UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
1 CONGRESS STREET - SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

NPDES PERMIT NO: **MA0003425**

PUBLIC NOTICE DATE:

NAME AND ADDRESS OF APPLICANT:

Global Petroleum Corporation
140 Lee Burbank Highway
Revere, MA 02151

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Global Petroleum Corporation
140 and 71 Lee Burbank Highway
Revere, MA 02151

RECEIVING WATER: **Chelsea River/Mystic River Watershed (MA71)**

CLASSIFICATION: **SB**

I. PROPOSED ACTION

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for the re-issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge treated storm water, hydrostatic test water, and ground water into the designated receiving water. The permit which was issued to Global Petroleum Corporation (Global Petroleum) on October 2, 1997 (Current Permit), became effective on November 1, 1997, thirty days after the date of issuance. The permit expired on November 1, 2002. EPA received a permit renewal application dated November 7, 2001, from Global Petroleum. Since the permit renewal application was deemed both timely and complete by EPA, the permit has been administratively continued.

II. TYPE OF FACILITY

The Global Petroleum facility, which is located in Revere, Massachusetts (See Figure 1), is engaged in the receipt, storage, and distribution of petroleum products. The product spectrum handled by this facility consists of gasoline, diesel fuel, kerosene, and No.2 Fuel Oil. Petroleum products are received in bulk quantities at a jointly owned marine vessel dock located along the Chelsea River on the west side of Lee Burbank Highway (Route 1A). Product is transferred underneath and east of Lee Burbank Highway to the facility's bulk storage tank farm. Final distribution of product is conducted at the facility's truck loading rack and on occasion at the marine vessel dock when product is shipped off-site. The NPDES discharge consists of: 1) treated storm water runoff from pervious and impervious areas at the facility including the tank farm and terminal yard; 2) occasionally water used for the hydrostatic testing of repaired tanks; and 2) ground water undergoing treatment as a result of a previous gasoline spill. The storm water, hydrostatic test water, and treated ground water discharges are to the Chelsea River through Outfall 001. The permit also establishes two internal waste stream outfalls with individual effluent limitations and monitoring requirements for the flow that is being discharged through Outfall 001. The first internal waste stream outfall (Outfall 002) consists of storm water runoff and hydrostatic test water. The second internal waste stream outfall (Outfall 003) consists of treated ground water.

III. SUMMARY OF MONITORING DATA

A quantitative description of the discharge in terms of significant effluent parameters based on the discharge monitoring reports (DMRs) submitted by the facility during the time period of 1998 through 2003, is included in Attachment A.

IV. PERMIT LIMITATIONS AND CONDITIONS

The effluent limitations, monitoring requirements, and any implementation schedule, if required, may be found in Part I (Effluent Limitations and Monitoring Requirements) of the draft NPDES permit (Draft Permit). The permit application is part of the administrative file (Permit No. MA0003425).

V. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. General Requirements

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. This Draft NPDES permit was developed in accordance with various statutory and regulatory requirements established

pursuant to the CWA and any applicable State regulations. During development, EPA considered the most recent technology-based treatment requirements, water quality-based requirements, and all limitations and requirements in the current/existing permit. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. The general conditions of the Draft Permit are based on 40 CFR §122.41 and consist primarily of management requirements common to all permits. The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the CWA in accordance with 40 CFR §122.41(j), §122.44(i) and §122.48.

1. Technology-Based Requirements

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

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (See 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. In general, technology-based effluent guidelines 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 can not be authorized by a NPDES permit.

EPA has not promulgated technology-based National Effluent Guidelines for storm water discharges from petroleum bulk stations and terminals (Standard Industrial Code 5171). In the absence of technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using Best Professional Judgement (BPJ).

2. Water Quality-Based Requirements

Water quality-based criteria are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water-quality standards (See Section 301(b) (1)(C) of the CWA). Water quality-based criteria consist of three (3) parts: 1) beneficial designated uses for a water body or a segment of a water body; 2) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s) of the water body; and 3) anti-degradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts State Water Quality Standards, found at 314 CMR 4.00, include these elements. The State Water Quality Regulations limit or prohibit discharges of pollutants to surface waters and thereby assure that the surface

water quality standards of the receiving water are protected, maintained, and/or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, be used unless a site-specific criteria is established. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d).

Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts. The State of Massachusetts has a similar narrative criteria in their water quality regulations that prohibits such discharges [See Massachusetts 314 CMR 4.05(5)(e)]. The Draft Permit does not allow for the addition of materials or chemicals in amounts which would produce a toxic effect to any aquatic life.

3. Anti-Backsliding

EPA's anti-backsliding provision as identified in Section 402(o) of the Clean Water Act and at 40 CFR §122.44(l) prohibits the relaxation of permit limits, standards, and conditions unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued. Anti-backsliding provisions apply to effluent limits based on technology, water quality, BPJ and State Certification requirements. Relief from anti-backsliding provisions can only be granted under one of the defined exceptions [See 40 CFR §122.44(l)(i)]. Since none of these exceptions apply to this facility, the effluent limits in the Draft Permit must be as stringent as those in the Current Permit.

4. Anti-Degradation

The Massachusetts Anti-Degradation Policy is found at Title 314 CMR 4.04. All existing uses of the Chelsea River must be protected. The Chelsea River is classified as a Class SB water body by the State of Massachusetts and as such, is designated as a habitat for fish, other aquatic life and wildlife and for primary (e.g., wading and swimming) and secondary (e.g., fishing and boating) contact recreation. A Class SB water body may also be suitable for shellfish harvesting but there are no areas within the Chelsea River currently approved by the State for such use. This Draft Permit is being reissued with allowable effluent limits as stringent or more stringent than the Current Permit and accordingly will continue to protect the existing uses of the Chelsea River.

B. Description of Facility

Global Petroleum is a bulk petroleum facility with operations consisting of the receipt, storage, and distribution of petroleum products. The terminal is located along the eastern shore of the Chelsea River (See Figure 1), approximately two and one-half (2.5) miles northeast of the confluence of the Mystic and Chelsea Rivers. The facility, which comprises approximately seventeen (17) acres, consists of three principal areas: a tank farm, terminal yard, and a marine vessel dock. (See Figure 2).

Most of the product stored at the facility (with the exception of some limited inventory of fuel additives transported by tanker truck) is received in bulk quantities by ship or barge. The facility has the ability to receive bulk product from two nearby marine vessel docks located along the Chelsea River. One marine vessel dock (See South Dock on Figure 2) is located behind the Irving Oil Revere Terminal (MA0001929) and is jointly owned by Global Petroleum and Irving Oil. This marine vessel dock is equipped with two (2) manifold areas for receipt and distribution of product. One manifold can handle ships or barges, the other barges only. Each manifold area has a steel drip pan located beneath it to recover any potentially spilled product. The second marine vessel dock (See North Dock on Figure 2) belongs to the Global REVCO Terminal, LLC (MA0003298). An inter-terminal supply network also allows Global Petroleum to receive as well as ship product from the Global REVCO marine vessel dock.

The product spectrum stored at the Global Petroleum terminal consists of gasoline (high and low octane grades), diesel fuel, kerosene, and No.2 Fuel Oil. Butane is no longer marketed at this facility. The facility also has the capability of physically blending some of these fuels together to market products which it does not currently store (e.g., mid-range octane grade of gasoline). There are no other chemical processes/reactions which occur at the facility.

Bulk product received by the facility, is transferred underneath Lee Burbank Highway to the Global Petroleum tank farm located on the east side of the highway (71 Lee Burbank Highway). The tank farm covers an area of approximately eleven and one-half (11.5) acres. It generally consists of aboveground bulk storage tanks, product piping, and secondary containment berms. There are seven (7) steel aboveground storage tanks in use with a total gross capacity of approximately 525,000 barrels (or 22 million gallons) of product.

Secondary containment for the tank farm is provided through the use of earthen berms surrounding each bulk storage tank. The one exception is Tank No.s 2 and 4 which are located within the same earthen containment area. The secondary containment has been sized to hold at least 110 to 130 percent of the largest tank's storage capacity plus an added volume to hold any fire-extinguishment chemicals, water and/or precipitation. The berms are used to help prevent any potentially spilled petroleum products from migrating from one containment area to another or into any surrounding waterways. There is a valve located directly outside of each bermed area which can be manually opened or closed to either allow the storm water to drain into the main storm water conveyance system or be retained within that bermed area.

The terminal yard, which is located on the opposite side of the highway, at 140 Lee Burbank Highway, consists of an office, warehouse, parking area, truck loading rack, rail car loading rack (no longer in use), product transfer lines, and storm water and ground water treatment systems. There are also several aboveground tanks located within the terminal yard which are used to store fuel and fuel additives. The largest of these tanks (Tank No. 26), which is used to store kerosene, is a 30,000 gallon tank enclosed within a concrete berm. A majority of the remaining tanks found in the terminal yard are used to store fuel additives. The fuel additive tanks, which have a total storage capacity of approximately 60,000 gallons, are located within the warehouse building.

The truck loading rack operates with a total of seventeen (17) bays for petroleum products. Product is piped from the tank farm to the truck loading rack for off-site distribution. The facility also occasionally loads distillate and residual products onto barges for off-site shipment.

Operations at the Global Petroleum terminal also depend on the use of a number of smaller aboveground and underground storage tanks which are located throughout the facility. These tanks range in size from several hundred gallons to several thousand gallons and are used for: the facility fire protection system, product recovery, and storing of heating oil and diesel fuel for the facility's "own use."

There are currently three (3) active underground storage tanks (USTs) at the Global Petroleum facility. Two of these USTs are 4,000 gallon tanks which are located within the terminal yard. One of the 4,000 gallon USTs is used to store heating oil for the office/warehouse building while the second 4,000 gallon tank contains diesel fuel for fueling vehicles. The one remaining UST is a 200 gallon tank associated with the vapor recovery unit on the tank farm side of the Global Petroleum property. Several USTs have been removed from the facility since the last permit cycle. The USTs taken out of service include a 12,000 gallon tank associated with the vapor recovery system and a 4,000 gallon tank associated with the storm water treatment system.

C. Description of Discharge

This Draft Permit authorizes the discharge of storm water runoff, hydrostatic test water, and treated ground water from one outfall (Outfall 001) at the facility into the Chelsea River. The permit also establishes two internal waste stream outfalls for the flow that is being discharged through Outfall 001. The first internal waste stream outfall (Outfall 002) consists of storm water runoff and hydrostatic test water. The second internal waste stream outfall (Outfall 003) is used to discharge treated ground water into the storm water conveyance system. The two internal waste stream outfalls, along with their respective effluent limits were established in the Draft Permit to ensure that the true characteristics of each waste stream can be monitored in order to minimize the potential impacts of dilution in accordance with 40 CFR §122.45(h).

1. Outfall 002

Storm water is primarily collected at the terminal within two (2) general areas: the secondary containment area of the tank farm and the terminal yard. To a certain extent, storm water accumulating in the unpaved areas of the tank farm can evaporate and/or infiltrate into the ground before being directed to the storm water conveyance system. As mentioned in the section above, there are earthen berms located around the bulk storage tanks to control the runoff of any storm water or spilled product. Water accumulating within these bermed areas is directed to low elevation catch basins. When the valve located outside of each berm is open, the water entering the catch basin is directed to a common underground drainage line which is located south of and adjacent to the paved access road within the tank farm. Staff at the facility are responsible for ensuring that there are no petroleum products observed on the water (i.e., a visible sheen) before the storm water is discharged from any of the bermed areas.

Storm water from the tank farm flows by gravity to an approximately 3,500 gallon concrete retention basin located in the northwest corner of the tank farm property. The retention basin also serves to a certain extent as an Oil/Water (O/W) Separator. The flow of storm water from the tank farm to the terminal yard is controlled through a valve located at the retention basin. When this valve is open, water flows by gravity underneath Lee Burbank Highway to the lift station in the terminal yard.

Storm water runoff within the terminal yard is directed toward several low elevation catch basins. At the truck loading rack, the roof directs storm water away from the truck rack equipment and loading operations to perimeter drains and individual catch basins located along the perimeter of the rack. Storm water reaching the perimeter drains and catch basins enters the terminal's underground collection system and flows by gravity to the lift station adjacent to the O/W Separator.

There are two pumps located within the lift station, each with a reported pumping capacity of 450 gallons per minute (gpm). Only one pump is typically operated at a time but under flooding conditions the second pump can be manually activated as well. When the pump(s) is activated, the water is discharged from the lift station into a nearby in-ground concrete retention basin which also serves as the facility's primary O/W Separator. The O/W Separator, which is located in the northwest corner of the terminal yard, is a baffle/weir unit with a reported storage capacity of approximately 40,000 gallons. Global Petroleum has identified the maximum design flow rate of the O/W Separator as being 830 gpm.

Storm water leaving the O/W Separator is designed to flow by gravity through a gate valve into the Chelsea River through Outfall 001. However, for the past seven years the gate valve has been closed and effluent from the O/W Separator is instead being pumped to a nearby trailer for additional treatment. A sump pump located at the discharge end of the O/W Separator is used to convey water to the trailer for additional treatment using activated carbon. The sump pump, which must be manually activated, is reported by Global Petroleum to have a pumping capacity of approximately 70 gpm. The water conveyed by the sump pump to the trailer undergoes treatment consisting of a filter bag (to remove suspended solids) and activated carbon (to remove volatile organic compounds). The original treatment system had two (2) carbon units located in series. A third carbon unit was added approximately three years ago to provide additional treatment capacity. After treatment, the water is discharged into a concrete vault located adjacent to the O/W Separator (See Insert B on Figure 2). From the vault, the water flows by gravity to Outfall 001.

Based on the current configuration of the storm water conveyance system, the flow through the O/W Separator is controlled and limited by the pumping rate of the sump pump located at the discharge end of the O/W Separator. Flow rates through O/W Separators are not to exceed the design capacity of the separator (thereby minimizing the potential for carry-over). In the event that Global Petroleum is able to eliminate the need for the carbon treatment system in the future, then the flow rate through the O/W Separator would be controlled and limited by the pumping rates of the two pumps located in the lift station. The combined pumping rate of these two pumps (i.e., 900 gpm) would exceed the maximum design flow rate of the O/W Separator (i.e., 830 gpm). As

such, Global Petroleum will need to install some other means of controlling the rate of flow into the O/W Separator (e.g., See Part I.A.4. of the 1997 NPDES permit) before such change could take place. The Draft Permit requires that the facility provide written notification and receive approval by EPA and MADEP prior to implementing any changes which have the potential to cause the maximum design flow rate through the O/W Separator to be exceeded.

The additional treatment of the storm water discharge is necessary due to the infiltration of contaminated groundwater into the storm water conveyance system. In February of 1997 Global Petroleum discovered a release of gasoline in the vicinity of the truck loading rack. The release was identified when gasoline was discovered in a storm water catch basin located adjacent to the truck loading rack. After contacting the MADEP, steps were taken by Global Petroleum to contain the spilled material as well as identify the source of the leak. Hydrostatic testing of the gasoline product pipes identified the source of the release in a section of the line beneath the truck loading rack. An unknown quantity of gasoline was released from this location and due to the high water table, the spilled material was able to migrate through the ground water into the storm water conveyance system.

Since the storm water drain line effectively functioned as a gasoline collection sump, it served as a collection point for gasoline released to the subsurface while a more permanent ground water recovery and treatment system was designed and constructed at the Global Petroleum terminal. It was estimated that at least several thousand gallons of gasoline were released into the environment based on the amount of product recovered in the first several months after the spill was noted.

Global Petroleum took steps to identify and rectify the potential sources of infiltration of ground water into the storm water conveyance system. In late 1997 and early 1998 the facility hired a contractor to survey its storm water system using a remote camera. Several potential points of infiltration were identified in the storm water system and at these locations the joints and cracks were grouted to prevent ground water infiltration. In addition, the facility was required by the MADEP to install a treatment system (i.e., activated carbon) to treat the water flowing through the storm water conveyance system before it could be discharged to the Chelsea River.

Despite Global Petroleum's efforts to eliminate ground water infiltration into the storm water conveyance system, it appears that some contaminated ground water continues to make its way into the system as evidenced by the elevated levels of MTBE reported during some of the quarterly monitoring events (See Attachment A to this Fact Sheet). It should be noted that the results included in the quarterly discharge monitoring reports submitted by the facility represent post-carbon treatment concentrations.

Given the presence of contaminated ground water, EPA is taking a conservative approach and is applying limits and conditions designed for a ground water remediation system to the discharge from the storm water conveyance system (See Limitations and Monitoring Requirements for Outfall 002 in the Draft Permit). Such limitations and monitoring requirements will remain in

effect until the infiltration of contaminated ground water into the storm water conveyance system is eliminated or reduced to the point where it no longer impacts the water quality of the discharge.

One important impact of using the carbon treatment system to treat the combined storm water and ground water infiltration flow is that the carbon system significantly reduces the rate at which water can be processed and discharged (i.e., to approximately 70 gpm) from the Global Petroleum facility after a storm event. As a result, whenever there is a significant storm event, the facility tends to accumulate water primarily within the tank farm. The extended storage of storm water within the tank farm has the potential to cause flooding and/or limit the amount of petroleum product which could be stored within the secondary containment in the event of a spill.

To address this potential flooding/storage problem Global Petroleum has in the past, requested permission from EPA and the MADEP to transfer storm water from its tank farm to either of the nearby tank farms of the Global South Terminal, LLC (MA0000825) or the Global REVCO Terminal, LLC (MA0003298) facilities. The transferred water is then treated in one of these facility's O/W Separators and is subject to the same treatment, monitoring, and reporting requirements/limits appropriate for storm water generated at a petroleum bulk station and terminal. EPA has agreed to such requests in the past, since the storm water in the tank farm of the Global Petroleum facility has not come in contact with the contaminated ground water located on the other side of the highway. As such, treatment through an O/W Separator should be adequate to remove any potential contamination found in this storm water. Global Petroleum has requested that the facility be allowed to continue to make such transfers of storm water in the future and that this become a permit condition in the new draft permits to be issued to the Global Petroleum and Global South facilities. An additional discussion of EPA's response to this request is provided in Section V.E.10 of this Fact Sheet.

The marine vessel dock jointly owned with Irving Oil has a steel drip pan located beneath each of the manifold areas to recover any potentially spilled product. Storm water as well as any residual product accumulating in the drip pan is pumped through existing product pipelines under the highway to one of Irving Oil terminal's above ground storage tanks for off-site disposal.

Global Petroleum has indicated that all tank bottom water is consolidated and hauled off-site by a licensed waste hauler(s) for treatment and disposal elsewhere. There were no hydrostatic-test water discharges reported at the facility since the issuance of the Current Permit. However, should there be a discharge of hydrostatic test water in the future, the water could be conveyed into the storm water system and would be subject to the treatment, monitoring, and reporting requirements discussed further in Section V.E.9 of this Fact Sheet.

2. Outfall 003

As a result of the gasoline release discussed above, the MADEP required the facility to design and operate a ground water recovery and treatment system. The original ground water recovery system, consisting of an interceptor trench and seven (7) recovery wells, became operational in the

fall of 1998. The interceptor trench and recovery wells were designed to recover product as well as dissolved contaminants found in the ground water in and around the truck loading rack area.

Extracted ground water is piped to a treatment system located in a trailer nearby the O/W Separator. This system is separate from the one being used to treat the discharge of storm water and ground water infiltration through Outfall 002. The ground water treatment system, which was designed to operate continuously and treat a maximum flow rate of 25 gpm, consists of an O/W Separator, a holding tank for recovered product, a low profile air stripper, and liquid-phase and air-phase activated carbon units for treating the liquid and vapor streams from the air stripper. The effluent from the ground water treatment system (Outfall 003) is discharged into the storm water conveyance system to the Chelsea River through Outfall 001.

The Global Petroleum facility recently installed a new independent ground water recovery and treatment system which is designed to replace the old ground water treatment system discussed in the paragraph above. The most significant difference between the old and new systems has to do with the method by which free product and contaminated ground water are collected. The new recovery system will use horizontal trenches which are designed to provide for the removal of contaminated soil vapor, contaminated ground water, and free floating product. Each of the trenches installed in and around the truck loading rack area will contain three extraction pipes; a soil vapor extraction pipe (approximately 1.5 feet below ground surface), a shallow ground water extraction pipe (approximately 2.5 feet below ground surface), and a deep ground water extraction pipe (approximately 5 feet below ground surface). Extracted soil vapor, ground water, and product will be piped to the new treatment system which has been constructed in a portion of the garage located at the northern most section of the office/warehouse building. The treatment system, which is designed to treat a maximum flow rate of 50 gpm, consists of a flow equalization tank, an O/W Separator, a coagulation/separation unit for the removal of metals, a multi-media filter, a low profile air stripper, and liquid and vapor phase carbon units for treatment of waste streams from the air stripper. Treated ground water will be pumped to a manhole located downstream of the O/W Separator and from there, will flow by gravity through Outfall 001 into the Chelsea River.

The new system ground water treatment system is expected to become operational during the Spring of 2005. The total maximum flow rate of treated ground water from the Global Petroleum facility may be has high as 75 gpm (i.e., 25 gpm from the old system and 50 gpm from the new system) during the short period when both treatment systems are operating.

The discharge of treated ground water is currently allowed through a NPDES Permit “Exclusion” letter issued by EPA to the facility (NPDES Exclusion #MA 02I-079) on November 8, 2002. EPA is proposing to incorporate the discharge of treated ground water into the Draft Permit as an internal waste stream outfall (Outfall 003). Additional details are provided in Section V.E.11 of this Fact Sheet.

D. Discharge Location

The receiving water, Chelsea River (Boston Harbor/Mystic River Watershed/Segment MA71-06), 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. For centuries, Chelsea River has been flanked by working industries, many of which used the channel to transport raw materials and finished goods. The river is officially classified as a Designated Port Area: a stretch of waterfront set aside primarily for industrial and commercial use. Chelsea River, which is also locally known as Chelsea Creek, is designated Class SB by the State of Massachusetts (See Part V.A.4. of this Fact Sheet for additional information related to the Class SB designation).

Under Section 303(d) of the CWA, states are required to develop information on the quality of their water resources and report this information to the EPA, the U. S. Congress, and the public. In Massachusetts, the responsibility for monitoring the waters within the State, identifying those waters that are impaired, and developing a plan to bring them into compliance with the Massachusetts Water Quality Standards (314 CMR 4.0) resides with the MADEP. The MADEP evaluated and developed a comprehensive list of the assessed waters and the most recent list was published in the *Massachusetts Year 2002 Integrated List of Waters* (MADEP, September 2003). The list identifies the Chelsea River as one of the waterways within the State of Massachusetts that is considered impaired. The impairment, as identified by the MADEP, is related to the presence of the following "pollutants", which were not considered to be present due to natural causes: priority organics, unionized ammonia, organic enrichment/low dissolved oxygen, pathogens, oil and grease, taste, odor and color, and turbidity.

The MADEP is required under the CWA to develop a Total Maximum Daily Load (TMDL) for a water body once it is identified as impaired. A TMDL is essentially a pollution budget designed to restore the health of a water body. A TMDL typically identifies the source(s) of the pollutant from direct and indirect discharges, determines the maximum amount of pollutant, including a margin of safety, that can be discharged to a specific water body while maintaining water quality standards for designated uses, and outlines a plan to meet the goal. A TMDL has not yet been developed for the Chelsea River. In the interim, EPA is developing the conditions for this permit based on a combination of water quality-based standards and best professional judgement. Should a TMDL be developed in the future, and if that TMDL identifies that the discharge from the facility is causing or contributing to the impairment of Chelsea River, then the permit may be re-opened. Additional details regarding the basis for the effluent limits established in the Draft Permit and how such limits relate to any of the "pollutants" identified above as impacting the water quality of the Chelsea River are further discussed below in Sections V.E.3 and V.E.5 of this Fact Sheet.

E. Proposed Permit Effluent Limitations and Conditions

The Global Petroleum Draft Permit is not being considered in isolation, but rather, in the context of all potential direct dischargers (including other petroleum bulk stations and terminals) of light

and heavy hydrocarbons, which discharge either directly into Boston Harbor or indirectly (via its tributaries: the Island End, Chelsea, and Mystic Rivers).

Section 402(p) of the Clean Water Act requires that EPA issue NPDES permits for storm water discharges which were permitted prior to February 4, 1987 [See 40 CFR §122.26(a)(1)(i)]. Since the facility had a permitted storm water discharge prior to February 4, 1987, and the activities occurring at the facility do not fall within the description of industrial activities eligible for EPA's Storm Water Multi-Sector General Permit for Industrial Activities [See 40 CFR §122.26(b)(14)(viii)], the facility must continue to be permitted through an individual facility NPDES permit.

This Draft Permit is conditioned to: (1) better regulate plausible non-storm water discharges (e.g., hydrostatic test water and ground water) alone or in combination with storm water runoff to Boston Harbor, and (2) to better regulate ancillary operations that have the potential to contact storm water (e.g., materials storage, facility site-runoff, product blending, and product loading and unloading).

Storm water discharges from activities associated with petroleum bulk stations and terminals must satisfy best conventional technology (BCT) and best available technology (BAT) requirements and must comply with more stringent water quality standards if BCT and BAT requirements are not adequate. On September 25, 1992, EPA promulgated through its General Permit for Storm Water Discharge Associated with Industrial Activity, that the minimum BAT/BCT requirement for storm water discharges associated with industrial activity is a Storm Water Pollution Prevention Plan (SWPPP) [57 FR, 44438]. EPA has included SWPPP requirements in the Draft Permit. In addition, EPA has included numeric effluent limitations in the Draft Permit to ensure that appropriate technology-based and water quality-based limits are applied and that petroleum constituents do not contribute to violations of the State's surface water quality standards.

Thus, the Draft Permit for Global Petroleum, authorizing the discharge of treated storm water, hydrostatic test water, and ground water includes numeric effluent limits and requires the development, implementation, and annual review of a storm water pollution prevention plan. The effluent characteristics identified in Parts I.A.1- I.A.3 of the Draft Permit are discussed in more detail below.

1. Flow

The typical treatment technology employed by petroleum bulk storage terminals for storm water runoff is an O/W Separator. This device uses gravity to separate the lower-density oils from water; resulting in an oil phase above the oil/water interface and a heavier particulate phase (sludge) on the bottom of the separator. Accordingly, the sizing of an O/W Separator is based upon the following design parameters: water-flow rate; density of oil to be separated; desired percentage removal of oil; and the operating temperature range.

To ensure proper operation of installed O/W Separators such that the oil and/or particulate phases are not entrained to the waterway, it is important that the flow through the separator be maintained at or below the maximum design flow rate of the separator. In order to ensure that this criteria was being met, EPA and the MADEP required, as part of the Current Permit, that the facility identify both the maximum design flow rate of the O/W Separator and the measures taken by the facility to ensure that the maximum design flow rate is not exceeded (See Part I.A.4. of the 1997 NPDES permit).

In response to this permit requirement, Global Petroleum identified that the maximum design flow rate of the O/W Separator at the facility is 830 gpm. As discussed in Section V.C.1 of this Fact Sheet (Outfall 002), storm water runoff collected from the tank farm and storm water runoff and ground water infiltration from the terminal yard is conveyed to the O/W Separator through the operation of one lift station. The lift station contains two pumps with a combined pumping rate of 900 gpm. Right now only one of these pumps (e.g., pumping rate 450 gpm) is operated due to the requirement for the discharge from the O/W Separator to receive additional treatment using activated carbon. The rate of flow through the O/W Separator is currently controlled by the rate at which water can be pumped from the separator through the carbon units for treatment. The sump pump located at the discharge end of the O/W Separator has a pumping capacity of approximately 70 gpm. The 70 gpm pumping capacity is well below the maximum design flow rate of the O/W Separator (i.e., 830 gpm). Accordingly, Global Petroleum has demonstrated that appropriate controls are in place at the facility to control the flow through the O/W Separator.

In the future, should Global Petroleum receive approval to eliminate the use of the carbon treatment system, then the flow rate through the O/W Separator would be controlled and limited by the pumping rates of the two pumps located in the lift station. Since the combined pumping rates of these two pumps (i.e., 900 gpm) would exceed the maximum design flow rate of the O/W Separator (i.e., 830 gpm) Global Petroleum would be required to install some other means of flow control (e.g., See Part I.A.4. of the 1997 NPDES permit) before such change could take place. The Draft Permit requires that the facility provide written notification and receive approval by EPA and MADEP prior to implementing any changes which have the potential to cause the maximum design flow rate through the O/W Separator to be exceeded.

EPA and MADEP are using the design flow information submitted by Global Petroleum to identify the maximum daily effluent flow limit for Outfall 002 at the facility in accordance with Part I.A.8. of the Current Permit. The instantaneous flow rate of 830 gpm will become the new flow limit for Outfall 002. However, while the carbon treatment system is in place the actual flow rate discharged from the O/W Separator will be closer to approximately 70 gpm. The flow control device or system as described above and the identification of a instantaneous maximum flow rate should ensure compliance with "proper operation" as described at 40 CFR §122.41(e).

EPA is also establishing a maximum daily effluent flow limit of 75 gpm for the ground water remediation system discharging through Outfall 003. The basis for the flow rate as well as other effluent characteristics of Outfall 003 are discussed further in Section V.E.11 of this Fact Sheet.

The combined total maximum daily effluent flow limit of 905 gpm for Outfall 001 reflects the sum of the maximum daily effluent flow limits for Outfalls 002 and 003.

2. Total Suspended Solids (TSS)

The Draft Permit limit for TSS through Outfalls 002 and 003 remains unchanged at 30 mg/l and 100 mg/l for the average monthly and maximum daily values, respectively. The monitoring frequency for this parameter in Outfall 002 has been reduced in the Draft Permit from semimonthly to monthly based upon the facility's performance during the previous permit cycle. The monitoring frequency for this parameter in Outfall 003 remains monthly except during periods of system start up (See Section V.E.11 of this Fact Sheet).

The TSS limits in the Draft Permit are based upon the limits established in the Current Permit in accordance with the anti-backsliding requirements found in 40 CFR §122.44(l). Heavy metals and polynuclear aromatic hydrocarbons are readily adsorbed onto particulate matter and the release of these compounds into the environment can be reduced by regulating the amount of suspended solids discharged.

The limits in the Current Permit were developed based upon a BPJ determination. In making this determination, EPA considered the technology guidelines promulgated at 40 CFR Part 423 for the Steam Electric Power Point Source Category for guidance. Steam electric generating facilities, similar to bulk petroleum storage facilities, frequently include the storage of fuel oil on their premises. In developing effluent limits for Steam Electric Source Category, 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 (USEPA, 1982). EPA then considered the level of treatment that could be technologically achieved for TSS using an O/W Separator and set corresponding limits in the guidelines (See 40 CFR Part 423 "low volume waste sources"). Given the similarities between the storage of petroleum products at bulk stations and terminals and the storage of fuel oil at steam electric facilities, EPA is using the same TSS limits established for steam electric facilities for bulk petroleum storage facilities.

There were several instances during the previous permit cycle when TSS limits were exceeded for what is being designated as Outfall 002 in this Draft Permit, as shown in the summary of the discharge monitoring data submitted by the facility during the time period of 1998 to 2003 (See Attachment A to this Fact Sheet). Most of the exceedances, which occurred early on in the previous permit cycle, were for the monthly average TSS limit. However, the facility has been able to consistently meet its TSS limits over the last several years through the proper operation of a correctly-sized O/W Separator, appropriate source controls, routine inspections, preventative maintenance, and implementation of good housekeeping programs.

3. Oil and Grease

The Draft Permit limit for Oil and Grease (O&G) for Outfall 002 remains unchanged at 15 mg/L, for the maximum daily value. The monitoring frequency for this parameter has been reduced from

semimonthly to monthly based upon the facility's performance during the previous permit cycle. An alternate parameter (i.e., total petroleum hydrocarbons) is used in Outfall 003 as an indicator of similar types of contaminants (See Section V.E.11.b of this Fact Sheet).

O&G is to be measured using EPA method 1664. Originally this effluent limit was established by EPA-Headquarters as guidance to, and as a means of establishing a categorization within, the petroleum marketing terminals and oil production-facilities - categories. However, 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 O/W Separator and properly implemented best management practices. EPA has made a BPJ determination based upon the technology-based and performance information to continue with an O&G limit of 15 mg/L in the Draft Permit.

As noted in Section V.D. of this Fact Sheet, O&G is one of the pollutants identified by the State of Massachusetts as having contributed to the impairment of Chelsea River. The MADEP uses a narrative description (e.g., waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water) rather than a numeric threshold to identify whether this pollutant is an issue for a water body. The information contained in the *Massachusetts Year 2002 Integrated List of Waters* (MADEP, September 2003) and in the *Boston Harbor Watershed 1999 Water Quality Assessment Report* (MADEP, October 2002) does not clearly identify the basis for why O&G was identified as a problem in Chelsea River. However, the *Boston Harbor Watershed 1999 Water Quality Assessment Report* does mention a small number of historic spills which took place during the transportation and offloading of petroleum products along the Chelsea River. These spills, which would have produced a visible film on the surface of the water, would have likely exceeded the MADEP's criteria for O&G. Such spills are under the jurisdiction of the U.S. Coast Guard (See 33 CFR Part 154) rather than EPA's NPDES program and the results appear unrelated to the performance of any of the storm water treatment systems at the petroleum bulk stations and terminals along Chelsea River.

EPA believes that the controls in place at Global Petroleum (i.e., Draft Permit limit for O&G of 15 mg/L and Best Management Practices) should ensure that the storm water discharge from the facility does not contribute to the further impairment of Chelsea River. An effluent limit for O&G of 15 mg/L should ensure that the discharge from the facility will be free from oil, grease and petrochemicals that might produce a visible film on the surface of the water. Best Management Practices being implemented by the facility, which include a Storm Water Pollution Prevention Plan, ensures that there is a program in place at the facility to limit the amount of pollutants being discharged with storm water runoff. Best Management Practices are fully enforceable permit conditions that serve to prevent pollution, rather than simply treat it. Global Petroleum has demonstrated its ability to meet the O&G permit condition in the Current Permit as shown in the summary of the discharge monitoring data submitted during the time period of 1998 to 2003 (See Attachment A to this Fact Sheet).

4. pH

Massachusetts State Surface Water Quality Standards require the pH of Class SA and Class SB waters to be within the range of 6.5 to 8.5 standard units (s.u.). A pH permit limit range of 6.5 to 8.5 has been established in the Draft Permit in accordance with the State Surface Water Quality Standards for Outfalls 002 and 003. The pH is to be monitored on a monthly basis for Outfall 002. The monitoring frequency for pH in Outfall 003 remains monthly except during periods of system start up (See Section V.E.11 of this Fact Sheet).

The discharge shall not exceed this pH range unless due to natural causes. In addition, there shall be no change from background conditions that would impair any uses assigned to the receiving water class. A summary of the discharge monitoring data submitted by the facility during the time period of 1998 to 2003 is included as Attachment A to this Fact Sheet. The Current Permit does not include a limit for pH, and as such, violations were not noted on the occasions during the previous permit cycle when the pH reported by the facility exceeded the range of 6.5 to 8.5.

5. Polynuclear Aromatic Hydrocarbons

Polynuclear Aromatic Hydrocarbons (PAHs) are a group of organic compounds which are found throughout the environment. PAHs are primarily introduced into the environment through the incomplete combustion of organic compounds. PAHs are also present in crude oil and some of the heavier petroleum derivatives and residuals (e.g., No. 2 Fuel Oil and asphalt). Spillage or discharge of these products can serve to introduce PAHs into the environment. PAHs will strongly adsorb to suspended particulate matter and biota and, can also bio-accumulate in fish and shellfish.

There are sixteen (16) PAH compounds identified as priority pollutants under the CWA (See 40 CFR 423 - Appendix A). Several of these PAHs are well known animal carcinogens, others are not considered carcinogenic alone but can enhance or inhibit the response of the carcinogenic PAHs. Typically, exposure would be to a mixture of PAHs rather than to an individual PAH.

EPA required the permittee to submit a PAH pollutant scan (for the 16 PAH compounds identified as priority pollutants) from the storm water outfall at the facility as part of the permit renewal application process for the Current Permit because of the health concerns discussed above and the potential for PAHs to be present in some of the heavier petroleum distillate and residual products stored at the facility. A similar requirement was put in place for the petroleum bulk stations and terminals located in South Portland, Maine starting in the early 1990's.

The sampling results from this facility did not show the presence of any of the reported 16 PAH compounds confirming a similar trend noted for the majority of the hundreds of quarterly samples obtained from the South Portland facilities. As a result, the Current Permit was issued with a requirement for quarterly monitoring without any limits for the following seven (7) PAH compounds identified as probable human carcinogens:

Benzo(a)anthracene	Benzo(a)pyrene
Benzo(b)fluoranthene	Benzo(k)fluoranthene
Chrysene	Dibenzo(a,h)anthracene
Indeno(1,2,3-cd)pyrene	

All of the petroleum storage terminals and facilities that had a reasonable potential to discharge PAHs into Boston Harbor were required to continue monitoring for PAHs. The seven (7) PAH compounds identified above for monitoring purposes, were selected primarily based on their toxicity and presence in petroleum products. EPA proposed as part of the Current Permit to evaluate the monitoring results to be collected from these facilities and to determine whether there was a need to establish PAH limits.

EPA has reviewed the storm water discharge monitoring data for PAHs submitted by Global Petroleum since the issuance of the Current Permit in 1997. The seven (7) PAHs analyzed for were not detected above their respective reporting limits during any of the quarterly sampling events which occurred since 1997. A majority of the other petroleum bulk stations and terminals located along Chelsea Creek also reported similar results. The reporting limits for each of the seven PAH compounds were typically around 5 µg/L (or 5 parts per billion) early on in the permit cycle and later decreased to around 1 µg/L (or 1 part per billion). A summary of the discharge monitoring data submitted by the facility during the time period of 1998 to 2003 is included as Attachment A to this Fact Sheet. A separate summary table providing the monitoring results from 2001 to 2003 for PAHs with their respective detection limits can be found in Attachment B to this Fact Sheet. As can be seen from a review of both attachments, there were no PAHs detected at the facility since the issuance of the Current Permit.

Based on EPA's review of the data from this facility as well as the other facilities for which PAH data were collected, EPA has concluded that permit limits for PAH compounds at Outfall 002 are not required at this time (with the exception of naphthalene which is discussed below). A similar discussion concerning EPA's approach towards PAHs in Outfall 003 can be found in Section V.E.11.c of this Fact Sheet.

Given the potential health concerns related to PAHs, the type of petroleum products stored at the facility, the historical levels of PAHs which have been documented in the sediment of Chelsea River and Boston Harbor, and the fact that priority organics were one of the "pollutants" identified by MADEP contributing to the impairment of Chelsea River, EPA will require the facility to continue to monitor Outfall 002 for PAHs without limits on a quarterly basis (with the exception of naphthalene which is discussed below). Future monitoring will be required to achieve the following Minimum Level (ML) of reporting for each of the PAH compounds identified below:

Benzo(a)anthracene	<0.05 µg/L	Benzo(a)pyrene	<2.0 µg/L
Benzo(b)fluoranthene	<0.1 µg/L	Benzo(k)fluoranthene	<2.0 µg/L
Chrysene	<5.0 µg/L	Dibenzo(a,h)anthracene	<0.1 µg/L
Indeno(1,2,3-cd)pyrene	<0.15 µg/L	Naphthalene	<0.2 µg/L

The ML is defined as the level at which the entire analytical system gives recognizable mass spectra and acceptable calibration points. This level corresponds to the lower points at which the calibration curve is determined based on the analysis of the pollutant of concern in reagent water.

EPA has added naphthalene to the list of PAH compounds to be reported by the facility and has included a technology-based maximum daily limit of 20 µg/L for naphthalene in the Draft Permit for Outfalls 002 and 003. Naphthalene is considered an important limiting pollutant parameter based upon the prevalence of this compound in petroleum products including gasoline (Potter, 1998) and its toxicity (i.e., naphthalene has been identified as a possible human carcinogen). As discussed in Section V.C.1 of this Fact Sheet, a release of gasoline at the facility in 1997 impacted portions of the ground water below the terminal yard. Despite the corrective actions taken by the facility, contaminated ground water continues to make its way into the storm water conveyance system. As a result the facility must treat the mixture of storm water and ground water flowing through the storm water system with activated carbon before it can be discharged. EPA has selected naphthalene as an PAH indicator compound for the contaminated ground water portion of the discharge based on a process similar to that used for identifying benzene as the limiting pollutant in the BTEX suite of compounds (See Section V.E.6 of this Fact Sheet).

As noted in Section V.D. of this Fact Sheet, "priority organics" were one of the pollutants identified by the State of Massachusetts as having contributed to the impairment of Chelsea River. The information contained in the *Massachusetts Year 2002 Integrated List of Waters* (MADEP, September 2003) and in the *Boston Harbor Watershed 1999 Water Quality Assessment Report* (MADEP, October 2002) does not clearly identify the basis for identifying priority organics as a problem in Chelsea River. However, MADEP personnel indicated during followup conversations that the primary stressor under the priority organics category was believed to be polychlorinated biphenyls (PCBs). The *Boston Harbor Watershed 1999 Water Quality Assessment Report* notes that a health advisory was issued by Massachusetts in 1988 for Boston Harbor based primarily on the presence of elevated levels of PCBs. The data from Boston Harbor was extrapolated to Chelsea River based on the fact that this also is an estuarine environment. PCBs are not typically associated with petroleum products and as such there is no limits or monitoring requirements for these compounds in the Current as well as the Draft Permit.

6. Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX)

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

VOCs such as benzene, toluene, ethylbenzene, or the three xylene compounds (BTEX) are normally found at relatively high concentrations in gasoline and the light distillates (e.g., diesel fuel) and then at decreasing concentrations in the heavier grades of petroleum distillate products (e.g., fuel oils). Since many petroleum spills involve gasoline or other light distillates, a traditional approach for such spills has been to limit the aggregate parameter of BTEX compounds. This approach partially stems from the availability of information concerning the health effects and physical properties of these compounds as well as the relatively high concentrations at which they are found in gasoline and other light distillates.

Of these four compounds, benzene has one of the highest solubilities, it is one of the most toxic constituents, and is found at relatively high concentrations in the light distillates. The concentration of benzene in gasoline is approximately 20,000 parts per million (Potter, 1998). Because of the reasons mentioned above, benzene can be considered one of the most important limiting pollutant parameters found in gasoline or other light distillates. Building on this premise, benzene can be used as an indicator-parameter for regulatory as well as characterization purposes of storm water which comes in contact with light distillate products. The primary advantage of using an indicator-parameter is that it can streamline monitoring efforts while simultaneously maintaining an effective level of environmental protection.

To better regulate the "potential" for gasoline and/or light distillates to come in contact with storm water via ancillary operations at this facility (i.e., such as product spills during loading and unloading operations), EPA included a quarterly monitoring requirement for BTEX and a maximum daily effluent limit of 500 µg/L for benzene in the Current Permit. The effluent limit of 500 µg/L established in the Current Permit was based on Best Professional Judgement and was derived from the demonstrated level of performance of Oil/Water Separators treating storm water at a dozen oil terminals located along the East Coast and Southern States.

A summary of the discharge monitoring data submitted by the facility during the time period of 1998 to 2003 for what is being designated as Outfall 002 in this Draft Permit is included as Attachment A to this Fact Sheet. A separate summary table providing the monitoring results from 2001 to 2003 for VOCs with their respective detection limits can be found in Attachment C to this Fact Sheet. Benzene concentrations identified in the discharge from the facility as shown in Attachment A were typically non-detect (i.e., below the laboratory reporting limit of 5.0 µg/L). On the few occasions where benzene was detected in the discharge from the facility, it was reported at one to two orders of magnitude below the effluent limit in the Current Permit (i.e., 500 µg/L). Similarly, a majority of the quarterly sampling events did not detect the presence of toluene, ethylbenzene, and total xylenes in the discharge from the facility. On the few occasions where any of these compounds were detected, they were typically reported at very low concentrations (i.e., in the low parts per billion range).

Global Petroleum has been operating a separate carbon treatment system since 1998 to remove the pollutants found in the contaminated ground water which is migrating into the storm water system. The carbon system is providing additional treatment (i.e., beyond that of the O/W Separator) to help remove the elevated levels of VOCs associated with the earlier gasoline spill.

Properly designed carbon treatment systems can remove those VOCs typically found in gasoline contaminated ground water down to the low parts per billion range. Based on the performance of such treatment systems, the Draft Permit includes a maximum daily limit for benzene as well as the aggregate sum of the BTEX compounds of 5 µg/L and 100 µg/L, respectively, for Outfalls 002 and 003. The permit also requires that individual toluene, ethylbenzene, and total xylene concentrations be monitored and reported on a monthly basis.

The effluent limits for Outfalls 002 and 003 also include a maximum daily limit of 5 mg/L for Total Petroleum Hydrocarbons (TPH). TPH, measures the total concentration of all petroleum related hydrocarbon compounds within a specified carbon range (Weisman, 1998). The petroleum related compounds included within this analysis range from compounds with 6 carbon (C_6) atoms to compounds with 25 carbon atoms (C_{25}). The use of TPH concentrations to establish target cleanup levels for soil or water is a common approach implemented by regulatory agencies in the United States (Weisman, 1998). EPA has made a BPJ determination based upon the technology-based and performance information to include TPH in this permit.

7. Methyl Tertiary-Butyl Ether (MTBE)

Another potential contaminant of concern found in gasoline is methyl tertiary-butyl ether (MTBE). MTBE is a synthetic compound used as a blending component in gasolines (e.g., oxygenated fuels, reformulated gasolines, and conventional gasolines). Since 1979 it has been used at low levels in gasoline (e.g., concentrations of 2-4 percent by volume) as a replacement to lead to enhance octane levels. MTBE has been used at higher concentrations (e.g, concentrations of 11-15 percent by volume) in some gasoline since 1992 to fulfill the oxygenate requirements established in the 1990 Clean Air Act Amendments. Due to its small molecular size and solubility in water, MTBE moves rapidly into the ground water, faster than do other constituents of gasoline. Because of these physical properties, MTBE has been detected in ground water in a growing number of studies conducted throughout the country. In some instances, these contaminated waters are a source of drinking water.

Since the spill impacting the discharge from Outfalls 002 and 003 involved gasoline, EPA has included a maximum daily limit for MTBE in the Draft Permit. Although there is a significant amount of research available regarding the toxicity MTBE, it is currently not listed as a priority pollutant by EPA and as such has not had either aquatic or human health standards developed yet under EPA's water quality program. Monitoring reports from gasoline remediation sites covered under exclusion authorizations demonstrate that using best available technology (e.g., air stripping and/or carbon) a MTBE limit of 70 µg/L can be consistently met by a properly designed and maintained treatment system. Therefore, EPA has established a technology-based limit for MTBE of 70 µg/L for Outfalls 002 and 003 in this Draft Permit. The facility is required to monitor and report MTBE concentrations for Outfall 002 on a monthly basis. The monitoring frequency for this parameter in Outfall 003 remains monthly except during periods of system start up (See Section V.E.11 of this Fact Sheet).

A summary of the discharge monitoring data submitted by the facility for what is being designated as Outfall 002 in this Draft Permit during the time period of 1998 to 2003 is included as Attachment A to this Fact Sheet. A separate summary table providing the monitoring results from 2001 to 2003 for MTBE and other VOCs with their respective detection limits can be found in Attachment C to this Fact Sheet. The concentrations of MTBE reported by the Global Petroleum terminal (after carbon treatment) during the quarterly sampling events range from non-detect (e.g., not found above the reporting limit of 5 µg/L for the laboratory) to several orders of magnitude larger than the MTBE limit of 70 µg/L proposed in this Draft Permit. The sampling events exceeding 70 µg/L of MTBE were not considered a violation since the Current Permit did not contain an effluent limit for MTBE.

8. Tank-Bottom and Bilge Water

The bottom of many petroleum product storage tanks may contain a layer of water that has separated from the stored petroleum product due to the density difference between the product and water. As this water coalesces and then settles to the bottom of the tank, compounds including BTEX and PAHs found in the product above it are able to partition and dissolve into the water. The partitioning and dissolution allows the concentrations of some of the more soluble and denser petroleum components to reach toxic levels. Facility operators drain this layer of water to prevent transfer with the finished product as well as to free up valuable storage space.

Whereas storm water contacts only those hydrocarbons spilled on the ground and then only for short periods of time; tank-bottom and bilge water remains in intimate proximity with petroleum derivatives for prolonged periods of time, allowing toxic pollutants to dissolve into the aqueous phase. EPA Region I considers both tank-bottom and bilge water "process wastewater", since soluble toxic materials can partition from the petroleum product into the water over time. To protect Boston Harbor from toxic pollutants dissolved in tank-bottom and bilge water, EPA is prohibiting the permittee from discharging any tank-bottom or bilge water alone or in combination with storm water or other wastewater.

9. Hydrostatic Test Water Discharges

Occasionally repairs are made at the facility to the tanks and the piping used for the storage and conveyance of petroleum products. 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 "gas-free." After completing certain maintenance work, the vessels and/or pipe networks may require hydrostatic testing (e.g., to be filled with water and monitored for changes in water levels) before product replacement. Some of the bulk petroleum storage facilities located along Chelsea River use the river as a source of test water. Thus, hydrostatic test water discharge may contain minimal amounts of foreign matter, trace amounts of hydrocarbons, and other background material found in the river. Other facilities use potable water as a source of test water and as a result their may be some residual chlorine present in the discharge. As a precaution, the hydrostatic test water shall be monitored as described below and treated through the O/W Separator prior to being discharged to the Chelsea River. In addition, the flow of

hydrostatic test water into the O/W Separator shall be controlled to prevent it from exceeding the maximum design flow rate of the separator.

At a minimum, four (4) representative samples shall be taken of the hydrostatic test water: one (1) grab sample of the influent test water; and three (3) serial-grab samples of the hydrostatic test water effluent. The influent grab sample shall be taken approximately midway through the fill segment of the hydrostatic test procedure. The three (3) effluent serial-grab samples shall be taken over the duration of the entire discharge segment of the hydrostatic test procedure. The first effluent serial-grab sample shall be taken during the initial phase of discharge; the second around the midpoint; and the third near the end of the discharge. The effluent serial-grab samples shall be obtained before discharge into the O/W Separator and/or mixing with any storm water or other non-storm water flow.

These influent and effluent samples shall be analyzed for the following parameters:

1. Total Suspended Solids (TSS)
2. Oil & Grease (O&G)
3. pH
4. Dissolved Oxygen (DO)
5. Total Residual Chlorine
6. BTEX
7. MTBE
8. PAHs (16 compounds)

Testing for total residual chlorine is only required when potable water or a similar source of water which is likely to contain a residual chlorine concentration is used for hydrostatic testing. Testing for MTBE is only required if the tank undergoing testing was recently (i.e., within three years of the proposed testing date) used to store gasoline.

During discharge (i.e., approximately at the same time the three effluent grab samples are taken), the flow exiting through the O/W Separator and outfall should be observed in order to prevent the inadvertent release of hydrocarbons to the receiving water(s). 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 permittee shall immediately halt the discharge of hydrostatic test water and take steps to correct the problem.

Sampling of the above parameters is needed to provide adequate characterization of the influent and effluent hydrostatic test water and to identify whether there are any contaminant residuals present in the hydrostatic test water which might require the conditions in the Draft Permit to be modified or reopened.

The permittee shall submit a letter/report to EPA and the MADEP, summarizing the results of the transfer within forty-five (45) days of completion of the test. This report shall contain: the date(s) of hydrostatic test water transfer; the source of the test water; the volume of test water transferred;

a copy of the analytical results identifying the detection limits and associated quality assurance/quality control information for all of the discharge monitoring required in the Draft Permit; and a brief discussion of the overall test results and how they relate to the discharge parameters and their respective effluent limits identified in the Draft Permit. Any changes to these procedures must be approved by EPA and the State prior to their implementation.

10. Transfer of Storm Water from Global Petroleum Facility

The Draft Permit authorizes under certain conditions the transfer of storm water accumulated in the tank farm area of the Global Petroleum facility, to the Global South Terminal, LLC (MA0000825) for treatment. Similar requirements and conditions concerning the transfer of storm water have been included in the Global South Terminal, LLC Draft Permit. Such transfers have been requested and allowed in the past due to the more limited rate at which water can be treated and processed at the Global Petroleum facility through the activated carbon system. The extended storage of storm water in the tank farm area at the Global Petroleum facility could potentially cause flooding and/or limit the amount of petroleum product that could be stored within the secondary containment in the event of a spill. To prevent this, EPA believes its acceptable to allow the transfer of storm water to take place since the storm water within the tank farm at the Global Petroleum has not been in contact with contaminated ground water and both tank farms store similar types of petroleum products. Accordingly, EPA and the MADEP are allowing Global Petroleum to transfer storm water from its tank farm to the tank farm of the Global South Terminal, LLC as long as the monitoring, engineering controls, Best Management Practices, and reporting requirements identified in the Global South Terminal, LLC Draft Permit are met.

11. Discharge of Treated Ground Water (Outfall 003)

The Draft Permit establishes an internal waste stream outfall (Outfall 003) through which treated ground water is to be discharged into the storm water conveyance system upstream of Outfall 001. The discharge of treated ground water is currently allowed through a NPDES Permit "Exclusion" letter issued by EPA to the facility (NPDES Exclusion #MA 02I-079) on November 8, 2002. The internal waste stream outfall along with its respective effluent limits was established to ensure that monitoring results reflect the true characteristics of the waste stream and not that of the more dilute storm water with which it is sometimes being mixed (See 40 CFR §122.45(h)).

Attachment D to this Fact Sheet contains a copy of the monitoring reports submitted by the facility during 2004 for the old ground water remediation system. The facility was able to comply with the conditions of the Exclusion letter during this time period. A copy of the Exclusion letter is also contained in Attachment D to this Fact Sheet.

As mentioned in Section V.C.2 of this Fact Sheet, the facility is planning to bring its new ground water treatment system on line during the Spring of 2005. Once the new system is operating properly, Global Petroleum plans to take the old ground water treatment system out of service.

Effluent samples taken in compliance with the monitoring requirements specified in the Draft Permit shall be taken at the outlet(s) of the ground water remediation system(s), prior to where treated ground water is discharged into the storm water conveyance system. The results of such sampling shall be reported to EPA on the appropriate discharge monitoring report. The facility also takes influent samples to help with the operation of the ground water treatment system. The influent sampling results shall be attached to the discharge monitoring report containing the corresponding effluent sampling results.

The frequency of sampling of the old ground water treatment system will continue on a monthly basis for influent and effluent samples until the system is shut down. Influent and effluent samples from new ground water treatment system will be obtained once each day for the first, third and sixth day of discharge during start up. These samples must be analyzed within a 72-hour turnaround time. If the system is working properly (i.e., if it is in compliance with the effluent limits and conditions established in this Draft Permit), sampling for the remainder of the month shall be weekly and then monthly thereafter.

Ground water in contact with spilled petroleum product for an extended period of time has the potential to be contaminated with compounds found in that product. As a result, compounds, such as BTEX and PAHs, may partition and dissolve into the ground water and potentially reach toxic levels. Accordingly, more stringent and extensive effluent limits are required for the ground water treatment system before it can discharge wastewater from the facility. The lower limits established for this waste stream also reflect that it is a continuous discharge rather than intermittent discharge (i.e., like storm water). The effluent characteristics identified in Part I.A.3 of the Draft Permit are discussed in more detail below.

a. Flow

The Draft Permit establishes a limit for the maximum daily flow rate of 75 gpm (i.e., 25 gpm from the old system and 50 gpm from the new system) for Outfall 003. Once the old treatment system has been shut down the flow rate of treated ground water will be closer to 50 gpm. However, the permit limit for Outfall 003 will remain at 75 gpm in case the old system needs to be brought back on line. The maximum daily value represents the maximum daily flow rate of treated ground water discharged by the facility during the reporting period. The Draft Permit also requires the facility to report total flow, which is the value that represents the total monthly flow rate in millions of gallons for that month. The maximum daily flow rate as well as the total flow rate shall be based upon the totalizer flow results or an equivalent flow measuring device which has been approved by EPA and MADEP.

b. Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), Total Petroleum Hydrocarbons (TPH), and Methyl Tertiary-Butyl Ether (MTBE)

Historic information indicates that the spill impacting the ground water at the facility involved gasoline. As discussed previously in Part V.E.6 of this Fact Sheet, effluent limits are not typically established for every compound found in a petroleum release. Instead, limits are established for

the compounds that would be the most challenging to remove as well as demonstrate the greatest degree of toxicity. Based on this approach, Outfall 003 includes a maximum daily limit for benzene as well as the aggregate sum of the BTEX compounds. The permit also requires that individual toluene, ethylbenzene, and total xylene concentrations be monitored and reported on a quarterly basis. EPA has made a BPJ determination based upon technology-based criteria to establish effluent limits for benzene and BTEX at 5 µg/L and 100 µg/L, respectively.

The effluent limits for Outfall 003 also include a maximum daily limit of 5 mg/L for Total Petroleum Hydrocarbons (TPH). TPH, measures the total concentration of all petroleum related hydrocarbon compounds within a specified carbon range (Weisman, 1998). The petroleum related compounds included within this analysis range from compounds with 6 carbon (C_6) atoms to compounds with 25 carbon atoms (C_{25}). The use of TPH concentrations to establish target cleanup levels for soil or water is a common approach implemented by regulatory agencies in the United States (Weisman, 1998). EPA has made a BPJ determination based upon the technology-based and performance information to include TPH in this permit.

Since the spill involved gasoline, EPA has included a maximum daily limit for MTBE. EPA has established a technology-based limit for the discharge of MTBE from Outfall 003 at 70 µg/L. Monitoring reports from numerous gasoline remediation sites covered under exclusion authorizations demonstrate that using best available technology (e.g., air stripping and/or carbon) a MTBE limit of 70 µg/L can be consistently met by a properly designed and operated treatment system.

c. Polynuclear Aromatic Hydrocarbons (PAHs)

Effluent limits for Outfall 003 also includes a technology-based maximum daily limit of 20 µg/L for naphthalene. Naphthalene is considered an important limiting pollutant parameter based upon the prevalence of this compound in petroleum products (e.g., including gasoline) and its toxicity (i.e., naphthalene has been identified as a possible human carcinogen). Monitoring for naphthalene must be able to achieve a ML of <0.2 µg/L. The permit conditions for Outfall 003 do not include limits, reporting, and monitoring requirements for other PAHs associated with the heavier distillate products such as fuel oils since the release at the facility involved gasoline.

12. Prohibition of Non-Storm Water Discharges

Non-storm water discharges including fire protection foam, either in concentrate form or as a foam diluted with water, are excluded from coverage under this permit. EPA believes that there is a significant potential for these types of discharges to be contaminated. Thus, the permittee is required to obtain a separate NPDES permit for these non-storm water discharges prior to any such discharge or seek the necessary approval(s) from the appropriate local pretreatment authority to discharge to the sanitary sewer system.

However, this permit authorizes some non-storm water discharges. These discharges potentially include treated effluent from firefighting activities; fire hydrant flushings; and potable water

sources which may include vehicle, equipment, and surface wash-down waters which do not have chemicals (such as solvents, soaps, emulsifiers and/or detergents) added. To prevent hydrocarbon and/or particulate carry-over through the treatment system, the permittee shall not add chemicals, soaps, detergents, solvents, emulsifiers, etc. to any fresh water wash-down collection and treatment system without prior approval by EPA and the MADEP.

Treated effluent from these activities means that the effluent shall be directed to the O/W Separator either alone or commingled with storm water, prior to discharge from the outfall(s). No additional monitoring requirements, other than those specified in the Draft Permit, are necessary for these types of discharges.

13. Storm Water Pollution Prevention Plan

Pursuant to Section 304(e) of the CWA and 40 CFR §125.103(b), Best Management Practices (BMP) may be expressly incorporated into a permit on a case-by-case basis where necessary to carry out Section 402(a)(1) of the CWA. This facility stores and handles pollutants listed as toxic under Section 307(a)(1) of the CWA or pollutants listed as hazardous under Section 311 of the CWA and has ancillary operations which could result in significant amounts of these pollutants reaching the Chelsea River and Boston Harbor.

To control the activities/operations, which could contribute pollutants to waters of the United States via storm water discharges at this facility, the Current Permit required the facility to develop a Storm Water Pollution Prevention Plan (SWPPP) with site-specific BMPs. The SWPPP requirements and the BMPs identified therein are intended to facilitate a process whereby the permittee thoroughly evaluates potential pollution sources at the terminal and selects and implements appropriate measures to prevent or control potential discharges of pollutants in the storm water runoff. The SWPPP, upon implementation, becomes a supporting element to any numerical effluent limitations in the Draft Permit. Consequently, the SWPPP is as equally enforceable as the numerical limits.

The permittee has certified to EPA that a SWPPP was developed and implemented for this facility in accordance with the schedule and requirements identified in the Current Permit. The Draft Permit continues to ensure that the SWPPP is kept current and adhered to, by requiring the permittee to maintain and update the SWPPP as changes occur at the facility. In addition, the Draft Permit requires the permittee to provide annual certification to EPA and the MADEP, documenting that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in compliance with its SWPPP. A signed copy of the certification will be sent each year to EPA and MADEP as well as appended to the SWPPP within thirty (30) days of the annual anniversary of the effective date of the Draft Permit. This certification shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of the most recent SWPPP shall be kept at the facility and be available for inspection by EPA and MADEP.

14. Additional Requirements and Conditions

These effluent monitoring requirements have been established to yield data representative of the discharge under the authority of Section 308(a) of the CWA in accordance with 40 CFR §122.41(j), §122.44(i) and §122.48.

The remaining conditions of the permit are based on the NPDES regulations, Part 122 through 125 and consist primarily of management requirements common to all permits.

VI. ENDANGERED SPECIES ACT

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure 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 Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, or plants to see if any such listed species might potentially be impacted by the re-issuance of this NPDES permit. The review has focused primarily on marine species and anadromous fish since the discharge is to the Chelsea River (Mystic River Watershed) which ultimately flows into Boston Harbor. Given the urban nature of Chelsea Creek, EPA believes that it is unlikely that there would be any listed marine species (See Attachment E) or critical habitat present. Furthermore, effluent limitations and other permit conditions which are in place in this Draft Permit should preclude any adverse effects should there be any incidental contact with listed species either in Chelsea Creek and/or Boston Harbor. EPA has discussed the results of its determination with NMFS and a copy of the Draft Permit has been provided to NMFS for review and comment as part of an informal Section 7 consultation.

VII. ESSENTIAL FISH HABITAT

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat" (EFH). The Amendments define 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 which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910 (a)). Adverse effects may include direct (e.g.,

contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Id.

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b) (1) (A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

A review of the relevant essential fish habitat information provided by NMFS indicates that essential fish habitat has been designated for 15 managed species within the NMFS boundaries encompassing the outfall location. A copy of the managed species within the EFH is included in Attachment F. EPA has concluded that the permitted discharge will not likely adversely impact the EFH and the managed species identified for this general location. This conclusion is based on the amount and frequency of the discharge, as well as effluent limitations and other permit requirements that are identified in this Fact Sheet. These factors are designed to be protective of all aquatic species, including those with EFH designations.

EPA has determined that a formal EFH consultation with NMFS is not required because the proposed discharge will not adversely impact the EFH. If adverse impacts are detected as a result of this permit action, NFMS will be notified and an EFH consultation will promptly be initiated.

VIII. STATE CERTIFICATION REQUIREMENTS

EPA may not issue a permit unless the MADEP certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards or unless state certification is waived. The staff of the MADEP is reviewing the Draft Permit and will determine if the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the Draft Permit will be certified.

IX. ADMINISTRATIVE RECORD, PUBLIC COMMENT PERIOD, HEARING REQUESTS, AND PROCEDURES FOR FINAL DECISION

The Administrative Record containing the documents forming the basis of this Draft Permit is on file and may be inspected at the EPA Record Center located in Boston at 1 Congress Street between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays. Individuals interested in reviewing the Administrative Record should contact the Record Center staff at (617) 918-1440 to schedule an appointment.

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 the U.S. EPA, Office of Ecosystem Protection Attn: Neil Handler, 1 Congress Street, Suite 1100 (CIP), Boston,

Massachusetts 02114-2023 or via email to handler.neil@epa.gov. **The comments should reference the name and permit number of the facility for which they are being provided.**

A public hearing will be held after at least thirty (30) days public notice, since the Regional Administrator has determined that significant public interest exists regarding this Draft Permit. In reaching a final decision on the Draft Permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within thirty (30) days following the notice of final permit decision, any interested person may submit a request for a formal evidentiary hearing to reconsider or contest the final decision. Requests for a formal evidentiary hearing must satisfy the Requirements of 40 CFR §124.74. In general, the reader should reference 40 CFR 124–PROCEDURES FOR DECISION MAKING, Subparts A, D, E and F for specifics relative to this section.

X. EPA & MADEP CONTACTS

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

Neil Handler, EPA New England - Region I
1 Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023
Telephone: (617) 918-1334 FAX: (617) 918-0334
email: handler.neil@epa.gov

Paul Hogan, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
627 Main Street, 2nd Floor Worcester, Massachusetts 01608
Telephone: (508) 767-2796 FAX: (508) 791-4131
email: paul.hogan@state.ma.us

_____
Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

REFERENCES

ES&T. 2002. *MTBE Ambient Water Quality Criteria Development: A Public/Private Partnership.* Mancini, E.R., et al., Environmental Science & Technology, Vol. 36, No. 2. 2002.

Global. 2004. *Global Petroleum Corporation - NPDES Permit No. MA0003425, Responses to EPA Information Request Dated December 3, 2004.* Global Petroleum Corporation, Waltham, MA. June 2004.

MADEP. 2002. *Boston Harbor 1999 Water Quality Assessment Report.* Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA. October 2002 (70-AC-1)

MADEP. 2003. *Massachusetts Year 2002 Integrated List of Waters, Part 2 - Final Listing of Individual Categories of Waters.* Commonwealth of Massachusetts Executive Office of Environmental Affairs, September, 2003 (CN:125.2)

Potter, Thomas L. and Kathleen E. Simmons, 1998. *Composition of Petroleum Mixtures, Volume 2.* Total Petroleum Hydrocarbon Criteria Working Group Series, May 1998.

Triton, Inc. 2001. *NPDES Renewal - Wastewater Permit Application (MA 0003425), Global Petroleum Corporation - Revere, MA Terminal.* Triton Environmental, Inc., New Haven, CT. November 2001.

USEPA. 1982. *Development Document for Effluent Limitations Guidelines and Standards and Pretreatment Standards for the Steam Electric Point Source Category.* United States Environmental Protection Agency, Office of Water and Waste Management, Washington, D.C. EPA-440/1-82/029, November 1982.

USEPA. 2002. *National Recommended Water Quality Criteria:2002.* United States Environmental Protection Agency, Office of Water, Washington, D.C. EPA-822-R-02-047, November 2002.

FIGURES

ATTACHMENT A

SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS

(1998 TO 2003)

GLOBAL PETROLEUM CORPORATION

NPDES PERMIT NO. MA0003425

ATTACHMENT B

SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS

(2001 TO 2003)

FOR POLYNUCLEAR AROMATIC COMPOUNDS

GLOBAL PETROLEUM CORPORATION

NPDES PERMIT NO. MA0003425

ATTACHMENT C

SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS

(2001 TO 2003)

FOR VOLATILE ORGANIC COMPOUNDS

GLOBAL PETROLEUM CORPORATION

NPDES PERMIT NO. MA0003425

ATTACHMENT D

SUMMARY OF GROUND WATER MONITORING DATA

(2004)

GLOBAL PETROLEUM CORPORATION

NPDES PERMIT NO. MA0003425

ATTACHMENT E

ENDANGERED SPECIES LIST

ATTACHMENT F

ESSENTIAL FISH HABITAT DESIGNATION