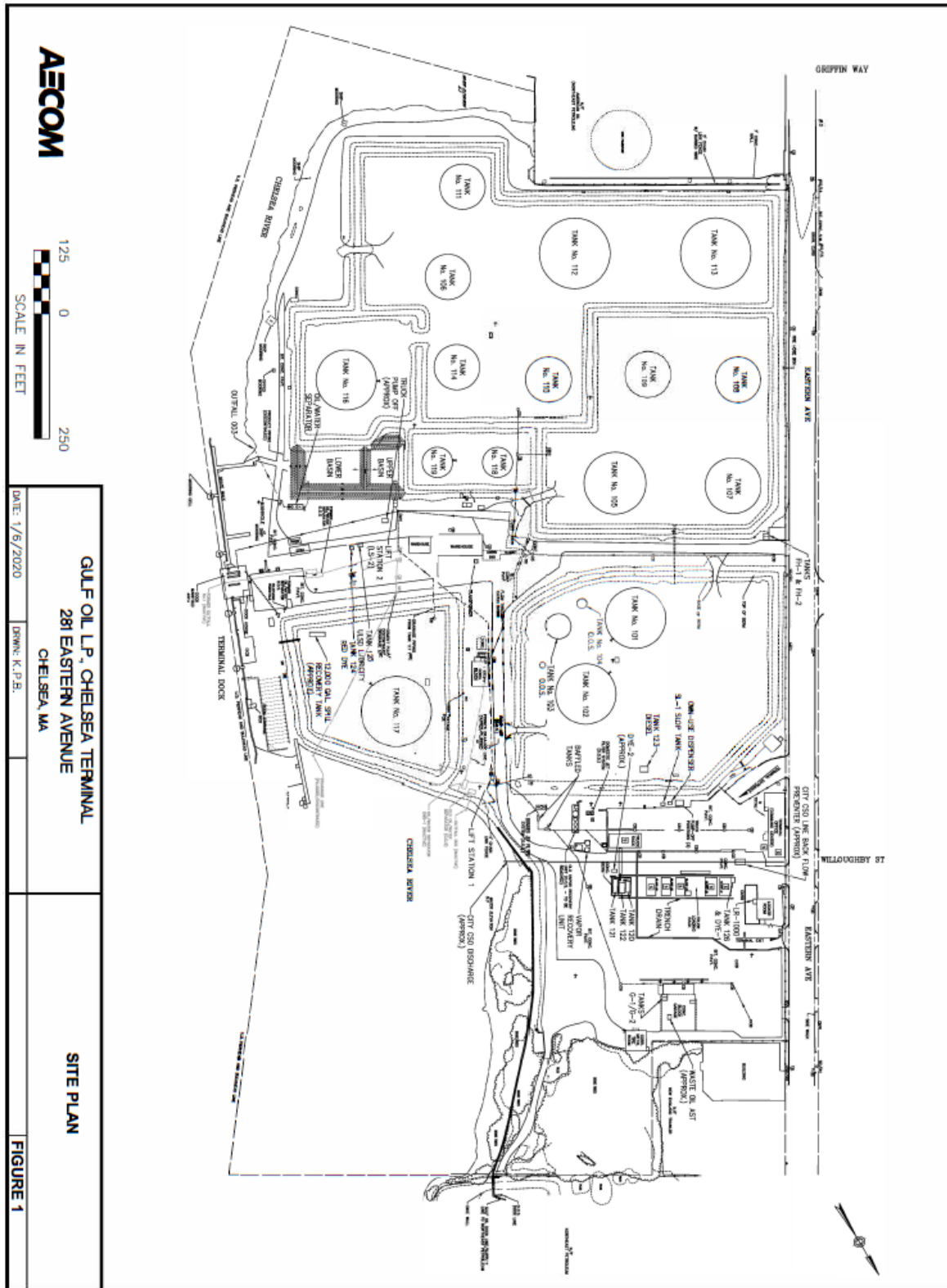
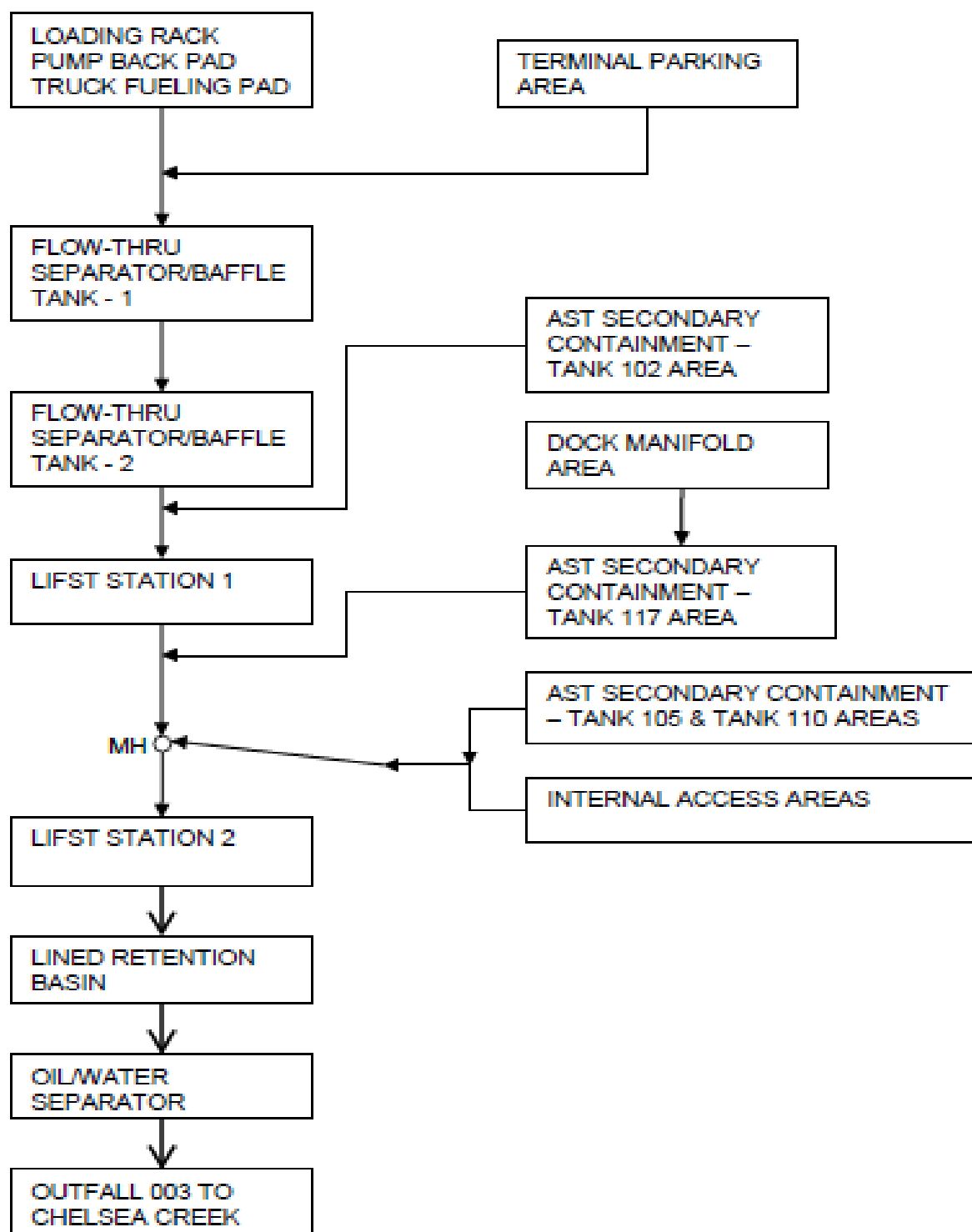
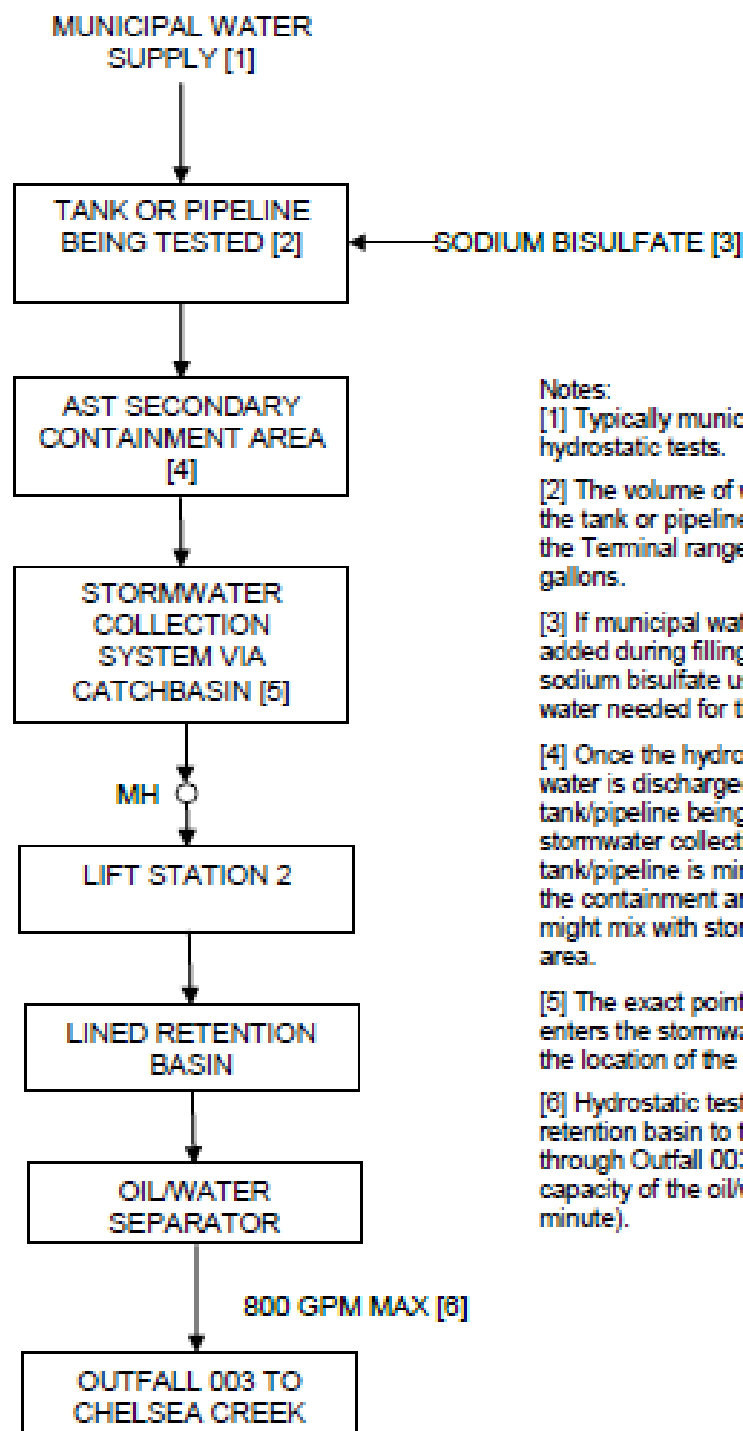


Figure 3: Schematic of Water Flow - Storm Water Drainage

AST - Above-ground storage tank

MH - manhole

Figure 4: Schematic of Water Flow - Hydrostatic Tank/Pipeline Test Discharges**Notes:**

[1] Typically municipal water is used for the hydrostatic tests.

[2] The volume of water needed depends on size of the tank or pipeline being tested. Product ASTs at the Terminal range in size from 63,000 to 6,039,000 gallons.

[3] If municipal water is used, sodium bisulfate is added during filling to reduce the pH. The amount of sodium bisulfate used depends on the volume of water needed for the test.

[4] Once the hydrostatic test is completed, the test water is discharged to the containment area of the tank/pipeline being tested and then released into the stormwater collection system. The flow rate from the tank/pipeline is minimized to prevent erosion within the containment area. The hydrostatic test water might mix with stormwater within the containment area.

[5] The exact point that the hydrostatic test water enters the stormwater collection system depends on the location of the tank/pipeline being tested.

[6] Hydrostatic test water is discharged through the retention basin to the oil/water separator then through Outfall 003 at a flow rate not to exceed the capacity of the oil/water separator (800 gallons per minute).

AST - Above-ground storage tank

MH - manhole

Appendix A: Discharge Monitoring Data

GULF Outfall Serial Number 003 Monthly Effluent Monitoring										
Parameter	Total Flow	Flow rate	Number of Events	TSS	TSS	pH	pH	Oil & grease	Benzene	Benzene
	Daily Max	Daily Max	Daily Max	Monthly Avg	Daily Max	Minimum	Maximum	Daily Max	Monthly Avg	Daily Max
Units	Mgal/mo	gal/min	occur/mo	mg/L	mg/L	SU	SU	mg/L	ug/L	ug/L
Effluent Limit	Report	800	Report	30	100	6.5	8.5	15	51	Report
Minimum	0.072	98	1	1.9	1.9	6	6.2	0	0	0
Maximum	4.09	652	5	80	91.7	8.26	9.16	2.3	32	64
Median	1.09	322	2	13	15	7.38	7.44	Non- Detect	Non- Detect	Non- Detect
No. of Violations	N/A	0	N/A	11	0	2	2	0	0	N/A
Monitoring Period End Date										
12/31/2014	1.01	300	2	23	24	7.06	7.06	2.28	2.5	2.5
1/31/2015	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
2/28/2015	NODI: 5	NODI: 5	NODI: 5	NODI: 5	NODI: 5	NODI: 5	NODI: 5	NODI: 5	NODI: 5	NODI: 5
3/31/2015	0.072	300	1	6	6	7.14	7.14	< 1.1	< 1	< 1
4/30/2015	0.144	300	1	NODI: F	12	NODI: E	NODI: E	< 1.01	< 1	< 1
5/31/2015	0.216	300	1	15	15	7.26	7.26	< 1	< 1	< 1
6/30/2015	1.99	462	5	11.5	15	7.08	7.08	2.3	< 1	< 1
7/31/2015	0.383	270	2	7	14	6.96	6.96	< 1.01	< 1	< 1
8/31/2015	0.195	505	2	7	7	7.58	7.58	< 1	< 1	< 1
9/30/2015	1.94	652	2	3.5	7	7.38	7.38	< 1	< 1	< 1

10/31/2015	0.586	401	1	8	8	7.71	7.71	< .99	< 1	< 1
11/30/2015	0.182	423	1	15	15	7.42	7.42	< .99	< 1	< 1
12/31/2015	2.44	598	3	13	24	6.99	6.99	< 1	< 1	< 1
1/31/2016	2.46	584	3	12	34	7.65	7.65	< 1	< 1	< 1
2/29/2016	2.46	370	3	4	12	7.61	7.61	< .99	< 1	< 1
3/31/2016	1.24	349	2	8.7	14	7.44	7.44	< .99	< 1	< 1
4/30/2016	1.5	481	1	7	7	7.18	7.18	< 1	< 1	< 1
5/31/2016	0.319	266	1	26	26	7.55	7.55	< .99	< 1	< 1
6/30/2016	0.557	442	1	14	14	7.55	7.55	< 1	< 1	< 1
7/31/2016	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C
8/31/2016	0.172	278	1	8.9	8.9	7.5	7.5	< .99	< 1	< 1
9/30/2016	0.108	200	1	11	11	7.23	7.23	< 1.01	< 1	< 1
10/31/2016	0.303	100	1	1.9	1.9	7.6	7.6	< 1.4	< 1	< 1
11/30/2016	0.246	273	1	10.3	10.3	6.74	6.74	< 1.4	< 1	< 1
12/31/2016	0.87	335	2	42.95	79.7	7.6	7.6	< 1.4	< 1	< 1
1/31/2017	0.84	478	2	11	12.5	7.33	7.33	1.5	< 1	< 1
2/28/2017	0.78	482	2	4.4	6.8	7.68	7.68	< 1.01	< 1	< 1
3/31/2017	0.984	328	1	25	25	7.21	7.21	< 1.4	< 1	< 1
4/30/2017	1.68	427	3	5.1	11	7.13	7.13	< 1.4	< 1	< 1
5/31/2017	1.56	322	2	9	9.8	7.25	9.16	< 1	< 1	< 1
6/30/2017	1.09	341	2	7	10.3	7.79	8.01	< 1.5	< 1	< 1
7/31/2017	2.08	328	3	51.8	91.7	6.2	6.2	< 1	< 1	< 1
8/31/2017	0.779	316	2	8.4	14.2	8.26	8.26	< 1	< 1	< 1
9/30/2017	0.576	291	1	3.2	3.2	7.08	7.08	< 1.5	< 1	< 1
10/31/2017	0.811	321	2	7.4	7.4	7.95	7.95	< 1.5	< 1	< 1
11/30/2017	0.441	313	1	2.9	2.9	7.37	7.37	< 1.5	< 1	< 1
12/31/2017	0.168	185	1	14.4	14.4	7.16	7.16	< 1.4	< 1	< 1
1/31/2018	1.26	412	2	19.9	25.8	6.63	6.73	1.8	1.4	1.6
2/28/2018	1.09	331	5	17.4	17.8	6	7.58	< 1.02	1.2	1.2
3/31/2018	1.24	401	5	24.7	68.5	7.55	7.55	< 1	< 1	< 1
4/30/2018	0.54	302	4	12.75	15.3	7.66	7.66	1.4	< .28	< .28

5/31/2018	0.31	302	2	7.9	7.9	7.21	7.21	< 1.01	< 1	< 1
6/30/2018	1.6	407	2	21	21	7	7	1.6	< 1	< 1
7/31/2018	1.52	392	2	37.25	55	7.15	7.15	1.02	< 1	< 1
8/31/2018	3.2	387	2	12.6	13.8	7.58	7.58	1.6	< 1	< 1
9/30/2018	2.16	274	4	51.05	91	6.75	7.23	< 1.01	< 1	< 1
10/31/2018	1.73	259	3	20.3	27.7	7.11	7.11	< 1.03	< 1	< 1
11/30/2018	4.09	264	3	37.2	62	6.81	6.81	< 1	< .5	< .5
12/31/2018	2.98	376	3	59	66	7.03	7.03	< 1.5	< .7	< .7
1/31/2019	3.08	412	3	43	43	7.15	7.15	< 1.5	< 1	< 1
2/28/2019	2.32	346	4	8	11	7.33	7.33	< 1.6	0.5	1
3/31/2019	3.44	322	3	12	18	6.99	6.99	< 1.6	1	1
4/30/2019	3.45	331	3	20	40	7.87	7.87	< 1.4	< .5	< .5
5/31/2019	2.04	330	4	29	35	7.95	7.95	< 1.4	< 1	< 1
6/30/2019	1.93	213	2	43.5	51	7.88	7.88	< 1.4	< 1	< 1
7/31/2019	1.41	411	4	22.5	34	7.75	7.75	< 1.4	< 1	< 1
8/31/2019	0.569	331	2	47	63	7.92	7.92	< 1.4	< 1	< 1
9/30/2019	0.399	138	1	NODI: E	NODI: E	NODI: E	NODI: E	NODI: E	NODI: E	NODI: E
10/31/2019	3.76	212	5	17.35	25	7.78	7.78	< 1.4	< 1	< 1
11/30/2019	1.36	321	3	80	80	7.54	7.54	< 1.4	< 1	< 1
12/31/2019	2.69	287	5	25.7	65	7.52	7.52	< 1.4	< 1	< 1
1/31/2020	1.16	418	2	29.5	46	7.85	7.85	< 1.4	< 1	< 1
2/29/2020	1.01	98	2	29.5	34	7.85	7.85	< 1.4	32	64
3/31/2020	0.77	347	2	14	16	8.03	8.03	< 1.4	< 1	< 1
4/30/2020	2.27	227	4	21	34	7.91	7.91	< 1.4	< .5	< .5
5/31/2020	1.31	302	3	25.5	36	7.2	7.2	< 1.4	< 1	< 1
6/30/2020	0.11	532	1	24	24	8	8	< 1.4	< 1	< 1
7/31/2020	1.09	208	2	31.5	35	7.99	7.99	< 1.4	< 1	< 1
8/31/2020	1.44	182	2	21	29	7.92	8.91	< 1.4	< 1	< 1
9/30/2020	0.103	293	1	6.7	6.7	8.05	8.05	< 1.4	< 1	< 1
10/31/2020	2.65	221	2	7.35	10	8.06	8.06	< 1.4	< 1	< 1

GULF Outfall Serial Number 003 Monthly Effluent Monitoring				
Parameter	Naphthalene	Naphthalene	Benzo(a)pyrene	Benzo(a)pyrene
	Monthly Avg	Daily Max	Monthly Avg	Daily Max
Units	ug/L	ug/L	ug/L	ug/L
Effluent Limit	100	Report	0.1	Report
Minimum	0	0	0	0
Maximum	25.7	46	0.09	0.09
Median	Non-Detect	Non-Detect	Non-Detect	Non-Detect
No. of Violations	0	N/A	0	N/A
Monitoring Period End Date				
12/31/2014	0.55	1.1	< 5.88	< 5.88
1/31/2015	NODI: C	NODI: C	NODI: C	NODI: C
2/28/2015	NODI: 5	NODI: 5	NODI: 5	NODI: 5
3/31/2015	< .023	< .023	< .015	< .015
4/30/2015	< .525	< 1	0.089	0.089
5/31/2015	< .525	< 1	< .05	< .05
6/30/2015	NODI: B	< 1	< .05	< .05
7/31/2015	NODI: B	< 1	< .05	< .05
8/31/2015	NODI: B	< 1	< .05	< .05
9/30/2015	NODI: B	< 1	< .05	< .05
10/31/2015	NODI: B	< 1	< .05	< .05
11/30/2015	NODI: B	< 1	< .05	< .05
12/31/2015	NODI: B	< 1	< .05	< .05
1/31/2016	NODI: B	< 1	< .05	< .05

2/29/2016	0.043	0.086	< .05	< .05
3/31/2016	NODI: B	< 1	< .05	< .05
4/30/2016	NODI: B	< 1	< .05	< .05
5/31/2016	NODI: B	< 1	< .051	< .051
6/30/2016	NODI: B	< 1	< .052	< .052
7/31/2016	NODI: C	NODI: C	NODI: C	NODI: C
8/31/2016	0.028	0.056	< .05	< .05
9/30/2016	NODI: B	< 1	< .052	< .052
10/31/2016	NODI: B	< 1	< .051	< .051
11/30/2016	NODI: B	< 1	< .051	< .051
12/31/2016	NODI: B	< 1	< .051	< .051
1/31/2017	NODI: B	< 1	< .052	< .052
2/28/2017	NODI: B	< 1	< .051	< .051
3/31/2017	NODI: B	< 1	< .07	< .07
4/30/2017	NODI: B	< 1	< .051	< .051
5/31/2017	0.038	0.076	< .051	< .051
6/30/2017	NODI: B	< 1	< .05	< .05
7/31/2017	NODI: B	< 1	< .049	< .049
8/31/2017	NODI: B	< 1	< .257	< .257
9/30/2017	NODI: B	< 1	< .047	< .047
10/31/2017	NODI: B	< 1	< .048	< .048
11/30/2017	NODI: B	< 1	< .049	< .049
12/31/2017	NODI: B	< 1	< .047	< .047
1/31/2018	0.72	2	NODI: B	< .047
2/28/2018	0.048	0.095	< .047	< .047
3/31/2018	NODI: B	< 1	< .049	< .049
4/30/2018	E .39	E .78	E .074	E .074
5/31/2018	NODI: B	< 2	< .048	< .048
6/30/2018	NODI: B	< 2	< .049	< .049
7/31/2018	NODI: B	< 5	< .048	< .048
8/31/2018	NODI: B	< 5	< .047	< .047

9/30/2018	NODI: B	< 2	< .051	< .051
10/31/2018	NODI: B	< 5	< .051	< .051
11/30/2018	NODI: B	< 1	< .049	< .049
12/31/2018	NODI: B	< 1	< .1	< .1
1/31/2019	0.05	0.1	0.09	0.09
2/28/2019	NODI: B	< 5	< .05	< .05
3/31/2019	NODI: B	< 1	< .01	< .01
4/30/2019	NODI: B	< 1	< .09	< .09
5/31/2019	NODI: B	< 1	< .1	< .1
6/30/2019	NODI: B	< 1	< .1	< .1
7/31/2019	NODI: B	< 1	< .1	< .1
8/31/2019	NODI: B	< 1	< .1	< .1
9/30/2019	NODI: E	NODI: E	NODI: E	NODI: E
10/31/2019	NODI: B	< 1	< .1	< .1
11/30/2019	NODI: B	< 1	< .1	< .1
12/31/2019	NODI: B	< 1	< .1	< .1
1/31/2020	NODI: B	< 1	< .1	< .1
2/29/2020	25.7	46	< .1	< .1
3/31/2020	NODI: B	< 1	< .1	< .1
4/30/2020	NODI: B	< 1	< .1	< .1
5/31/2020	NODI: B	< 1	< .1	< .1
6/30/2020	NODI: B	< 1	< .1	< .1
7/31/2020	NODI: B	< 1	< .1	< .1
8/31/2020	NODI: B	< 1	< .1	< .1
9/30/2020	NODI: B	< 1	< .09	< .09
10/31/2020	NODI: B	< 1	< .02	< .02

GULF
Outfall Serial Number 003
Quarterly Oxygenate Monitoring

Parameter	Ethanol	Methyl tert-butyl ether
	Daily Max	Daily Max
Units	ug/L	ug/L
Effluent Limit	Report	Report
Minimum	No Data	0
Maximum	No Data	0.2
Median	No Data	Non- Detect
No. of Violations	N/A	N/A
Monitoring Period End Date		
12/31/2014	NODI	NODI
3/31/2015	< 22.7	0.2
6/30/2015	< 400	< 1
9/30/2015	< 400	< 1
12/31/2015	< 400	< 1
3/31/2016	< 400	< 1
6/30/2016	< 400	< 1
9/30/2016	< 200	< 1
12/31/2016	< 200	< 1
3/31/2017	< 200	< 1
6/30/2017	< 200	< 1
9/30/2017	< 200	< 1
12/31/2017	< 200	< 1
3/31/2018	< 200	< 1
6/30/2018	< 30.9	< .24
9/30/2018	< 200	< 1

12/31/2018	< 400	< 1
3/31/2019	< 280	< .2
6/30/2019	< 400	< 1
9/30/2019	NODI: E	NODI: E
12/31/2019	< 400	< 2
3/31/2020	< 400	< 2
6/30/2020	< 400	< 1
9/30/2020	< 400	< 2

GULF Outfall Serial Number 003 Quarterly-to-Yearly Pollutant Scan								
Parameter	Benze ne	Ethylbenze ne	Toluene	Xylene	Benzo(a)anthrac ene	Benzo(a)pyr ene	Benzo(b)fluorant hene	Benzo(k)fluorant hene
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Repor t	Report	Report	Report	Report	Report	Report	Report
Minimum	No Data	No Data	0	0	No Data	0	0	0
Maximum	No Data	No Data	16.6	1	No Data	0.089	0.074	0.055
Median	No Data	No Data	Non- Detect	Non- Detect	No Data	Non-Detect	Non-Detect	Non-Detect
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date								
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	< .2	< .2	< .3	< .9	< .021	< .015	< .017	< .021

6/30/2015	< 1	< 1	< 1	< 3	< .05	0.089	0.063	0.055
9/30/2015	< 1	< 1	16.6	< 3	< .05	< .05	< .05	< .05
12/31/2015	< 1	< 1	< 1	< 3	< .05	< .05	< .05	< .05
3/31/2016	< 1	< 1	< 1	< 3	< .05	< .05	< .05	< .05
6/30/2016	< 1	< 1	< 1	1	< .05	< .05	0.074	< .05
9/30/2016	< 1	< 1	2.8	< 3	< .052	< .052	< .052	< .052
12/31/2016	< 1	< 1	< 1	< 3	< .051	< .051	< .051	< .051
3/31/2017	< 1	< 1	< 1	< 3	< .07	< .07	< .07	< .07
6/30/2017	< 1	< 1	< 1	< 3	< .05	< .05	< .05	< .05
9/30/2017	< 1	< 1	< 1	< 3	< .257	< .257	< .257	< .257
12/31/2017	< 1	< 1	< 1	< 3	< .048	< .048	< .048	< .048
12/31/2018	NODI	NODI	NODI	NODI	NODI	NODI	NODI	NODI
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI	NODI	NODI
4/30/2018	< .28	< .33	< .3	E .54	E .083	E .074	E .075	E .072
4/30/2019	< .5	< .5	< 1	< .5	< .09	< .09	< .09	< .09
4/30/2020	< .5	< .5	< 1	< .5	< .05	< .1	< .05	< .1

GULF**Outfall Serial Number 003****Quarterly-to-Yearly Pollutant Scan**

Parameter	Chrysen e	Dibenzo(a,h)anthracen e	Indeno(1,2,3 -cd)pyrene	Acenaphthen e	Acenaphthylen e	Anthracen e	Benzo(ghi)perylene e
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report
Minimum	No Data	No Data	0	No Data	No Data	No Data	0
Maximum	No Data	No Data	0.104	No Data	No Data	No Data	0.063
Median	No Data	No Data	Non-Detect	No Data	No Data	No Data	Non-Detect

No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date							
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	< .022	< .024	< .017	< .022	< .02	< .022	< .019
6/30/2015	< .05	< .05	0.104	< .05	< .05	< .05	0.063
9/30/2015	< .05	< .05	< .05	< .05	< .05	< .05	< .05
12/31/2015	< .05	< .05	< .05	< .05	< .05	< .05	< .05
3/31/2016	< .05	< .05	< .05	< .05	< .05	< .05	< .05
6/30/2016	< .05	< .05	0.063	< .05	< .05	< .05	0.053
9/30/2016	< .052	< .052	< .052	< .052	< .052	< .052	< .052
12/31/2016	< .051	< .051	< .051	< .051	< .051	< .051	< .051
3/31/2017	< .07	< .07	< .07	< .07	< .07	< .07	< .07
6/30/2017	< .05	< .05	< .05	< .05	< .05	< .05	< .05
9/30/2017	< .257	< .257	< .257	< .257	< .257	< .257	< .257
12/31/2017	< .048	< .048	< .048	< .048	< .048	< .048	< .048
12/31/2018	NODI	NODI	NODI	NODI	NODI	NODI	NODI
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI	NODI
4/30/2018	E .062	E .066	E .07	< .007	< .012	E .044	E .069
4/30/2019	< .09	< .09	< .09	< .09	< .09	< .09	< .09
4/30/2020	< .1	< .02	< .1	< .1	< .1	< .1	< .1

GULF
Outfall Serial Number 003
Quarterly-to-Yearly Pollutant Scan

[illegible]

Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	0	No Data	No Data	No Data	0	No Data	1.22	0
Maximum	0.064	No Data	No Data	No Data	0.081	No Data	13.3	3.36
Median	Non-Detect	No Data	No Data	No Data	Non-Detect	No Data	1.915	0.315
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date								
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	< .023	< .022	< .023	< .028	0.058	< 2.17	2	0.35
6/30/2015	0.054	< .05	< 1	< .05	0.065	< 2.12	E .0033	< .2
9/30/2015	0.064	< .05	< 1	< .05	0.081	< 2.1	2.79	0.35
12/31/2015	< .05	< .05	< 1	< .05	< .05	< 5.05	7.12	0.21
3/31/2016	< .05	< .05	< 1	< .05	< .05	< 2.06	1.83	0.28
6/30/2016	0.057	< .05	< 1	< .05	0.064	< 5	E 3.15	0.35
9/30/2016	< .052	< .052	< 1	< .052	< .052	< 1.02	1.22	3.36
12/31/2016	0.056	< .051	< 1	< .051	0.072	< .993	7.22	< .2
3/31/2017	< .07	< .07	< 1	< .07	< .07	< 1.38	9.79	0.42
6/30/2017	< .05	< .05	< 1	< .05	< .05	< .645	13.3	0.26
9/30/2017	< .257	< .257	< 1	< .257	< .257	< .639	E 5.6	0.5
12/31/2017	< .048	< .048	< 1	< .048	< .048	< .62	E 1.6	0.23
12/31/2018	NODI	NODI	NODI	NODI	NODI	NODI	NODI	NODI
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI	NODI	NODI
4/30/2018	E .064	< .011	E .78	E .053	E .076	< .62	0.42	E 1.6
4/30/2019	< .09	< .09	< 1	< .09	< .09	< 4.7	< .05	< 1
4/30/2020	< .1	< .1	< 1	< .05	< .1	< 4.9	< .05	< 1

GULF Outfall Serial Number 003 Quarterly-to-Yearly Pollutant Scan			
Parameter	TBA	Vinyl chloride	Fecal Coliform
	Daily Max	Daily Max	Daily Max
Units	ug/L	ug/L	CFU/100mL
Effluent Limit	Report	Report	Report
Minimum	No Data	No Data	0
Maximum	No Data	No Data	1100
Median	No Data	No Data	22
No. of Violations	N/A	N/A	N/A
Monitoring Period End Date			
12/31/2014	NODI	NODI	NODI
3/31/2015	< 7.5	< .3	< 2
6/30/2015	< 10	< 1	< 2
9/30/2015	< 10	< 1	84
12/31/2015	< 10	< 1	4
3/31/2016	< 10	< 1	2
6/30/2016	< 10	< 1	1100
9/30/2016	< 10	< 1	10
12/31/2016	< 10	< 1	34
3/31/2017	< 10	< 1	2
6/30/2017	< 10	< 1	124
9/30/2017	< 10	< 1	45
12/31/2017	< 10	< 1	850
12/31/2018	NODI	NODI	NODI
12/31/2019	NODI	NODI	NODI

4/30/2018	< 5.9	< .47	< 10
4/30/2019	< 10	< .5	20
4/30/2020	< 10	< .5	31

GULF Outfall Serial Number 003 Quarterly-to-Yearly Whole Effluent Toxicity Monitoring								
Parameter	LC50 Acute Menidia	LC50 Mysid. Bahia	TRC	Salinity	pH	Total Solids	TSS	Ammonia
	Monthly Avg Min	Monthly Avg Min	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	%	%	mg/L	ppt	SU	mg/L	mg/L	mg/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	100	100	0	0	6	120	6	0
Maximum	100	100	0.079	6.2	8.26	7400	79.7	3.36
Median	100	100	Non- Detect	Non- Detect	7.485	397	11.5	0.27
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date								
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	NODI: 8	NODI: 8	< .011	0.23	7.14	366	6	0.35
6/30/2015	100	100	< .02	< 1	7.26	209	12	< .2
9/30/2015	100	100	< .2	< 1	7.58	344	7	0.35
12/31/2015	100	100	< .02	3.71	7.42	4320	15	0.21
3/31/2016	100	100	< .02	< 1	7.65	428	8	0.28
6/30/2016	100	100	0.024	2.12	7.55	2280	14	< .2
9/30/2016	100	100	< .02	6.2	7.23	7400	11	3.36

12/31/2016	100	100	< .028	< 1	7.6	248	79.7	< .2
3/31/2017	100	100	0.079	1.7	7.21	1940	25	0.42
6/30/2017	100	100	0.066	< 1	8.01	488	10.3	0.26
9/30/2017	100	100	0.025	< 1	8.26	250	14.2	0.5
12/31/2017	100	100	0.043	< 1	7.95	120	7.4	0.23
3/31/2018	100	100	< .02	< 1	6	1100	17.8	0.48
6/30/2018	NODI: 9	NODI: 9	NODI: 9		NODI: 9	NODI: 9	NODI: 9	NODI: 9
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI	NODI	NODI
9/30/2018	100	100	< .02	< 1	6.75	231	91	0.15
9/30/2019	100	100	< .02	< .5	7.78	270	9.7	0.32
9/30/2020	100	100	0.07	0.9	8.05	920	6.7	0.98

GULF						
Outfall Serial Number 003						
Quarterly-to-Yearly Whole Effluent Toxicity Monitoring						
Parameter	TOC	Cadmium	Copper	Lead	Nickel	Zinc
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Report	Report	Report	Report	Report	Report
Minimum	2.57	No Data	0	0.89	0	0.0216
Maximum	9.03	No Data	39.8	47.9	7	88.9
Median	4.595	No Data	5.61	7.325	2.2	22.8
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date						
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	4.21	< .6	5	7	1.9	35.6
6/30/2015	5.4	< .0011	E .0092	E .0111	< .0033	0.0216

9/30/2015	4.59	< .09	5.46	7.69	2.91	35.1
12/31/2015	4.19	< .88	18.7	10.8	5.81	27.6
3/31/2016	4.04	E .64	5.62	7.65	1.84	32.5
6/30/2016	4.6	< .3	39.8	2.08	4.33	18
9/30/2016	9.03	E .06	10.5	0.89	5.09	8.43
12/31/2016	2.57	< .3	15.2	47.9	7	88.9
3/31/2017	5.58	E .4	9.2	9.5	E 4.4	39.3
6/30/2017	7.18	< .2	< 25	6.7	4.5	11
9/30/2017	5.86	< .2	5.6	8	E 4	E 17
12/31/2017	4.64	< .095	5.4	4	E 1.8	E 10
3/31/2018	3.92	E .23	7.8	8.8	2.5	65.4
6/30/2018	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI
9/30/2018	2.6	< .1	9.3	21.3	4.1	53
9/30/2019	5.4	< .2	6.6	6.8	2.8	16
9/30/2020	11.2	< .2	3.6	2.3	1.3	8

Notes:

0 = parameter not detected

NA = not applicable

gal/min = gallons per minute

Mgal/mo = million gallons per month

mg/L = milligrams per liter

ug/L = micrograms per liter

g/kg = grams per kilogram

occur/mo: = occurrences per month

SU = standard units

CFU = colony forming units

NODI: = parameter not reported

NODI: E = analysis not conducted/no sample

NODI: B = below detection limit/no detection

NODI: C = no discharge

NODI: 8 = Other

NODI: 9 = conditional monitoring – not required this period

Red text indicates limit exceedance

Appendix B: Ambient Data

GULF Chelsea River for Outfall 003 Quarterly-to-Yearly Pollutant Scan							
Parameter	Benzene	Ethylbenzene	Toluene	Xylene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report
Minimum	No Data	No Data	No Data	No Data	0	0	0
Maximum	No Data	No Data	No Data	No Data	0.076	0.11	0.111
Median	No Data	No Data	No Data	No Data	Non-Detect	Non-Detect	Non-Detect
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date							
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	< 1	< 1	< 1	< 3	< .05	< .05	< .05
6/30/2015	< 1	< 1	< 1	< 3	0.076	0.11	0.111
9/30/2015	< 1	< 1	< 1	< 3	< .05	< .05	< .05
12/31/2015	< 1	< 1	< 1	< 3	< .05	< .05	< .05
3/31/2016	< 1	< 1	< 1	< 3	< .05	< .05	< .05
6/30/2016	< 1	< 1	< 1	< 3	< .05	< .05	< .05
9/30/2016	< 1	< 1	< 1	< 3	< .052	< .052	< .052
12/31/2016	< 1	< 1	< 1	< 3	< .05	< .05	< .05
3/31/2017	< 1	< 1	< 1	< 3	< .051	< .051	< .051

6/30/2017	< 1	< 1	< 1	< 3	< .049	< .049	< .049
9/30/2017	< 1	< 1	< 1	< 3	< .049	< .049	< .049
12/31/2017	< 1	< 1	< 1	< 3	< .046	< .046	< .046
12/31/2018	NODI	NODI	NODI	NODI	NODI	NODI	NODI
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI	NODI
4/30/2018	< 1	< 1	< 1	< 3	< .051	0.064	0.056
4/30/2019	< 1	< 1	< 1	< 1	< .09	< .09	< .09
4/30/2020	< 1	< 1	< 1	< 1	< .05	< .1	< .05

GULF**Chelsea River for Outfall 003****Quarterly-to-Yearly Pollutant Scan**

Parameter	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Acenaphthene	Acenaphthylene	Anthracene
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report
Minimum	0	0	No Data	0	No Data	No Data	No Data
Maximum	0.06	0.108	No Data	0.089	No Data	No Data	No Data
Median	Non-Detect	Non-Detect	No Data	Non-Detect	No Data	No Data	No Data
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date							
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	< .05	< .05	< .05	< .05	< .05	< .05	< .05
6/30/2015	0.06	0.108	< .05	0.089	< .05	< .05	< .05

9/30/2015	< .05	< .05	< .05	< .05	< .05	< .05	< .05
12/31/2015	< .05	< .05	< .05	< .05	< .05	< .05	< .05
3/31/2016	< .05	< .05	< .05	< .05	< .05	< .05	< .05
6/30/2016	< .05	< .05	< .05	< .05	< .05	< .05	< .05
9/30/2016	< .052	< .052	< .052	< .052	< .052	< .052	< .052
12/31/2016	< .05	< .05	< .05	< .05	< .05	< .05	< .05
3/31/2017	< .051	< .051	< .051	< .051	< .051	< .051	< .051
6/30/2017	< .049	< .049	< .049	< .049	< .049	< .049	< .049
9/30/2017	< .049	< .049	< .049	< .049	< .049	< .049	< .049
12/31/2017	< .046	< .046	< .046	< .046	< .046	< .046	< .046
12/31/2018	NODI	NODI	NODI	NODI	NODI	NODI	NODI
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI	NODI
4/30/2018	< 1	< 1	< 1	< 3	< .051	0.064	0.056
4/30/2019	< 1	< 1	< 1	< 1	< .09	< .09	< .09
4/30/2020	< 1	< 1	< 1	< 1	< .05	< .1	< .05

GULF Chelsea River for Outfall 003 Quarterly-to-Yearly Pollutant Scan						
Parameter	Benzo(ghi)perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Report	Report	Report	Report	Report	Report
Minimum	0	0	No Data	0	0	0
Maximum	0.057	0.284	No Data	0.108	0.218	0.222
Median	Non-Detect	Non-Detect	No Data	Non-Detect	Non-Detect	Non-Detect
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A

Monitoring Period End Date						
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	< .05	< .05	< .05	< .05	< .05	< .05
6/30/2015	0.057	0.284	< .05	0.065	0.218	0.222
9/30/2015	< .05	< .05	< .05	0.066	0.061	< .05
12/31/2015	< .05	< .05	< .05	< 1	< .05	< .05
3/31/2016	< .05	0.052	< .05	< 1	< .05	< .05
6/30/2016	< .05	< .05	< .05	< 1	< .05	< .05
9/30/2016	< .052	< .052	< .052	0.108	0.061	< .052
12/31/2016	< .05	< .05	< .05	< 1	< .05	< .05
3/31/2017	< .051	< .051	< .051	< 1	< .051	< .051
6/30/2017	< .049	< .049	< .049	< 1	< .049	< .049
9/30/2017	< .049	< .049	< .049	< 1	< .049	< .049
12/31/2017	< .046	< .046	< .046	< 1	< .046	< .046
12/31/2018	NODI	NODI	NODI	NODI	NODI	NODI
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI
4/30/2018	0.056	< .051	< .051	< 1	< .051	< .051
4/30/2019	< .09	< .09	< .09	< 1	< .09	< .09
4/30/2020	< .1	< .1	< .1	< 1	0.06	< .1

GULF**Chelsea River for Outfall 003****Quarterly-to-Yearly Whole Effluent Toxicity Monitoring**

Parameter	TRC	Salinity	pH	Total Solids	TSS	Ammonia	TOC
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	mg/L	ppt	SU	mg/L	mg/L	mg/L	mg/L

Effluent Limit	Report	Report	Report	Report	Report	Report	Report
Minimum	0	0	7.54	362	6	0	2.17
Maximum	0.034	29.6	8.12	72200	51	0.35	9.17
Median	Non-Detect	24.6	7.89	29750	16.5	0.05	3.025
No. of Violations	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date							
12/31/2014	NODI	NODI	NODI	NODI	NODI	NODI	NODI
3/31/2015	< .04	< 1	NODI: E	362	6	0.35	4.2
6/30/2015	< .02	22.8	7.92	30500	25	< .2	3.62
9/30/2015	< .2	24.8	7.87	36300	39	< .2	3.13
12/31/2015	< .02	29.6	7.94	72200	40	< .2	2.17
3/31/2016	< .02	20.1	7.54	23600	18	0.28	3.3
6/30/2016	< .02	23.9	8.06	27000	51	< .2	3.2
9/30/2016	< .02	28.1	7.84	34100	11.1	0.21	9.17
12/31/2016	< .028	19.1	8.09	22600	42.2	< .2	2.92
3/31/2017	0.034	28.8	7.91	32800	13.5	< .2	2.39
6/30/2017	0.028	24.6	7.92	29000	9	0.1	3.28
9/30/2017	< .02	27.8	8.12	38500	24.8	0.18	2.7
12/31/2017	< .02	26.1	7.64	47800	15	0.17	2.37
3/31/2018	< .02	22.2	7.67	28300	10.3	0.21	2.54
6/30/2018	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9
12/31/2019	NODI	NODI	NODI	NODI	NODI	NODI	NODI
9/30/2018	< .006	25.5	7.53	30500	29	0.14	1.94
9/30/2019	< .02	26.8	7.83	34000	14	0.14	2.1
9/30/2020	0.05	30.7	7.79	37000	16	0.14	2.3

GULF

Chelsea River for Outfall 003 Quarterly-to-Yearly Whole Effluent Toxicity Monitoring					
Parameter	Cadmium	Copper	Lead	Nickel	Zinc
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	ug/L	ug/L	ug/L	ug/L	ug/L
Effluent Limit	Report	Report	Report	Report	Report
Minimum	0	0	0	0	0
Maximum	0.55	194	15	16.6	81.2
Median	Non-Detect	56.8	Non-Detect	Non-Detect	0.01125
No. of Violations	N/A	N/A	N/A	N/A	N/A
Monitoring Period End Date					
12/31/2014	NODI	NODI	NODI	NODI	NODI
3/31/2015	< 2.5	< 5	8.2	< 5	36.7
6/30/2015	< .0011	E .004	E .0057	< .0033	0.0225
9/30/2015	< .88	54.1	< .95	10.1	13.2
12/31/2015	< .88	96.5	< .95	12.5	< 5.56
3/31/2016	< .44	59.5	1.43	6.68	E 10.1
6/30/2016	< .3	67	3.84	10.2	81.2
9/30/2016	< .15	30.4	E .53	8.31	19.7
12/31/2016	< .3	82.7	15	< 2.2	44.6
3/31/2017	< 2	97.2	< 17.1	< 5	< 13.6
6/30/2017	0.19	194	1.84	16.6	20.9
9/30/2017	< .2	2.1	E 2.2	E .55	E 6.4
12/31/2017	< 2	110	< 25	< 50	< 200
3/31/2018	0.55	2.3	E 2.7	E 1.1	E 13.2
6/30/2018	NODI: 9	NODI: 9	NODI: 9	NODI: 9	NODI: 9
12/31/2019	NODI	NODI	NODI	NODI	NODI

9/30/2018	< .5	9.8	1.9	11.2	18
9/30/2019	< .2	11.2	2.4	17.9	20
9/30/2020	< .2	8	< .2	< .2	14

Appendix C: Reasonable Potential Analysis

Methodology

A reasonable potential analysis is completed using a single set of critical conditions for flow and pollutant concentration 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 detection limits). For datasets of 10 or more samples, EPA used the upper bound effluent concentration at the 95th percentile of the dataset. For datasets of less than 10 samples, EPA used a lognormal distribution and conservative coefficient of variation of 0.6 to calculate the 95th percentile. For datasets that include one or more non-detect results, EPA used a delta-lognormal distribution to calculate the 95th percentile.

EPA uses the dilution factor, 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_s = upstream concentration (median value of available ambient data)

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:

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

When the downstream concentration (C) 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, or 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 (C_e) using the applicable criterion as the downstream concentration (C_d). *See* 40 CFR § 122.44(d)(1)(iii).

Determination of Applicable Criteria

State water quality criteria are derived from EPA's *National Recommended Water Quality Criteria: 2002*, which are incorporated into the state WQSs by reference at 315 CMR 4.05(5). For dissolved to total recoverable metal conversion, see *Appendix A - Conversion Factors for Dissolved Metals*: <http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm#appendxa>; as required by 314 CMR 4.05(5)(e). They are presented in the following table:

Parameter	Dissolved Acute Criteria (CMC)	Conversion Factors	Total Recoverable Acute Criteria (CMC)
Units	µg/L	—	µg/L
Ammonia (Warm)	1.8	—	1.8
Ammonia (Cold)	9.4	—	9.4
Cadmium	40	0.994	40.2
Chromium (VI)	1100	0.993	1107.8
Copper	4.8	0.830	5.78
Lead	210	0.951	220.82
Nickel	74	0.990	74.75
Zinc	90	0.946	95.14

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 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.

Summary of Reasonable Potential Results

Parameter	Effluent Concentration ¹	Downstream Concentration ²	Total Recoverable Acute Criteria	Acute Reasonable Potential ³
Units	µg/L	µg/L	µg/L	—
Ammonia (Warm)	6048	6048	1800	Y
Ammonia (Cold)	756	756	9400	N
Cadmium	0.5	0.5	40.2	N
Chromium (VI)	13.6	13.6	1107.8	N
Copper	21.7	21.7	5.8	Y
Lead	79.4	79.4	220.8	N
Nickel	6.9	6.9	74.7	N
Zinc	299.4	299.4	95.1	Y

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

² Values represent the 95th percentile concentration divided by the dilution factor 1:1.

³ “Y” is indicated if downstream concentration exceeds the acute criterion.

Ammonia (warm), copper and zinc have a reasonable potential to cause or contribute to an excursion above water quality standards.

Calculation of Effluent Limitations

EPA calculated the effluent limitations for ammonia (warm) and total recoverable copper by setting the maximum allowable effluent concentration equal to the applicable criterion, adjusted for available dilution. The results are summarized in the table below.

Summary of Effluent Limitations

Parameter	Dissolved Acute Criteria	Available Dilution	Daily Max Effluent Limitation
Units	µg/L	---	µg/L
Ammonia (Warm)	1.8	1:1	1.8
Copper	4.8	1:1	5.8
Zinc	90	1:1	95.14

Note that when the effluent limitation is calculated to be lower than the applicable criterion, then the effluent limitation is set equal to the criterion. Because regulations at 40 CFR § 122.45(c) require, with limited exceptions, that effluent limits for metals in NPDES permits be expressed as total recoverable metals, effluent limitations are expressed as total recoverable metals. See EPA-823-B96-007, *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*: 1996.

Appendix D: EFH Species and Life Stages and the Habitat Area of Particular Concern

Gulf Oil Terminal at Latitude 42°23'35" N, Longitude 71°1'2" W.

This area is within Boston Harbor, affecting the Chelsea River.

Species/Management Unit	Lifestage(s) Found at Location
Atlantic Wolffish	All Life Stages
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	

UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY – REGION 1 (EPA)
WATER DIVISION
5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

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

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

PUBLIC NOTICE PERIOD: **2/10/2021 – 4/11/2021**

PERMIT NUMBERS: **MA0004006, MA0003280, MA0001929, MA0001091, MA0000825**

PUBLIC NOTICE NUMBER: MA-009-21

PUBLIC MEETING DATE: **3/15/2021**

PUBLIC HEARING DATE: **3/29/2021**

PERMIT NUMBERS, NAME AND MAILING ADDRESS OF APPLICANTS, AND NAME AND ADDRESSES OF THE FACILITY WHERE DISCHARGES OCCURS:

MA0004006

Sunoco Partners Marketing and Terminals LP
467 Chelsea Street
Boston, MA 02128
for

Sunoco Logistics East Boston Terminal
467 Chelsea Street
Boston, MA 02128

MA0003280

Chelsea Sandwich LLC
11 Broadway
Chelsea, MA 02150
for

Chelsea Sandwich Terminal
11 Broadway
Chelsea, MA 02150

MA0001929

Irving Oil Terminals Inc
41 Lee Burbank Highway
Revere, MA 02151
for

Irving Oil Terminal
40/41 Lee Burbank Highway
Revere, MA 02151

MA0001091

Gulf Oil Limited Partnership
80 William Street, Suite 400
Wellesley Hills, MA 02481

for

Gulf Oil Terminal
281 Eastern Avenue
Chelsea, MA 02150

MA0000825

Global Companies LLC
140 Lee Burbank Highway
Revere, MA 02151

for

Global Companies LLC Terminal
49/96, 71/140, and 101/186 Lee Burbank Highway
Revere, MA 02151

RECEIVING WATERS: Chelsea River and Sales Creek

RECEIVING WATERS CLASSIFICATION: Class SB (Chelsea River) and SA (Sales Creek)

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

EPA is issuing for public notice and comment Draft NPDES Permits for the above-identified facilities, which discharge some combination of treated stormwater, hydrostatic test water, groundwater, boiler blowdown/condensate, and/or other allowable non-stormwater sources. The effluent limits and permit conditions imposed 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 Permits. MassDEP retains independent authority under State law to issue separate Surface Water Discharge Permits for the discharges, 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 certification of the Draft Permits 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 Permits that MassDEP finds necessary to meet these requirements. In addition, MassDEP may provide a statement of the extent to which each condition of a Draft Permit can be made less stringent without violating the requirements of State law.

INFORMATION ABOUT THE DRAFT PERMITS:

The Draft Permits and explanatory Fact Sheets may be obtained at no cost at <https://www.epa.gov/npdes-permits/chelsea-river-bulk-petroleum-storage-facilities-npdes-permits> or by contacting:

Shauna Little
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1989
Little.Shauna@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 encouraged 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 PERIOD:

All persons, including applicants, who believe any condition of any of the Draft Permits is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by **April 11, 2021**, 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. In reaching final decisions on the Draft Permits 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.

PUBLIC MEETING AND PUBLIC HEARING:

The Regional Administrator has determined, pursuant to 40 CFR §124.12, that a significant degree of public interest exists in the proposed permits and that a public hearing should be held in Chelsea, Massachusetts to consider the permits. This notice serves to announce that a public hearing will be held. A public meeting and public hearing will be held on the following dates and times:

Public Informational Meeting:

DATE: **March 15, 2021**

TIME: 7:00pm

LOCATION: Virtual Meeting Information will be provided on EPA's website, noted above

Public Hearing:

DATE: **March 29, 2021**

TIME: 7:00pm

LOCATION: Virtual Meeting Information will be provided on EPA's website, noted above

The following is a summary of the procedures that will be followed at the public informational meeting:

- a. The Presiding Chairperson will have the authority to open and conclude the meeting and to maintain order.
- b. EPA will make a short presentation describing the NPDES permit process and the draft permit

conditions, and then accept clarifying questions from the audience.

- c. Formal oral comments concerning the draft permits will not be accepted at the public meeting. Formal oral comments will be accepted at the subsequent public hearing.

The following is a summary of the procedures that will be followed at the public hearing:

- a. The Presiding Chairperson will have the authority to open and conclude the hearing and to maintain order.
- b. Any person appearing at such a hearing may submit oral or written statements concerning the draft permit.

ENVIRONMENTAL JUSTICE ANALYSIS:

EPA and MassDEP cooperated in development of an Environmental Justice Analysis (EJA) for the NPDES permitting actions for these facilities in Chelsea, East Boston and Revere. EPA is accepting comments on the EJA during the same time period as accepting comments on the draft permits. All persons wishing to submit comments on the EJA must submit comments as noted above, with an indication that the comment(s) pertain to the EJA.

FINAL PERMIT DECISION:

Following the close of the comment period, and after the public hearing the Regional Administrator will issue final permit decisions and notify the applicants and each person who has submitted written comments or requested notice.

KEN MORAFF, DIRECTOR
WATER DIVISION
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