

**ENVIRONMENTAL PROTECTION AGENCY
REGION 1 NEW ENGLAND**

**ENVIRONMENTAL JUSTICE ANALYSIS
FOR CLEAN WATER ACT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS
FOR CHELSEA RIVER BULK PETROLEUM STORAGE FACILITIES**

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I. Permit Applicants and Facilities

EPA Region 1 New England has developed five draft National Pollutant Discharge Elimination System (NPDES) permits for bulk petroleum storage facilities (the Facilities) located along the Chelsea River (also known as Chelsea Creek) in Chelsea, East Boston, and Revere, Massachusetts in accordance with the requirements of the Clean Water Act (CWA). The Facilities and their respective NPDES permit numbers are:

Global Companies LLC – Global Companies LLC Terminal

Permit: MA0000825¹

Location: 49/96, 71/140, and 10/186 Lee Burbank Highway, Revere, MA 02151

Receiving Waters: Chelsea River (MA71-06) and Sales Creek (MA71-12)

Gulf Oil Limited Partnership – Gulf Oil Terminal

Permit: MA0001091

Location: 281 Eastern Avenue, Chelsea, MA 02150

Receiving Water: Chelsea River (MA1-06)

Irving Oil Terminals, Inc – Irving Oil Revere Terminal

Permit: MA0001929

Location: 40/41 Lee Burbank Highway, Revere, MA 02151

Receiving Water: Chelsea River (MA71-06)

Chelsea Sandwich LLC - Chelsea Sandwich Terminal

Permit: MA0003280

Location: 11 Broadway, Chelsea, MA 02150

Receiving Water: Chelsea River (MA71-06)

Sunoco Partners Marketing and Terminals LP – Sunoco Logistics East Boston Terminals

Permit: MA0004006

Location: 467 Chelsea Street, East Boston, MA 02128

Receiving Water: Chelsea River (MA71-06)

These facilities receive, store, and distribute petroleum products and additives such as gasoline, diesel, kerosene, jet fuel, and fuel oil. Currently, petroleum products and additives are primarily received in bulk quantities by ship or barge at a marine vessel dock and transferred to aboveground steel tanks located within each facility's tank farm area for storage. The petroleum products are transported off-site in smaller vessels such as tanker trucks, or via pipeline.

The approximate petroleum product storage capacities for the Facilities under each permit is summarized in the table below.²

¹ EPA is consolidating into one permit the three permits issued to Global Companies LLC in 2014 for the following facilities: Global South (MA0000825), Global Petroleum (MA0003425) and Global REVCO (MA0003298).

² Additional details for each facility may be found in the fact sheets for the draft permits at <https://www.epa.gov/npdes-permits/chelsea-river-bulk-petroleum-storage-facilities-mpdes-permits>.

Facility	Approximate Product Storage Capacity
Global Companies	89.5 million gallons
Gulf Oil	55 million gallons
Irving Oil	32 million gallons
Chelsea Sandwich	28 million gallons
Sunoco Partners	41.7 million gallons

The draft permits will limit water pollution from the five facilities by regulating stormwater runoff and non-stormwater discharges such as:

- Hydrostatic test water used during maintenance or replacement of tanks and pipelines
- Treated groundwater from groundwater remediation or infiltration
- Boiler blowdown and steam condensate from steam boilers

II. Executive Summary

In March 2014, EPA issued an Environmental Justice (EJ) Analysis in support of NPDES permits issued for the Facilities that went into effect in December 2014.³ This document is an updated EJ Analysis in support of the draft NPDES permits currently issued by EPA. This EJ Analysis was developed in compliance with Presidential Executive Order 12898 (Executive Order 12898), *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and explains EPA’s efforts to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of EPA’s current permitting actions on minority populations and low-income populations. Through the process of developing the draft permits, EPA considered concerns expressed by members of the public regarding the Facilities and, where allowable by law, addressed these concerns through the inclusion of appropriate terms and conditions in the draft permits. Although EPA acknowledges that the Chelsea River and surrounding communities are impacted by many environmental burdens, EPA has determined that the facilities’ 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.

III. Background

A. Regulatory Framework

Congress enacted the Federal Water Pollution Control Act, codified at 33 U.S.C. § 1251 – 1387 and commonly known as the 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

³ The 2014 EJ Analysis and 2014 draft and final permits for the Facilities may be found at: <https://www.epa.gov/npdes-permits/chelsea-river-bulk-petroleum-storage-facilities-npdes-permits#Background>. During a 60-day public comment period, EPA received comments on the 2014 draft permits and the EJ Analysis. Portions of the March 2014 EJ Analysis were updated and incorporated into the responses to comments that were issued with the final permits in September 2014.

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. Section 402(p) of the Act, 33 U.S.C. § 1342(p), and implementing regulation at 40 C.F.R. § 122.26, specifically require that facilities discharging stormwater associated with industrial activity obtain coverage under a permit.

The objective of the CWA is to restore and maintain the chemical, physical and biological integrity of the Nation's waters. Therefore, in addition to federal statutes and regulations, the CWA requires that each state develop water quality standards for all water bodies within each state. See CWA § 303 and 40 CFR §§ 131.10-12. The applicable state water quality standards can be found in [Title 314 of the Code of Massachusetts Regulations, Chapter 4 \(314 CMR 4.00\)](#).

Generally, water quality standards 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.

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 water quality standards, or the state waives, or is deemed to have waived, its right to certify. Regulations governing state certification are set forth in 40 CFR § 124.53 and § 124.55. EPA has requested permit certification by the Massachusetts Department of Environmental Protection (MADEP) pursuant to 40 CFR § 124.53 and expects that the draft permits will be certified.

B. Environmental Justice

When fulfilling its responsibilities and exercising its authorities under the CWA, EPA is guided by Executive Order 12898. Under Executive Order 12898, "[t]o the greatest extent practicable and permitted by law . . . 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 in the United States."⁴ [See Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Executive Order 12898, 59 Fed. Reg. 7629 \(Feb. 16, 1994\), § 1-101](#). Furthermore, "[e]ach Federal agency shall conduct its programs, policies, and activities that

⁴ Executive Order 12898 may be found at <https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf>.

substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of . . . subjecting persons (including populations) to discrimination under such programs, policies, and activities, because of their race, color, or national origin.” *Id.* § 2-2.

With respect to the public process, Executive Order 12898 also authorizes federal agencies to “translate crucial public documents, notices, and hearings relating to human health or the environment for limited English-speaking populations,” *id.* § 5-5(b) and requires federal agencies to “work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public,” *id.* § 5-5(c).

EPA is also guided by its own definition of EJ:

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.⁵

Environmental permits play a key role in providing effective protection of public health and the environment in communities. An objective of EPA’s EJ 2020 Action Agenda (EJ 2020), the Agency’s strategic plan for advancing EJ, is to consider EJ concerns in all appropriate EPA permitting activities. There may also be opportunities to address EJ concerns raised during the permitting process outside the statutory-specific permitting action.

In May 2013, EPA regional offices issued implementation plans that describe how the regions use screening criteria and other available information to prioritize which permits should receive enhanced outreach. The screening is also used to help identify which types of enhanced outreach are most appropriate. The *EPA Region 1 Regional Implementation Plan to Promote Meaningful Engagement of Overburdened Communities / Permitting Activities* 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 process⁶. 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.

⁵ Available at: <https://www.epa.gov/environmentaljustice>

⁶ Available at: <https://www.epa.gov/environmentaljustice/epa-region-1-regional-implementation-plan-promote-meaningful-engagement>

IV. Scope and Methodology

The purpose of this EJ Analysis is to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of EPA's permitting actions regarding the Facilities on minority and low-income populations. In addition, EPA will use the EJ Analysis to more fully characterize the demographic, economic, environmental, and health factors surrounding the Facilities and nearby populations.

This analysis of EJ issues and concerns is focused on an area within a one-mile radius of the Chelsea River in the vicinity of the Facilities (the "Study Area") (see Figure 1).⁷ EPA believes this Study Area is appropriately sized to capture characteristics relevant to the population most likely impacted by EPA's NPDES permitting actions while not so large as to dilute the analysis with populations that are farther away and less likely to be impacted. Based on information from the U.S. Census Bureau's 2013-2017 American Community Survey 5-year summary report, there are 111,005 people who live within the Study Area with a population density of 16,106 per square mile.

The communities that border the Chelsea River include the City of Chelsea, the City of Revere and East Boston (a neighborhood of the City of Boston). As defined by the Massachusetts Executive Office of Energy and Environmental Affairs' (EEA) 2017 EJ Policy, "EJ populations" reside in most areas in East Boston, Chelsea and Revere.⁸ Under EEA's 2017 EJ Policy these communities include "EJ populations" because they include neighborhoods where 25% of the households have an annual median household income that is equal to or less than 65% of the statewide median or 25% of its population is Minority⁹ or identifies as a household that has English Isolation¹⁰. Figure 1 shows where EJ populations as defined by EEA's 2017 EJ Policy reside in the Study Area.

V. Description of Communities

In order to gain a better understanding of the demographic, economic, environmental, and health information in the Study Area, EPA collected readily available data which are summarized below. These data help assess the susceptibility of the host population, ability of host population to participate in decision-making, and distribution of environmental burdens.

⁷ In addition to Chelsea, Revere and East Boston, the Study Area includes areas located in Everett and Charlestown.

⁸ Available at http://maps.massgis.state.ma.us/map_ol/ej.php

⁹ Defined as individuals who identify themselves Latino/Hispanic, Black/African American, Asian, Indigenous people, and people who otherwise identify as non-white.

¹⁰ Defined as referring to households that are English Language Isolated according to federal census forms, or do not have an adult over the age of 14 that speaks only English or English very well.

A. Social Demographics

EPA compiled demographic indicators for the Study Area as well as comparable indicators for the Commonwealth of Massachusetts using EJSCREEN, EPA’s environmental justice mapping and screening tool, and the U.S. Census Bureau’s 2013-2017 American Community Survey (ACS)¹¹.

Demographic Indicator	Study Area	Massachusetts
Population by Race		
White	60%	78.9%
Black	6%	7.4%
Asian	5%	6.3%
Some other race	7%	4.1%
Population Reporting Two or More Races	22%	3.1%
Total Hispanic Population	55%	11.2%
Per Capita Income	\$28,822	\$39,913
Non-English at Home	65%	23.1%

Sources:

Study Area: EJSCREEN ACS Summary Report. (see Attachment A).

State: U.S. Census Bureau, 2013-2017 American Community Survey.

<https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2017/>

(Tables DP03 and DP04).

Overall the percent of the population residing within the Study Area that identifies itself as Hispanic in origin is about five-fold greater than that reported for the state as a whole and more than half of the individuals residing in the study area report speaking a language other than English in the home. Additionally, the per capita income reported for residents in the study area is approximately 28% less than the per capita income reported for all Massachusetts residents.

B. Environment

EPA compiled readily available data on surface water quality and sites or facilities located in the Study Area in Chelsea, Revere, East Boston, Everett and Charlestown.

1. Surface Water Quality

Four facilities each operate one outfall that discharges into Chelsea River. One facility, Global Companies, operates three outfalls that discharge into Chelsea River and one outfall that discharges into Sales Creek. Chelsea River is an urban tidal river flowing from the mouth of Mill Creek, between Chelsea and Revere, to Boston’s Inner Harbor, between East Boston and Chelsea. This segment consists of 0.37 square miles between the confluence with Mill Creek, in Chelsea and Revere to the confluence with

¹¹ EJSCREEN is available at: <https://www.epa.gov/ejscreen>. ACS data is available through EJSCREEN or through the United States Census Bureau at: <https://www.census.gov/programs-surveys/acs/data.html>.

Boston Inner Harbor, in Chelsea, East Boston and Charlestown. The Chelsea River is part of the Mystic River Basin and the Boston Harbor Drainage Area. Sales Creek is a small water body which flows into Belle Isle Marsh and into Winthrop Bay. Sales Creek consists of 0.01 square miles from the headwaters near Route 145, Revere to Bennington Street tide gate/confluence with Belle Isle Inlet, in Boston and Revere.

For centuries Chelsea River has been flanked by working industries which have used the channel to transport raw materials and finished goods. The Chelsea River is one of ten Designated Port Areas (DPAs) established by the Massachusetts Office of Coastal Zone Management (CZM) to promote and protect water-dependent industrial uses.¹² CZM's Port and Harbor Planning Program's primary goals are to help ensure that waterfront areas in Massachusetts grow in a safe, environmentally sound and economically prosperous manner that balance potentially competing uses within a port or harbor.¹³

Most of the Facilities are located within the Chelsea Creek DPA, with the exception of the Chelsea Sandwich facility, which is located within the Mystic River DPA. According to CZM these DPAs have "particular physical and operational features important for water-dependent industrial uses—such as commercial fishing, shipping, and other vessel-related marine commercial activities—and/or for manufacturing, processing, research, and production activities that require marine transportation or need large volumes of water for withdrawal or discharge. While water-dependent industrial uses vary in scale and intensity, they all generally share a need for infrastructure with three essential components: (1) a waterway and associated waterfront that has been developed for some form of commercial navigation or other direct utilization of the water; (2) backland space that is conducive in both physical configuration and use character to the siting of industrial facilities and operations; and (3) land-based transportation and public utility services appropriate for general industrial purposes"¹⁴.

NPDES permits which authorize discharges within the coastal zone must undergo a federal consistency review with CZM before final issuance. This review is completed to ensure that permitting actions align with Massachusetts' policy to "preserve and enhance the capacity of the DPAs to accommodate water-dependent industrial uses and prevent significant impairment by non-industrial or non-water-dependent types of development, which have a far greater range of siting options."¹⁵ The draft permits are not expected to conflict with the Chelsea or Mystic River DPAs.

As discussed in the fact sheets for the draft permits, MADEP's federally-approved water quality standards classify the segment of the Chelsea River to which the facilities discharge as Class SB (CSO).¹⁶ Class SB waters are described in the Commonwealth of Massachusetts Surface Water Quality Standards at 314 CMR 4.05(4)(b) as follows: "*These waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. In certain waters, habitat for fish, other aquatic life and*

¹² Information available at: <https://www.mass.gov/service-details/czm-port-and-harbor-planning-program-designated-port-areas>

¹³ See <https://www.mass.gov/service-details/overview-and-index-czm-port-and-harbor-planning-program>

¹⁴ <https://www.mass.gov/service-details/czm-port-and-harbor-planning-program-designated-port-areas>. Maps depicting the boundaries of the Chelsea Creek and Mystic River DPAs are available at <https://www.mass.gov/service-details/designated-port-area-boundary-maps>.

¹⁵ *Id.*

¹⁶ [http://water.epa.gov/scitech/swguidance/standards/water quality standardslibrary/upload/mawqs figures tables.pdf](http://water.epa.gov/scitech/swguidance/standards/water%20quality/standardslibrary/upload/mawqs_figures_tables.pdf)

wildlife may include, but is not limited to, seagrass...These waters shall have consistently good aesthetic value.”

Sales Creek is classified as SA (ORW). Class SA waters are described in the Commonwealth of Massachusetts Surface Water Quality Standards at 314 CMR 4.05(4)(a) as follows: “These waters are designated as an excellent 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, excellent habitat for fish, other aquatic life and wildlife may include, but is not limited to, seagrass. Where designated in the tables to 314 CMR 4.00 for shellfishing, these waters shall be suitable for shellfish harvesting without depuration (Approved and Conditionally Approved Shellfish Areas). These waters shall have excellent aesthetic value.” The Outstanding Resource Water (ORW) designation is related to the presence of Areas of Critical Environmental Concern (i.e., Rumney Marshes).¹⁷ Shellfishing is a designated use.

Since 2006, EPA Region 1 has assigned a water quality report card grade for the Mystic River Watershed (which includes the Chelsea River) based on bacterial contamination. Prior to 2014, a single grade was assigned to the watershed as a whole. Since calendar year 2014, EPA, in coordination with the Mystic River Watershed Association (MyRWA), has utilized an enhanced, more locally-specific analysis of water quality in the Mystic River Watershed to better illuminate environmental conditions for the public. Since 2014, EPA and MyRWA have issued grades for each segment of the watershed, totaling 14 separate stretches of the river and its tributaries, including the Chelsea River. Grades are based on how frequently waterbodies meet bacteria standards for swimming and boating. The Chelsea River segment of the watershed has received the following grades between 2014 and 2019¹⁸:

Year	Water Quality Grade	Compliance Rate
2019	A	90.4%
2018	A	95.0%
2017	A	94.6%
2016	A	91.2%
2015	A-	90.0%
2014	A-	87.0%

Finally, the 2014 permits required the facilities to collect and analyze samples of the Chelsea River in the vicinity of each facility’s outfall(s). This included the receiving water chemical analysis conducted as part of the Whole Effluent Toxicity (WET) testing requirements and the pollutant scan monitoring requirements of the permits. Results indicate that, overall, the pollutants required for this monitoring are generally not present in detectable amounts in the Chelsea River in the vicinity of the petroleum bulk storage facility outfalls. The pollutants detected on at least one occasion in the vicinity of each facility’s outfall(s) were as follows:

- Chelsea Sandwich Outfall 001: six of seven Group I polycyclic aromatic hydrocarbons (PAHs), four of nine Group II PAHs, total residual chlorine (TRC), total suspended solids (TSS), ammonia,

¹⁷ Massachusetts Areas of Critical Environmental Concern at: <https://www.mass.gov/doc/massachusetts-areas-of-critical-environmental-concern-acecs-statewide-map/download>.

¹⁸ EPA’s 2019 Mystic River Watershed 2019 Report Card Map is attached as Figure 2 and may be found at: <https://www.epa.gov/mysticriver/mystic-river-watershed-report-cards>

- copper, lead, nickel, and zinc;
- Global Companies Outfall 001: five of nine Group II PAHs, TRC, TSS, ammonia, copper, lead, nickel, and zinc;
- Global Companies Outfall 002: one of nine Group II PAHs, TRC, TSS, ammonia, and zinc;
- Global Companies Outfall 004: six of seven Group I PAHs, seven of nine Group II PAHs, TRC, TSS, ammonia, copper, lead, nickel, and zinc;
- Gulf Oil Outfall 003: seven of seven Group I PAHs, five of nine Group II PAHs, TRC, TSS, ammonia, cadmium, copper, lead, nickel, and zinc;
- Irving Oil Outfall 001: TRC, TSS, ammonia, copper, lead, nickel, and zinc; and
- Sunoco Logistics Outfall 001: BTEX, six of seven Group I PAHs, six of nine Group II PAHs, TRC, TSS, ammonia, cadmium, copper, lead, nickel, and zinc.

2. Regulated Facilities or Sites

The number and type of regulated facilities or sites located within the Study Area is summarized below and a full list of regulated facilities or sites is included as Attachment B. The location of these facilities or sites is depicted in Figure 1. The criteria that EPA and MADEP use in determining which sites or facilities to track varies depending on the particular type of site or facility involved. The fact that sites and facilities are tracked by the agencies does not necessarily reflect any conclusion regarding the extent to which particular sites or facilities present a health or environmental hazard to the surrounding community.

Number and Type of Regulated Facilities or Sites¹⁹

Site Type	Study Area	Chelsea	East Boston	Revere	Everett	Charlestown
MassDEP Tier Classified Hazardous Waste Sites	43	12	11	7	7	3
Combined Sewer Outfalls (CSOs)	9	3	5	0	0	1
Toxic Release Inventory (TRI)	24	12	2	4	3	0
Air Facility System (AFS) Major	6	1	1	2	1	0
AFS Minor	55	22	3	8	4	4
NPDES Major	2	1	1	0	0	0
NPDES Non-Major	69	26	11	12	1	3
Resource Conservation and Recovery Act (RCRA) Large Quantity Generators (LQGs)	17	6	2	4	1	2
Risk Management Plan facilities	2	1	0	1	0	0

Sources: See Attachment B and Figure 1

¹⁹ Some facilities or sites may fall into more than one of the site types listed below and in Attachment B.

C. EJSCREEN Indicators and Indexes

EJSCREEN is an EJ mapping and screening tool that provides EPA and the public with a nationally consistent dataset and approach for combining environmental and demographic indicators into “EJ Indices.” EJSCREEN uses “EJ Indices” to highlight places that may have higher environmental burdens and vulnerable populations for each United States census block group. The EJ Indices are a combination of one or more environmental data measure overlaid with minority and/or low-income demographic data measures.

EJSCREEN uses six demographic factors as very general indicators of a community’s potential susceptibility to environmental pollution. As shown in greater detail in Attachment C, an EJ Screen standard report for the Study Area indicates the following state and national percentiles for the six demographic indicators²⁰:

Demographic Indicator	State Percentile	National Percentile
Minority Population	89	77
Low Income Population	84	71
Linguistically Isolated Population	94	95
Population with Less Than High School Education	92	88
Population under 5 Years of Age	80	72
Population over 64 Years of Age	27	32

Source: <https://www.epa.gov/ejscreen>

EJSCREEN’s EJ indices provide a measure of a location’s relative rank (expressed as a percentile in units from 0 to 100) compared to other census block groups in a state, EPA Region, or nationally. For example, an area that is ranked in the 80th percentile nationwide for particulate matter (PM) means that only 20% of the nation has a greater potential for exposure to particulate matter. Ranking values as percentiles allows comparison of indicators measured with different units but it does not mean that the risks are equal or comparable. An EJ index value of 80% or greater nationally is often used to indicate potential EJ concerns and trigger additional evaluation.

As shown in greater detail in Attachment C, an EJ Screen standard report for the Study Area indicates the following state and national percentiles for the eleven EJ Indices²¹:

EJ Index	Key Medium	State Percentile	National Percentile
Particulate Matter (PM) 2.5	Air	90	75
Ozone	Air	89	77

²⁰ Information explaining the demographic indicators in greater detail may be found at: <https://www.epa.gov/ejscreen/overview-demographic-indicators-ejscreen>

²¹ Information explaining the EJ Indices in greater detail may be found at: <https://www.epa.gov/ejscreen/overview-environmental-indicators-ejscreen>

National-Scale Air Toxics Assessment (NATA) Diesel PM	Air	95	87
NATA Air Toxics Cancer Risk	Air	91	77
NATA Respiratory Hazard Index	Air	92	78
Traffic Proximity and Volume	Air/other	96	95
Lead Paint Indicator	Dust/lead paint	90	91
Superfund Proximity	Waste/air/water	87	79
Risk Management Program (RPM) Proximity	Waste/air/water	95	90
Hazardous Waste Facilities Proximity	Waste/air/water	96	95
Wastewater Discharge Indicator	Water	98	96

Source: <https://www.epa.gov/ejscreen>

Please refer to Figure 3 for EJSCEEN maps depicting national percentiles for each demographic indicator and EJ index within the Study Area.

D. Health

EPA compiled health indicators and asthma and cancer incidence rate data from the Massachusetts Department of Public Health (MADPH) Environmental Public Health Tracking Network database using the most recent data available. This database contains health information for Boston, Revere, Chelsea, and Everett as well as for the state of Massachusetts and was chosen because the scale of health data resolution (e.g., town versus county level) is finer than that afforded by other databases. Unfortunately, health statistics were not of fine enough resolution to enable health characterizations specific to the Study Area. In presenting this health information, it should not be concluded that the incidence of health conditions in these towns is specifically or directly linked to the existence of any particular pollution source in or affecting the area, or of pollution in general.

Community Health Status Indicators and Asthma Data

Health Status Indicator	City of Boston	City of Revere	City of Chelsea	City of Everett	Mass State
Percent of low birth weight ²²	2.6%	1.7%	2.6%	2.3%	2.2%
Lead poisoning case rate ²³	3.0	2.0	4.6	3.5	3.1
Age-adjusted rate of cancer ²⁴	181.3	197.2	192.5	212.8	170.3
Age-adjusted rate of lung cancer deaths ²⁵	100	131	125	133	NA
Age-adjusted rate of breast cancer incidences ²⁶	95	95	81	89	NA
Age adjusted rate of hospitalization for heart attack ²⁷	22.4*	29.6	32.9	41.1*	25.3

²² Percent of low birthweight (<2,500 grams) live single term births (2015)

²³ Lead poisoning rates is expressed per 1,000 children screened (2017)

²⁴ Age-adjusted rate of cancer death per 100,000 persons (2010)

²⁵ Standardized indirect cancer rates (2009-2013)

²⁶ Standardized indirect cancer rates (2009-2013)

²⁷ Age Adjusted Rates of Hospital Admission for Myocardial Infarction per 10,000 People Age 35+ (2016)

Total age-adjusted rate of asthma inpatient hospitalization ²⁸	13.3*	8.6	15.0*	10.1	7.9
Under 5 years of age	2.65*	2.00	3.54	2.40	NA
Age 65 and older rate	1.27*	0.59	2.52	0.70	NA
Age-adjusted rate for emergency room visits for asthma ²⁹	97.1*	61.1	91.5*	86.4*	61.1
Pediatric asthma prevalence ³⁰	16.8	8.5	10.5	9.8	12.1

NA = not available.

Source: <https://matracking.ehs.state.ma.us/Health-Data/index.html>. This source was accessed in October 2020.

Cancer incidence rates for several cancer types are presented in the table below based on the tumor types associated with key petroleum constituents included in the NPDES permits. Two key constituents of petroleum that are carcinogenic and included in the NPDES permits include benzene which is known to cause leukemia in humans and benzo(a)pyrene, a PAH that is a probable human carcinogen based on evidence that it causes stomach, larynx, and esophageal tumors in laboratory animals. While other PAHs with carcinogenic potential are present in petroleum products (e.g. benzo(a)anthracene), as a matter of policy, EPA indexes the toxicity of carcinogenic PAHs to that of the more thoroughly studied benzo(a)pyrene. Consequently, benzo(a)pyrene is commonly used as a surrogate for these other carcinogenic PAHs. Other constituents in petroleum include hydrocarbons (e.g. toluene, xylenes), but these have not been classified as to their carcinogenicity by EPA or the International Agency for Research on Cancer. Standard incidence ratios (SIRs)³¹ for select tumor types relevant to several key constituents included in the NPDES permits are presented in the table below.

Standard Incidence Ratios of Selected Cancers in Select Massachusetts Towns (2009-2013)

(95% confidence limits in parentheses)

Tumor type	Chelsea	Boston	Everett	Revere
Leukemia- males	115 (61-197)	78 (66-91)	66 (32-121)	140 (95-198)
Leukemia -females	119 (75-178)	80 (71-89)	85 (54-128)	108 (78-146)
Larynx-males	158 (58-345)	123 (99-152)	11 (41-242)	111 (41-242)
Larynx-females	144 (58-297)	109 (89-132)	111 (48-218)	169 (100-268)

²⁸ Asthma rates per 10,000 people (2016)

²⁹ Asthma rates per 10,000 people (2016)

³⁰ Asthma prevalence for children enrolled in Kindergarten through 8th grade (2016-2017)

³¹ Standard Incidence Ratio (SIRs) represent the observed number of cancer cases (for the period of interest) divided by the expected number of cases based on state-specific average annual age-specific incidence rates, which is then multiplied by 100. A SIR is an indirect method of adjustment for age and sex that describes in numerical terms how a city or town's cancer experience in a given time period compares with that of the state as a whole. An SIR of *more than 100* indicates that a city/town's incidence of a certain type of cancer is *higher than expected* for that type of cancer based on statewide average annual age-specific incidence rates whereas a SIR less than 100 is *lower than expected* based on statewide average age-specific incidence rates.

Esophagus-males	92 (81-117)	98 (81-117)	130 (67-226)	78 (39-140)
Esophagus-females	74 (27-162)	97 (82-114)	117 (64-196)	89 (51-144)
Stomach- males	169 (81-311)	152 (129-177)	179 (100-295)	148 (89-231)
Stomach- Female	139 (74-238)	150 (132-169)	152 (94-233)	130 (85-189)

Data were not available for the neighborhoods of East Boston or Charlestown for this reporting period. Shading indicates statistically significant elevated rates.

Source: <https://matracking.ehs.state.ma.us/Health-Data/index.html>. This source was accessed in October 2020.

EPA also referred to health disparity data provided as Appendix 3 to its Response to Comments attached to the final 2014 NPDES permits for the Facilities.³² To the best of EPA’s knowledge, MADPH has not updated its report titled *Racial and Ethnic Health Disparities by EOHHS Regions in Massachusetts: Greater Boston Region* (November 2007). This report was the primary source of the health disparities information included in EPA’s 2014 Response to Comments attached to the final 2014 NPDES permits. To the best of EPA’s knowledge, MADPH’s Environmental Public Health Tracking Network database does not include updated health disparity data sets posted by location and by racial and ethnic identity. Appendix 3 to EPA’s 2014 Response to Comments is attached to this EJ Analysis as Attachment D.

E. Compliance and Enforcement

EPA’s Enforcement and Compliance History Online (ECHO)³³ database provides summary information of state and federal compliance and enforcement records for facilities regulated under the CWA, the Clean Air Act (CAA), the Resource Conservation and Recovery Act (RCRA) and the Safe Drinking Water Act (SDWA). The table below includes information about the CWA compliance and enforcement history of the Facilities, including the number of calendar quarters that a numerical value in each of the Facilities current NPDES permit was exceeded during the past three years, the total number of federal and state CWA inspections conducted during the past five years and the date of the most recent CWA inspection for each facility. No federal or state enforcement actions have been taken against the Facilities for CWA violations during the past five years.

³² EPA’s 2014 response to comments may be found here attached to each Facilities’ 2014 final permit: <https://www.epa.gov/npdes-permits/chelsea-river-bulk-petroleum-storage-facilities-npdes-permits>

³³ EPA’s ECHO database may be found at: <https://echo.epa.gov/>

CWA Compliance and Inspection History

Facility/Permit Number	Date of Most Recent CWA Inspection	Number of Federal CWA Inspections (last 5 years)	Number of State CWA Inspections (last 5 years)	Brief Description of Potential NPDES Permit Compliance Issues Indicated in ECHO (last 3 years)
Global Petroleum Terminal (MA0003425)	9/28/2017	3	1	4 months of benzene discharge limit exceedances
Global Revco Terminal (MA0003298)	4/13/2017	2	0	1 month of benzene discharge limit exceedances; 1 month of benzo(a)pyrene discharge limit exceedances; 2 months of total suspended solids (TSS) discharge limit exceedances
Global South Terminal (MA0000825)	4/14/2017	2	0	No compliance issues indicated
Gulf Oil Terminal (MA0001091)	7/19/2017	3	0	1 month of benzo(a)pyrene discharge limit exceedances; 8 months of TSS discharge limit exceedances; 3 months of pH discharge limit exceedances
Irving Oil Terminal (MA0001929)	7/21/2017	3	0	1 month of TSS discharge limit exceedances
Chelsea Sandwich (MA0003280)	6/15/2017	3	0	1 month of oil & grease discharge limit exceedances; multiple quarters of late or missing Discharge Monitoring Report (DMR) measurements
Sunoco Logistics– East Boston (MA0004006)	4/24/2019	3	0	1 month of benzo(a)pyrene discharge limit exceedances; 2 months of pH discharge limit exceedances; multiple quarters of late or missing DMR measurements

Source: <https://echo.epa.gov/>. Database accessed October 16, 2020.

All of the federal CWA inspections referenced above were focused on assessing the Facilities' compliance with the Oil Pollution Act and Section 311(j) of the CWA³⁴ under which all of the Facilities are required to prepare and submit a Facility Response Plan (FRP). FRP's demonstrate a facility's preparedness to respond to a worst-case oil discharge.³⁵ The state CWA inspection referenced above was focused on assessing compliance with the former Global Petroleum Terminal's NPDES permit.

A comprehensive and robust compliance and enforcement program is a critical component of an effective NPDES program. EPA uses a number of mechanisms, including inspections, to ensure compliance with the permits. Inspections of facilities with NPDES permits are performed by EPA and MADEP. EPA also regularly inspects the Facilities for their compliance with the Oil Pollution Act. EPA's

³⁴ Additional information about the Oil Pollution Act may be found at <https://www.epa.gov/laws-regulations/summary-oil-pollution-act>.

³⁵ Additional information about Facility Response Plans may be found at: <https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/facility-response-plan-frp-overview>.

inspection frequency depends on such factors as the regulatory requirements of the program, the compliance history of the facility, the EPA resources available to perform inspections and the extent of competing environmental priorities. Monitoring results are reviewed with the goal of prioritizing inspections as well as for resolving any violations identified in a timely manner. EPA attempts to take all of the above factors into account when developing an appropriate inspection frequency. The inspections conducted by EPA include both announced and unannounced inspections. Depending upon the specific circumstances of an inspection, the permittee may or may not be notified prior to the inspection. Each agency and program uses different criteria to determine the most appropriate type of inspection.

During the past five years, EPA or Massachusetts have taken a small number of formal enforcement actions against facilities in the Study Area, including one formal enforcement action under the CAA that included Gulf Oil Terminal. In September 2020 a final order was issued in a civil judicial action in which Gulf Oil Limited Partnership paid a \$2.4 million penalty to the United States for alleged violations of fuel standards under Section 211 of the CAA at its Chelsea and South Portland, ME facilities. Other formal enforcement actions include:

- Civitas Therapeutics, 190 Everett Ave., Chelsea, MA – In September 2020, Civitas Therapeutics paid a \$6,310 civil penalty to the Commonwealth of Massachusetts for alleged RCRA hazardous waste generator violations.
- Kayem Foods, 75 Arlington St., Chelsea, MA - In July 2019 a Final Order was issued in a civil judicial action in which Kayem Foods paid a \$138,000 penalty for alleged violations of Risk Management Plan regulations under Section 112(r) of the CAA.
- Revere Water Department (MWRA), Revere, MA – In November 2017 MADEP issued an administrative compliance order without penalty for Lead and Copper Rule monitoring and reporting violations under the SDWA.
- JSB Industries, 130 Crescent Ave., Chelsea, MA – In August 2016 a Final Order was issued in a civil judicial action in which JSB Industries paid a \$156,000 penalty to the United States and agreed to implement a supplemental environmental project valued at \$119,000 for alleged violations of the general duty clause under Section 112(r) of the CAA, the chemical release notification requirements under Section 103 of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and chemical inventory reporting requirements under Sections 311 and 312 of Emergency Planning and Community Right-to-Know Act (EPCRA). Most of the violations stemmed from a 2009 release of anhydrous ammonia from a refrigeration system at the company's Chelsea facility.

Also, in May 2020, EPA and the Commonwealth of Massachusetts entered into a proposed settlement with Sprague Resources LP to limit emissions of volatile organic compounds from heated petroleum storage tanks at seven facilities across New England, including Sprague's facility located at 43 Beacham Street in Everett. This facility is located outside of the Study Area and west of the area depicted in Figure 1. Under the terms of the proposed settlement, Sprague must apply for a revised state air pollution control permit which will limit the amount of #6 fuel oil and asphalt the company can pass through the Everett facility and will limit the number of tanks that can store #6 oil and asphalt at any one time. Under the agreement, Sprague will pay \$350,000 in civil penalties. At present the United States and the Commonwealth of Massachusetts are reviewing public comments received on the settlement.

VI. Description of Discharges

The following types of discharges are authorized under the Facilities' NPDES permits, subject to each permit's terms and conditions.

Discharge A (Stormwater) – Any discharge resulting from rainwater and runoff from surfaces, gutters and drains, or infrastructure including marine vessel dock, tank farm, and terminal yard areas within the facilities subject to the permits. All facilities discharge stormwater after treatment.

Discharge B (Hydrostatic Test Water) – Any wastewater resulting from maintenance and/or testing of tanks and/or pipe networks used for the storage and conveyance of petroleum products within the facilities subject to the permits. All facilities discharge hydrostatic test water after treatment.

Discharge C (Groundwater Remediation Effluent) – Any wastewater resulting from the removal and treatment of contaminated groundwater within the facilities subject to the permits. Three facilities discharge groundwater effluent after treatment.

Discharge D (Boiler Blowdown/Steam Condensate) – Any wastewater resulting from the water withdrawn from steam boilers as part of the required operation and maintenance within the facility subject to the permit. One facility discharges small volumes (i.e., ½ gallon per day) after treatment.

Discharge E (Allowable Non-Stormwater Discharges) – Any water that consists of discharges from emergency/unplanned fire-fighting activities, fire hydrant flushings, potable water, uncontaminated condensate, irrigation drainage, landscape watering, pavement wash waters, routine external building washdown/power wash water, uncontaminated groundwater or spring water, uncontaminated foundation or footing drain flows, and incidental windblown mist from cooling towers.

Please see the table below for discharge types and maximum total monthly discharge volumes on a per facility basis for each outfall as reported on discharge monitoring reports from the previous five years, December 1, 2014 through November 30, 2019. Where multiple discharge types are discharged from the outfall, the maximum total monthly discharge represents the total volume discharged from the outfall and does not differentiate between discharge types. The maximum discharge volumes are summarized in the table below in million gallons per month (MG/Mo).

Facility Discharge Volumes

Facility	Outfall	Discharge Type	Maximum Volume (MG/Mo)
Sunoco Logistics	Outfall 001	A (Stormwater), B (Hydrostatic Test Water), E (Allowable Non-stormwater Discharges)	3.19
Irving Oil	Outfall 001	A (Stormwater), B (Hydrostatic Test Water), E (Allowable Non-stormwater Discharges)	17.2

Global Companies (former Global South)	Outfall 001	A (Stormwater), B (Hydrostatic Test Water), E (Allowable Non-stormwater Discharges)	9.82
(former Global Petroleum)	Outfall 001, renamed Outfall 002 in the draft permit	A (Stormwater), B (Hydrostatic Test Water), C (Groundwater Remediation Effluent), E (Allowable Non-stormwater Discharges)	2.66
	Outfall 002 (internal), eliminated in the draft permit	A (Stormwater), B (Hydrostatic Test Water), E (Allowable Non-stormwater Discharges)	2.88
	Outfall 003 (internal)	C (Groundwater Remediation Effluent)	0.09179
(former Global REVCO)	Outfall 001, renamed Outfall 004 in draft permit	A (Stormwater), E (Allowable Non-stormwater Discharges)	0.139
	Outfall 005 (to Sales Creek)	A (Stormwater), B (Hydrostatic Test Water), E (Allowable Non-stormwater Discharges)	7.17
Gulf Oil	Outfall 003	A (Stormwater), B (Hydrostatic Test Water), E (Allowable Non-stormwater Discharges)	4.09
Chelsea Sandwich	Outfall 001	A (Stormwater), B (Hydrostatic Test Water), C (Groundwater Remediation Effluent), D (Boiler Blowdown), E (Allowable Non-stormwater Discharges)	1.116
	Outfall 002 (internal)	003 (Groundwater Remediation Effluent)	0.129

Source: Draft Permit Fact Sheet Appendix A, per facility

VII. EPA's Consideration of Environmental Justice During the Permitting Process

This section describes how EPA considered EJ during the permitting process and evaluates the potential impacts of EPA's permitting actions.

A. Public Participation and Outreach

Meaningfully engaging overburdened communities, or communities with a significant interest in the permitting process, can help community members be actively engaged and improve the outcome of the permitting process for all participants, including permitting authorities, community members, and permit applicants. The permitting actions where EPA engages in one or more enhanced outreach activity, and the types of outreach activities, depends on site-specific considerations and resource

availability. Enhanced outreach includes those activities that go beyond public involvement activities required under the CWA.

Required public participation activities include:

- Providing public notices of EPA actions related to a permit application, including issuing a draft permit
- Providing a formal public comment period on the proposed permit action
- Providing a public hearing if there is a significant degree of public interest

Consistent with the *2013 EPA Region 1 Regional Implementation Plan to Promote Meaningful Engagement of Overburdened Communities in Permitting Activities*, EPA's enhanced outreach activities for these permits will include:

- Coordination with MADEP on the public comment process, to the extent practicable
- Phone calls and/or email notification and outreach to community stakeholders regarding the draft permits
- A 60-day public comment period, rather than the required minimum of 30 days
- Hosting a virtual public informational meeting in December 2020. During this virtual meeting, EPA will present an overview of the draft permits and the EJ Analysis and answer questions from meeting participants. 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, this meeting will be conducted virtually and will be accessible by computer, mobile device or telephone.
- Hosting a formal 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, this hearing will be conducted virtually and will be accessible by computer, mobile device or telephone.
- Providing translation and interpretation services in the primary languages spoken by community members at the virtual public meeting and hearing
- Placement of notices of the virtual public meeting and hearing in local publications
- Translating key documents into the primary languages spoken by community members
- Designating an EPA point of contact that the community can contact to discuss EJ concerns. This contact is Marcus Holmes, Environmental Justice Coordinator, EPA Region 1. Marcus can be contacted at holmes.marcus@epa.gov or at 617-918-1630.
- Developing a concise information sheet for the benefit of the community, explaining in simple language the permits and the public process. This document will be translated into the primary languages spoken and understood by community members

EPA will address written and oral comments it receives regarding EJ concerns raised by the public in EPA's response to comments on the draft NPDES permits. To the extent permissible under the CWA, EPA will consider including additional conditions in the final permits that address EJ concerns raised during the public comment period.

B. Potential Impacts of EPA’s Proposed NPDES Permitting Actions

1. Potential Impacts on Designated Uses of Chelsea River

Under Section 301 of the CWA, “the discharge of any pollutant by any person shall be unlawful,” unless in compliance with, among other things, a NPDES Permit issued pursuant to Section 402 of the Act. In this action, EPA is re-issuing permits under the NPDES program that authorize the Facilities to discharge certain pollutants to the Chelsea River and Sales Creek, subject to particular limits and conditions. Under the draft permits, discharges from the Facilities must meet the numeric limits and requirements derived in accordance with the CWA and the Massachusetts Surface Water Quality Standards. It is important to understand that Executive Order 12898 is not a statute and, therefore, does not provide EPA with additional authority beyond that granted to EPA by the CWA. Rather, EPA is required to implement Executive Order 12898 “consistent with, and to the extent permitted by, existing law.” *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, Executive Order 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994), § 6-608. Thus, Executive Order 12898 gives EPA discretion to determine how best to implement its mandate within the confines of existing law, which here consists principally of the CWA. EPA evaluated the impact of reissuing NPDES permits to these Facilities in relation to the status of and potential impacts on the designated uses of the Chelsea River. Executive Order 12898 does not dictate any particular outcome in this permit decision, and the CWA does not appear to provide EPA with any general authority to impose permit conditions based on EJ considerations that are not connected to water quality impacts or technology-based limitations. As such, proposed conditions in the draft permits focus on technology-based effluent limitations (both numeric and non-numeric, and requirements such as control measures, including best management practices (BMPs), and corrective actions) and water quality impacts (including numeric limitations and narrative requirements) to the designated uses of the Chelsea River.

Chelsea River is listed in the *Massachusetts Year 2016 Integrated List of Waters* (303(d) List) as a Category 5 “Waters Requiring a TMDL.”³⁶ 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 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)³⁷ is presented below.

³⁶ *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->

³⁷ *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/eea/docs/dep/water/resources/71wqar09/71wqar09.pdf>

Summary of Designated Uses and Listing Status

Designated Use	Status	Cause of Impairment	Source(s)
Aquatic Life	Not Supporting	Sediment screening value, petroleum hydrocarbons, ammonia (un-ionized), dissolved oxygen	Unspecified urban stormwater, CSOs, industrial point discharge, 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 stated above, Chelsea River is not supporting designated uses for aquatic life, aesthetics, primary contact, secondary contact and fish consumption/shellfishing. 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 (that is, 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 Facilities are explicitly listed as the cause of these impairments, and the sources of these pollutants have been attributed to one or more current and/or historic activities at the Facilities. 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.³⁸ The fish consumption and shellfishing designated uses are not supported 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.

³⁸ 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.

The draft permits specifically limit pollutants listed in the impairments for Chelsea River that have been identified in the discharges from the Facilities. Limits are based on the more stringent of: 1) technology limits based on the performance of treatment technologies in use at one or more of the Facilities; or 2) water quality limits based on state water quality standards. Specifically, the draft permits limit ammonia, fecal coliform, petroleum hydrocarbons and pollutants related to sediment and taste/odor to ensure that discharges from the Facilities do not cause or contribute to the surface water impairment caused by these pollutants.

In particular, the draft permits impose more stringent limits than the existing permits and limits more stringent than water quality criteria for specific petroleum hydrocarbons known to be present in discharges from the Facilities, including benzene, and naphthalene. The draft permits impose numeric limits for fecal coliform as required by the Boston Harbor Pathogen TMDL. Thus, issuance of the draft permits is not expected to cause or contribute to the fecal coliform shellfishing impairments noted for Chelsea River. Discharges that contain ammonia are subject to numeric limits based on state water quality standards for the protection of aquatic life. Based on the extensive monitoring program required in the existing permits, EPA also identified pollutants in discharges that exceed water quality standards but are not listed for an existing impairment. Specifically, the draft permits include limits for total residual chlorine, and total cyanide for one or more of the Facilities. Finally, one Facility, Irving Oil, is subject to limits for whole effluent toxicity, because the discharge from this Facility was shown to exhibit toxicity to the aquatic test organisms on one or more occasions over the previous five years.

In addition, facilities that discharge treated groundwater to surface water are subject to additional requirements and limitations on internal outfalls and are subject to additional BMPs and pollutant monitoring to ensure that treated groundwater from the facilities does not contribute to surface water quality impairments. Facilities that do not discharge treated groundwater effluent but which may have groundwater contamination on site, are subject to BMPs to control the surface water discharges and are prohibited from discharges of any contaminated groundwater that infiltrates into the stormwater system of these facilities.

EPA notes that the fish consumption designated uses of Chelsea River are listed as impaired as a result of PCBs in fish tissue. The source of these impairments is listed as unknown. Based on the operations conducted at the facilities, discharges of treated stormwater, hydrostatic test water, and/or groundwater remediation effluent are not expected to contain PCBs. Thus, issuance of the draft permits is not expected to cause or contribute to the PCB fish consumption impairment noted for Chelsea River.

Finally, where there is insufficient information to determine whether a discharge will contribute to an excursion above water quality standards, the draft permits often impose conditions on the permittees to undertake additional monitoring or testing to inform future permitting or permit modifications or both. Specifically, the draft permits contain monitoring requirements for several pollutants of emerging concern for which aquatic life water quality criteria have not been adopted. This includes six per and polyfluoroalkylated substances (PFAS) and ethanol. NPDES permits such as these are issued for a maximum period of five years.

2. Potential Adverse Human Health and Environmental Effects Under Draft Permits

As noted earlier, Executive Order 12898 does not amend EPA's statutory or regulatory requirements and obligations,³⁹ but instead directs that agencies implement it "consistent with, and to the extent permitted by, existing law." *Id.* § 6-608. The CWA and its implementing regulations generally govern the development of NPDES permits.

EPA expects that the permitting actions at issue—the renewal of NPDES permits for the five bulk storage facilities—will not have a disproportionately high and adverse human health or environmental effect on minority or low-income populations near the permitted facilities, because, as explained below, the NPDES permit renewal will not cause "adverse" effects within the meaning of Executive Order 12898.

As noted earlier, as well as in the fact sheet for each permit, the Chelsea River is assessed as impaired for its several designated uses (that is, aquatic life, aesthetics, primary contact, secondary contact, fish consumption, and shellfishing) due to a number of causes, including contaminated sediments, aboveground storage tank leaks (tank farms), accidental releases or spills, cargo loading or unloading associated with bulk petroleum facilities, municipal sources (that is, an urbanized high density area), and groundwater contamination as a result of petroleum releases. Petroleum is listed as the cause of these impairments. Based on this information, the materials handled at the Facilities, the nature of discharges from the Facilities, and other relevant information, EPA determined that discharges from the Facilities could conceivably contribute pollutants associated with the cause of the existing impairments in the Chelsea River. In the development of the draft permits, EPA conducted "reasonable potential analyses", where appropriate, to determine whether a particular pollutant is or may be discharged at a level that "will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." 40 CFR § 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds an applicable water quality criterion. In many cases, the analyses indicated that discharges under the existing permits do not have a reasonable potential to cause excursions of water quality standards established for the protection of public health, aquatic organisms, and other uses. Where the analyses indicated, however, a reasonable potential for the discharge to cause or contribute to an excursion above water quality standards, the draft permits propose limits to ensure that the discharges will not cause or contribute to excursions. Such limits are generally referred to as water quality-based effluent limitations ("WQBELs"). WQBELs may be numerical limits or narrative BMPs.

In particular, the draft permits impose more stringent limits than the existing permits and limits equal to or more stringent than human health water quality criteria for specific petroleum hydrocarbons known to be present in discharges from the Facilities, including benzene, naphthalene and several polycyclic aromatic hydrocarbons (PAHs). Pollutants known to impart taste or odor, including copper, iron, methyl-tert butyl ether, and zinc, are subject to numeric limits when discharges contain these pollutants at levels that cause or contribute to an excursion above water quality standards.

Because EPA is proposing effluent limits in these draft permits that will ensure discharges from the facilities do not cause or contribute to excursions above water quality standards, EPA has determined that its permitting actions will not have adverse human health or environmental effects. This is so

³⁹ See also *In re Sierra Pacific Indus.*, 16 E.A.D. 1, 26 (EAB 2013).

because a state's water quality standards are designed "to protect the public health or welfare, enhance the quality of water and serve the purposes of th[e Clean Water Act]." 33 U.S.C. § 1313(c)(2)(A); *accord In re HECLA Mining Co.*, 13 E.A.D. 216, 220 n.7 (EAB 2006). Moreover, water quality standards take into consideration the waters' "use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes . . ." 33 U.S.C. § 1313(c)(2)(A); *see also* 40 CFR § 130.3. Additionally, Massachusetts has adopted, and the permits incorporate, EPA's National Recommended Water Quality Criteria⁴⁰ for the protection of aquatic life and human health in surface water, *see* 314 CMR 4.05(5)(e), which "reflect the latest scientific knowledge on[, among other things,] the kind and extent of all identifiable effects on health and welfare . . . which may be expected from the presence of pollutants in any body of water," 33 U.S.C. § 1314(a)(1). Furthermore, in the case of toxic pollutants, section 307 of the CWA provides that effluent standards shall be at a level that "provides an ample margin of safety." 33 U.S.C. § 1317(a)(4). In other words, water quality standards and criteria are developed to protect against adverse effects to human health and the environment.

Additionally, the reasonable potential analyses and any WQBELs established thereafter to comply with water quality standards, inherently account for cumulative effects of multiple discharges of a particular pollutant—as well as non-point source contributors of that pollutant—to the receiving water. When determining whether a permittee's discharge of that pollutant could cause or contribute to an excursion above water quality standards, and again when calculating a WQBEL that will achieve water quality standards in a river, EPA permit writers factor in the upstream or background concentration of a particular pollutant in the receiving water, if available. In general, as the background level of the pollutant increases, the discharge of that pollutant that EPA may authorize in the NPDES permits of the facilities decreases. The goal of this process is to ensure that the combined pollutant sources do not result in an exceedance of any water quality standard downstream of the discharge. If the upstream or background concentration exceeds water quality standards even before the discharged effluent is added, then that pollutant is typically limited to the water quality criterion for that pollutant, also referred to as a "criteria end-of-pipe" limit. In this way, the effluent is as clean or cleaner than the receiving water with respect to that pollutant and, therefore, cannot cause the receiving water to exceed the applicable water quality standard. Thus, pursuant to EPA's authority under the CWA, the draft permits address potential cumulative impacts to water quality of multiple discharges that otherwise could adversely affect human health or the environment.⁴¹

As noted earlier, where there is insufficient information to determine whether a discharge will contribute to an excursion above water quality standards, the draft permits often impose conditions on the permittees to undertake additional monitoring, or testing to inform future permitting or permit modifications or both. EPA is unaware of any information suggesting that the discharges, as limited by the conditions in the draft permits, would violate any other federal requirement designed to protect human health or the environment that applies to NPDES permits. In short, the permitted discharges will not cause or contribute to an excursion above water quality standards, and EPA's action here of setting

⁴⁰ <http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>

⁴¹ Cumulative impacts are also assessed to some degree in WET testing, which examines the combined effect resulting from exposure to a mixture of pollutants present in the effluent on a representative aquatic species.

the effluent limits and conditions for the discharges therefore will not have adverse human health or environmental effects.

In addition to numerical effluent limits and monitoring requirements, the draft permits contain several non-numeric measures to reduce or prevent the discharge of pollutants through the storm water systems and prohibit several types of discharges that could contribute additional pollutants. For example, the draft permits include conditions requiring the permittees to develop stormwater pollution prevention plans (SWPPPs) and to incorporate BMPs into the SWPPPs for the facilities. Furthermore, the draft permits require permittees to monitor discharges and to conduct ambient monitoring in connection with WET testing even where the permits do not impose numeric limits for particular pollutants. Moreover, each of the permits may be modified, or revoked and reissued in accordance with 40 CFR § 122.62, if, among other things, EPA receives new information that was unavailable at the time of permit issuance and that would have justified the application of different permit conditions at the time of issuance. Unless specifically authorized (for example, groundwater remediation effluent), the draft permits prohibit the discharges of: tank bottom water, solid hazardous waste, liquid hazardous waste, vehicle and equipment wash water, ballast water, accidental spills and releases, emulsion chemicals, wastewater remediation, and fire protection foam.

Based on EPA's analysis and the permit conditions described in more detail in the fact sheets for each draft permit, EPA has determined that the discharges will not cause or contribute to excursions above water quality standards in the Chelsea River and, therefore, will have no high and adverse human health or environmental effects on any population, including any minority or low-income population. Where new, more stringent effluent limits are proposed, EPA's actions should increase the level of human health and environmental protection. Because EPA expects that the permits will help to preserve the health of aquatic ecosystems near regulated facilities, EPA expects that all populations, including minority and low-income populations, will benefit from improved environmental conditions. Accordingly, EPA concludes that its permitting actions will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations within the meaning of Executive Order 12898.

C. Permit Requirements and Conditions

While the discharges will not cause adverse environmental or human health effects on minority or low-income populations, EPA has, in accordance with the CWA, proposed several conditions in the permits that address concerns raised by the public. Specifically:

1. In determining whether discharges from the Facilities have reasonable potential to cause or contribute to a violation of water quality standards, the draft permits do not allow a mixing zone. In other words, where numeric effluent limitations have been derived for the discharges, they apply at end-of-pipe, regardless of any dilution that mixing with river water would provide.
2. The draft permits limit the flow from each facility based on the design flow capacity of a Facility's respective treatment system.
3. The draft permits limit discharge of total suspended solids from each facility based on the design flow capacity of a facility's respective treatment system.
4. The draft permits establish new effluent limitations for indicator parameters for multiple classes of pollutants associated with petroleum products (e.g., individual polycyclic aromatic

hydrocarbons) at several facilities where such limits had not previously existed, and establish more stringent limits for indicator parameters for those facilities that currently have such limits (i.e., benzene, naphthalene).

5. As a result of the above limitations for indicator parameters, the draft permits impose additional effluent and ambient monitoring requirements to confirm that limitations for indicator parameters are sufficient to address other pollutants associated with petroleum products and to meet water quality standards.
6. The draft permits establish new effluent limitations for certain site-specific pollutants, including ammonia, total residual chlorine, copper, cyanide, fecal coliform, and zinc, to meet water quality standards.
7. The draft permits include additional effluent limitations or monitoring requirements for Facilities that currently store or have residual contamination from the storage of certain oxygenates (e.g., methyl-tert butyl ether (MTBE) and ethanol).
8. The draft permits continue WET testing requirements in order to continue evaluating the combined effect resulting from exposure to multiple pollutants may produce a toxic effect in aquatic organisms. New effluent limitations for toxicity have also been established for any discharge that showed toxicity during the permit term.
9. The draft permits impose new monitoring requirements in order to determine whether per- and polyfluoroalkyl substances (PFAS) are present in discharges from these facilities for use in future permit decisions.
10. The draft permits include additional technology-based effluent limitations for facilities that discharge treated groundwater to surface water.
11. The draft permits impose additional requirements for discharges of hydrostatic test water, which includes requirements for ambient surface water sampling where the Chelsea River is the facility's source water for the hydrostatic testing, and discharges of treatment chemicals and additives.
12. The draft permits prohibit the discharge of tank bottom water, solid and liquid hazardous waste, vehicle and equipment wash water, ballast water, runoff from spills or releases, emulsion chemicals, wastewater remediation effluent unless explicitly authorized, fire-fighting foam, and treatment system bypasses, in order to protect the Chelsea River from toxic pollutants in such materials. Tank bottom water, for instance, remains in close contact with petroleum products for extended periods of time, during which time some of the more soluble and denser petroleum components may reach toxic levels in the water.
13. The draft permits contain requirements for stormwater pollution prevention plans (SWPPPs) and best management practices (BMPs) that require the Facilities to implement structural improvements, enhanced pollution prevention measures, and other mitigation measures.
14. The draft permits contain site-specific BMPs, including minimizing impacts from stormwater discharges from major storm events that cause extreme flooding conditions, limiting exposure of stormwater to contaminated soil, groundwater or remediation materials on site, and eliminating discharges of impacted groundwater to the stormwater systems.
15. The draft permits include self-implementing requirements, including routine inspections, and corrective actions in the event of an exceedance of a permit limitation or condition.
16. The draft permits continue to include a reopener clause for use under certain circumstances, where EPA has the authority to modify a permit, for instance, if adverse environmental impacts from the discharges were to occur.

VIII. Actions Related to Community Concerns Beyond the Scope of the Draft NPDES Permits

In recent years, EPA and partners have been engaged in activities designed to improve water quality in the Mystic River Watershed and, more generally, protect human health and the environment in the communities located within the Study Area. Examples of these activities include:

In late 2014, EPA helped convene meetings and discussions between community representatives and representative from the Facilities. EPA did so at the request of community representatives who wished to address concerns that came into focus during the 2014 NPDES permitting process. An EPA in-house facilitator worked with the community representatives and representatives from the Facilities to re-start quarterly “roundtable” meetings that, in the past, had served as a positive forum for communication and problem-solving.

In 2015, EPA launched the Mystic River water quality monitoring buoy in front of the Blessing of the Bay Boathouse in the City of Somerville, Massachusetts. The buoy measures a number of water quality parameters such as temperature, dissolved oxygen, pH, turbidity, specific conductance, and chlorophyll that can be viewed by the public in near real time, and data is made available on EPA's Mystic River Website. In addition to providing real-time water quality data to the public, the buoy is used to monitor for and track cyanobacteria (blue-green algae) blooms.⁴²

In 2016, EPA issued a general permit updating requirements for small "Municipal Separate Storm Sewer Systems" (MS4) located in Massachusetts (“2016 MS4 Permit”). The permit was designed to better protect rivers, streams, ponds, lakes and wetlands from pollutants including elevated levels of nutrients, which can cause algae blooms and other problems in Massachusetts communities and would apply to all communities in the Mystic River Watershed. In April 2020, EPA proposed modifications to the 2016 MS4 Permit.⁴³

In May 2020, EPA and MADEP released the “Mystic River Watershed Alternative TMDL Development for Phosphorus Management – Final Report” (“Alternative TMDL”). The Alternative TMDL presents the results of a three-year study to address degraded water quality in the Mystic River Watershed. The Alternative TMDL identifies excess phosphorus as the pollutant driving harmful and potentially toxic algal blooms and other cultural eutrophication-related impairments in the Mystic River Watershed and provides estimates of the load reductions necessary to attain Massachusetts Surface Water Quality Standards and to recover aquatic habitat and return water bodies to their designated uses, including swimming, boating and fishing.⁴⁴ Key findings of the study include: 1) stormwater runoff is the predominant source of phosphorus in the Mystic River Watershed; 2) stormwater phosphorus loads

⁴² Information about the Mystic River monitoring buoy can be found here: <https://www.epa.gov/mysticriver/basic-information-about-mystic-river-buoy>.

⁴³ Information about the Massachusetts Small MS4 permit can be found here: <https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit#2016fgp>.

⁴⁴ The Alternative TMDL is available here: <https://www.epa.gov/mysticriver/mystic-alternative-tmdl-documents>.

across the watershed will need to be reduced by approximately 60 percent to restore water quality; and 3) EPA and MADEP recommend an adaptive management process in which communities immediately begin to develop and implement long-term strategies focused on increased stormwater management to make incremental improvements in water quality, with the ancillary benefit of reducing flooding and increasing community resiliency. The Alternative TMDL was developed based on streamflow and water quality datasets collected by the Mystic River Watershed Association, the Massachusetts Water Resources Authority, the U.S. Geological Survey, MADEP and EPA.

In August 2020, in response to community concerns about construction dust and particulate matter, EPA loaned nine PurpleAir particulate matter sensors to the Massachusetts Department of Environmental Protection (MADEP), planned for use in Chelsea. In September 2020, MADEP convened a virtual meeting between Chelsea community advocates, the City of Chelsea and EPA to discuss the capabilities and limitations of these air sensors. MADEP has requested local assistance in securing sampling locations for the sensors and for a planned permanent location for a regulatory grade air monitoring site in Chelsea.

IX. Conclusion

This EJ Analysis was developed by EPA in compliance with Executive Order 12898. Through the process of developing the draft permits, EPA considered concerns expressed by members of the public regarding the Facilities and, where allowable by law, addressed these concerns through the inclusion of appropriate terms and conditions in the draft permits. Although EPA acknowledges that the Chelsea River and surrounding communities are impacted by many environmental burdens, EPA has determined that the Facilities' 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 is providing enhanced public involvement opportunities regarding the draft permits. Should EPA receive public comments raising substantial concerns, the Agency may include additional terms and conditions, as allowable by law, to the Facilities' final permits that address such concerns.

X. Additional Information and Resources

Envirofacts (<https://www.epa.gov/enviro/envirofacts-overview>) – A website that provides access to several EPA databases with information about environmental activities that may affect air, water, and land anywhere in the United States.

NEPAssist (<https://www.epa.gov/nepa/nepassist>) - A tool that facilitates the National Environmental Policy Act environmental review process and project planning in relation to environmental considerations. The web-based application draws environmental data dynamically from EPA Geographic Information System databases and web services and provides immediate screening of environmental assessment indicators for a user-defined area of interest.

EPA Resilience and Adaptation in New England (RAINE) database (<https://www.epa.gov/raine>) – A collection of vulnerability, resilience and adaptation reports, plans and webpages at the state, regional and community level. Includes information and resources regarding the City of Chelsea (https://geopub.epa.gov/RAINE/rpt_Full.aspx?townid=CHELSEA_MA), the City of Boston

(https://geopub.epa.gov/RAINE/rpt_Full.aspx?townid=BOSTON_MA) and the City of Revere (https://geopub.epa.gov/RAINE/rpt_Full.aspx?townid=REVERE_MA).

FEMA Flood Zone Maps (<https://www.fema.gov/flood-maps>) – FEMA provides flood hazard and risk data to help guide mitigation actions.

EPA Hurricane Response Website (<https://www.epa.gov/hurricane-response>) – EPA works closely with federal agencies, state and local governments to respond quickly to environmental concerns and natural disasters, including hurricanes. EPA’s Hurricane Response website includes information about efforts to address human health and environmental impacts of hurricanes (including Hurricane Harvey in 2017) and their aftermath, including monitoring water and wastewater systems and assessing spill or discharges as a result of storms.

Toxic Release Inventory (TRI) Program and Data (<https://www.epa.gov/toxics-release-inventory-tri-program>) – the TRI is a resource for learning about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities.

Heat Island Effect (<https://www.epa.gov/heatislands>) - Heat islands are urbanized areas that experience higher temperatures than outlying areas. Heat island impacts can include: increased energy consumption; elevated emissions of air pollutants and greenhouse gasses; compromise human health and comfort and impair water quality.

EPA’s Particulate Matter Website (<https://www.epa.gov/pm-pollution>) – Includes information about the sources and harmful effects of particulate matter, also known as particle pollution.

Creating Equitable, Healthy and Sustainable Communities: Strategies for Advancing Smart Growth, Environmental Justice and Equitable Development (<https://www.epa.gov/sites/production/files/2014-01/documents/equitable-development-report-508-011713b.pdf>) – EPA Publication Number 231-K-10-005, February 2013

EPA Plan EJ 2014 Legal Tools (<https://www.epa.gov/environmentaljustice/plan-ej-2014-legal-tools>) – A document identifying statutes and other legal tools that can help EPA advance its goal of environmental justice in the United States.

Centers for Disease Control and Prevention 500 Cities Project (<https://www.cdc.gov/500Cities/>) – Provides city and census tract-level small area estimates for chronic disease risk factors, health outcomes and clinical preventative service use for the 500 largest cities in the United States, including Boston.

Massachusetts Department of Public Health, Office of Data Management and Health Outcomes Assessment Website (<https://www.mass.gov/orgs/office-of-data-management-and-outcomes-assessment>) – Health data used to improve public health practice, assess community health needs, support research and grant applications and policy development in Massachusetts.

XI. List of Figures and Attachments

Figure 1 – Study Area Map, including Regulated Facilities and Sites

Figure 2 - Mystic River Watershed Quality - Grades and Compliance Rates Calendar Year 2019

Figure 3 - EJSCREEN Demographic Indicator and Environmental Index Maps

Attachment A - EJSCREEN ACS Summary Report

Attachment B - Facilities and Sites Located in the Study Area

Attachment C - EJSCREEN Standard Report for the Study Area

Attachment D - Appendix 3 to EPA's Response to Comments attached to the final 2014 NPDES permits for the Facilities