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: **MA0004006**

PUBLIC NOTICE DATE:

NAME AND ADDRESS OF APPLICANT:

ConocoPhillips Company
467 Chelsea Street
East Boston, MA 02128

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

ConocoPhillips East Boston Terminal
467 Chelsea Street
East Boston, MA 02128

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

CLASSIFICATION: **SB**

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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 and treated ground water into the designated receiving water. The permit was issued to the East Boston Terminal Company Division of Tosco Corporation on August 14, 2000 (the Current Permit) and expired on August 14, 2005. Since that time, Tosco assets (including the East Boston Terminal) were acquired by ConocoPhillips, the current owner and permittee. EPA received a completed permit renewal application from ConocoPhillips dated July 14, 2005. Since the permit renewal application was deemed complete by EPA, the permit has been administratively continued. On April 18, 2006, EPA received a certified application amendment letter from ConocoPhillips. This amendment letter requested a new internal outfall for treated groundwater and informed EPA of product changes resulting from the replacement of Methyl tertiary-Butyl Ether (MtBE) with ethanol as gasoline oxygenate.

II. TYPE OF FACILITY

The ConocoPhillips East Boston Terminal, which is located in East Boston, Massachusetts, is engaged in the receipt, storage, and distribution of petroleum products. Figure 1 shows the terminal's location. The spectrum of fuels handled by this facility consists of gasoline, low sulfur diesel, jet fuel and fuel additives. Petroleum products and ethanol are received in bulk quantities at the terminal's marine vessel dock. Product is then transferred to aboveground storage tanks located within the facility's tank farm areas. Final distribution of product is conducted at the facility's truck loading rack with the exception of the jet fuel which is delivered to Logan Airport via a direct, dedicated pipeline. The NPDES discharge consists of treated: 1) storm water runoff; 2) hydrostatic tank and line test water; and 3) ground water. The storm water, hydrostatic test water, and ground water are collected in two dedicated tanks, treated and discharged to the Chelsea River through Outfall 001. The permit establishes one internal waste stream outfall (Outfall 002) with individual effluent limitations and monitoring requirements for the ground water that is being discharged to the facility's storm water collection and treatment system. The locations of Outfalls 001 and 002 are shown on Figure 2.

III. SUMMARY OF MONITORING DATA

A. Discharge Monitoring Data

A quantitative description of the discharge in terms of significant effluent parameters, based on discharge monitoring reports (DMRs) submitted for the East Boston Terminal during the time period of 2000 through 2005, is included in Attachment A. This data was collected and submitted in compliance with the Current Permit.

B. Additional Data

In addition to the DMR data, EPA requested the sampling and analysis of untreated, extracted ground water samples for priority pollutants, gasoline additives and iron. The samples were requested as a routine requirement for ground water remediation discharges and are consistent with pre-permit data requirements under the Remediation General Permit (Massachusetts General

Permit Number MAG910000).

Historical ground water quality data was also considered for this report. This data was compiled in a Draft Release Abatement Measure Plan prepared for the terminal site by Roux Associates, Inc. and dated June 28, 2001.

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. MA0004006).

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 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 have been complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 [See 40 CFR §125.3(a)(2)]. Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA 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 Judgment (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 criterion 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 similar narrative criteria in their water quality regulations that prohibit such discharges [See Massachusetts 314 CMR 4.05(5)(e)]. The effluent limits established in the Draft Permit assure that the surface water quality standards of the receiving water are protected, maintained, and/or attained.

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 as or more stringent than the Current Permit and accordingly will continue to protect the existing uses of the Chelsea River.

B. Description of Facility

The ConocoPhillips East Boston Terminal is a petroleum products bulk storage and distribution terminal. The terminal is located on the southern shore of the Chelsea River (see Figure 1), approximately one mile east of the confluence of the Mystic and Chelsea Rivers. The facility, which comprises approximately 28 acres, consists of marine bulk unloading facilities, petroleum storage tanks, a truck loading rack, a truck fleet maintenance garage, and an administration building (see Figure 2).

All of the petroleum product stored at the facility (with the exception of some limited inventory of fuel additives, heating oil for the buildings and maintenance materials) is received in bulk quantities by ship or barge. The bulk unloading facilities are located on the Chelsea River, on the north side of the site. Petroleum product consists of gasoline, low sulfur diesel, and jet fuel. Product is distributed by tank truck via the truck loading rack. Jet fuel is also delivered to Logan Airport via a direct, dedicated pipeline. Petroleum products are stored in 20 above ground storage tanks ranging in capacity from 281,600 gallons to 8,502,000 gallons. The tanks are situated within 12 diked containment areas. The total petroleum product storage capacity at the East Boston facility is 41.7 million gallons.

In addition to petroleum products, ConocoPhillips stores and uses petroleum additives which are mixed with gasoline or diesel on site at the truck loading rack. In addition to additives which are specific to branded gasoline, ConocoPhillips began receiving and distributing ethanol in April 2006. Ethanol has replaced Methyl tertiary Butyl Ether (MtBE) as the primary gasoline oxygenate used by ConocoPhillips. Ethanol is stored in Tank 126, a 2.7 million gallon tank. Additives, ethanol and heating oil for the administration building are delivered to the site by truck.

The truck loading rack is located near the southwest corner of the site with truck access from Chelsea Street. The loading rack consists of 16 bays at which tanker trucks are loaded with product. Since the facility ceased distributing heating oil ten years ago, ConocoPhillips has only been using seven of the 16 bays. Actions are in progress in the loading rack area to remediate petroleum contaminated groundwater.

C. Description of Discharge

This Draft Permit authorizes the discharge of treated storm water runoff, hydrostatic test water, and groundwater from Outfall 001. All discharged water is collected in one of two dedicated storage tanks and treated in the on-site treatment system prior to discharge. A schematic showing flow contributions to Outfall 001 is presented in Figure 3. The following paragraphs describe the three types of water that are collected, and discharged from Outfall 001.

1. Storm Water

The storm water collection system is used to collect storm water from the 12 diked areas that contain the product storage tanks as well as all drainage from roofs, paved driveways and paved parking areas. All storm water from these areas is pumped to tanks #50 and #57 for storage and

then treated in an on-site treatment system prior to discharge at Outfall 001. Approximately 90% of the 21 million gallons per year discharged from Outfall 001 is storm water.

Each diked containment area is equipped with a pump wet well. Since the diked areas are not paved, the first flush of rainwater (the whole storm, if it is a small one) infiltrates into the ground. However, when the diked areas do begin to fill up, a ConocoPhillips operator inspects the accumulated rain water. If no petroleum sheen is observed, the operator activates the wet well pump. The pump shuts down automatically when the water in the wet well draws down to a preset low level. The wet well pump must be manually restarted. If any petroleum sheen is observed, ConocoPhillips personnel use absorbent pads to soak up the product causing the sheen before starting the wet well pump.

ConocoPhillips sometimes transfers storm water from one diked area to another if equipment in a particular diked area is at risk of flooding.

The loading rack area, where product is mixed and distributed to tanker trucks, is a paved area encircled by a shallow concrete berm. Any spillage or rain water falling within the bermed area is collected in a dedicated loading rack area drainage system and pumped into nearby above ground storage tanks for off-site disposal. Rain falling on the loading rack roof, which partially covers the loading rack, collects in perimeter gutters and is transferred to the storm water storage tanks.

The two tanks used for storm water storage are currently hydraulically connected, although one tank is larger in diameter and slightly higher than the other. The tanks are heated with heating coils that extend 7 feet up from the bottom of each tank's interior surface. To keep the coils submerged, the lowest operating level in the tanks is 7 feet. ConocoPhillips personnel periodically inspect the water surface in the tank for petroleum sheen. If a visible sheen is apparent, floating product can be removed from the water surface with oil-absorbent material or the tank can be drained to the 7 foot level (via a tank port at that level) to decant the floating product. From the storage tanks, the storm water is transferred to the storm water treatment system with a centrifugal pump with a total pumping capacity of about 430 gpm. Currently, there is an orifice plate restrictor (in-line donut shaped steel plate) limiting flow from the centrifugal pump to less than the pumping capacity.

The treatment system is housed in a corrugated steel building located near the facility's dock in the former "forties" area. It consists of an API cone-bottom cylindrical oil/water separator equipped with coalescing media. After the separator, the water flows through three multimedia sand filters (two trains of three filters in series, each). These are followed by two 20,000 lb carbon adsorption units in series. A schematic showing the flow from Tanks 50 and 57 through the storm water treatment system is presented in Figure 4.

2. Hydrostatic Test Water

Occasionally, repairs are made at the facility to tanks and 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 Pigges") and certified as being gas-free. After completing certain maintenance work, the vessels and/or pipe networks may be hydrostatically tested for leaks. Hydrostatic testing involves filling the vessel or pipe with water under pressure and monitoring pressure drops over time. If the system maintains a constant pressure, there are no leaks. River water or potable water may be

used as a source of hydrostatic test water. Thus, hydrostatic test water discharge may contain minimal amounts of foreign matter, trace amounts of hydrocarbons, background material found in the river or residual chlorine. Approximately 1.1 million gallons of hydrostatic test water are discharged from Outfall 001 each year.

3. Ground Water

There is a ground water/soil remediation project ongoing at the site. The remediation project consists of two remediation systems built in 2003. One is a soil vapor extraction (SVE) system in the loading rack area and the other is an oil recovery project in the tank farm area on the east side of Chelsea Street. The SVE system contributes groundwater flows to Outfall 001. The oil recovery project in the tank farm area is a product-only recovery effort and does not involve groundwater extraction or discharges.

The SVE system consists of a network of shallow screened wells used to depress the water table (via low flow groundwater pumps) and extract petroleum laden air from the unsaturated zone. Until now ground water has been pumped from the wells through an oil/water separator inside a treatment trailer and into a frac tank. The frac tank has been used to equalize flow for pumped transfer to the storm water collection tanks (#s 50 and 57 as described below). The air is drawn from the soil via two blowers, also housed in the treatment trailer. Vapor phase carbon units are used to treat the extracted air.

The SVE system recovers water and oil from 13 wells in the loading rack area using down-well pneumatic groundwater depression pumps. The ground water depression pumps operate about 90% of the time. When they are first turned on, the well pumps produce a total flow of about 10 gpm of ground water and product. However, they typically stabilize at an average total flow of 3 to 5 gpm with occasional shut downs for maintenance activities. The contamination plume under the loading consists of gasoline and fuel oils.

In addition to the light non-aqueous phase liquids (LNAPL) collected by the SVE system, some wells in the loading rack area are used for dense non-aqueous phase liquid (DNAPL) product recovery using deeper product-only pumps to extract heavier fuel oils that are deeper in the water column. This DNAPL is collected and shipped off site for disposal.

The Draft Permit establishes an internal waste stream (Outfall 002) through which only treated ground water will be discharged into the storm water collection system upstream of the storm water treatment system and Outfall 001. The discharge of ground water is currently allowed under the Current Permit. However, under the Current Permit, groundwater combines with storm water and hydrostatic test water and is treated in the storm water treatment system. Outfall 002, along with its effluent limits and monitoring requirements has been established in the Draft Permit to ensure that monitoring results reflect the true characteristics of this remediation waste stream and not the more dilute storm water with which it is being mixed (See 40 CFR § 122.45(h)).

The creation of the internal outfall will require the installation of a new ground water treatment system specifically to treat groundwater contaminants of concern. The ground water treatment system will consist of the following:

1. Product removal in the existing oil water separator;
2. Flow equalization in the existing frac tank equipped with a discharge pump;
3. Filtration through two bag filters, in series, to remove oxidized iron;

4. Carbon adsorption as flow continues through two 500-pound liquid-phase granular activated carbon units, in series, to reduce the concentration of petroleum organic compounds in the waste stream;
5. Filtration as flow continues through two additional bag filters, in series, to further reduce the amount of particulates; and
6. Cyanide removal as flow continues through two specially treated 500-pound liquid-phase granular activated carbon units, in series.

As of the effective date of the permit, only groundwater treated in the new ground water treatment system may be discharged into the storm water collection system.

Samples taken in compliance with the monitoring requirements specified in the Draft Permit shall be taken at the outlet of the ground water remediation system, prior to where treated ground water is discharged into the storm water collection system. Since the ground water treatment system is a new system, monitoring frequency will be monthly.

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 as a Class SB water body by the State of Massachusetts (See Part V.A.4. of this Fact Sheet for additional information).

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 4.00) resides with the MassDEP. The MassDEP 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* (MassDEP, 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 MassDEP, 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 MassDEP 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 standards and best professional judgment. 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 non-attainment of surface water quality criteria, then the permit may be re-opened. Additional details are provided below (See Sections V.E.3 and V.E.5 of this Fact Sheet) 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.

E. Proposed Permit Effluent Limitations and Conditions

This 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).

The Draft Permit is conditioned to: (1) better regulate plausible non-storm water discharges (e.g., hydrostatic test water and groundwater remediation system effluent) 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 Best Management Practices Plan (BMPP) requirements in the Draft Permit. In addition, EPA has decided to include numeric effluent limitations (e.g., technology-based and water quality-based limits) in the Draft Permit to ensure that petroleum constituents do not contribute to violations of the State's water quality standards.

Thus the Draft Permit for ConocoPhillips East Boston Terminal, authorizing the discharge of storm water, hydrostatic test water, and groundwater includes numeric effluent limits and requires the development, implementation, and annual review of the BMPP prepared for the facility. The effluent parameters in the Draft Permit are discussed in more detail below according to the effluent characteristic(s) being regulated.

The ground water remediation system discharge to internal Outfall 002 (newly established in this permit) is a result of historic contaminant releases unique to previous site uses. Thus, some of the effluent limitations and monitoring requirements for Outfall 002 are unique to that outfall. For example, MtBE and cyanide are not currently handled in product or process materials at the site. Therefore, MtBE and cyanide are believed to be absent from storm water and hydrostatic test water.

With the exception of MtBE, ethanol, and cyanide, all of the parameters discussed in the following paragraphs were monitored at Outfall 001 during the last permit cycle. Monitoring data for these parameters collected at Outfall 001 from 2000 to 2005, referred to below, is summarized in Attachment A.

1. Outfall 001

a. Flow

The typical treatment technology employed by petroleum bulk storage terminals for storm water runoff is an oil/water separator (OWS). 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 OWSs is based on 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 OWSs 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 MassDEP required as part of the Current Permit, that the facility identify both the maximum design flow rating of the OWS and the measures taken by the facility to ensure that the maximum design flow rate would not be exceeded.

In response to this permit requirement, ConocoPhillips identified that the maximum design flow rating for the OWS at the facility is 600 gpm. The flow from the storage tank (Tank # 50 or 57) through the OWS is controlled by limiting the rate at which storm water is pumped out of the storage tank. The transfer pump is rated to approximately 430 gpm and an in-line orifice plate restrictor throttles the flow from the storage tanks to the OWS so that it is well below the capacity of the separator. ConocoPhillips has demonstrated that the flow through the OWS is appropriately controlled. Reported maximum daily flows have ranged from 0 gpm during dry weather to 320 gpm. Reported average monthly flows have ranged from 0 to 170 gpm.

The Draft Permit requires that the facility continue to monitor average monthly and maximum daily flows and provide written notification and receive approval by EPA and MassDEP for any proposed changes which have the potential to cause the maximum design flow rate through the OWS to be exceeded.

b. Total Suspended Solids (TSS)

The Draft Permit limit for TSS 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 will remain monthly.

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). Polynuclear aromatic hydrocarbons are readily adsorbed onto particulate matter and the release of these compounds can be, to an extent, controlled by regulating the amount of suspended solids released into the environment.

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 oil/water 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.

The ConocoPhillips East Boston Terminal has been able to consistently meet its TSS limits over the last permit cycle through the proper operation of a correctly-sized treatment equipment, appropriate source controls, routine inspections, preventative maintenance, and implementation of best management practices.

c. Oil and Grease (O&G)

The Draft Permit limit for Oil and Grease (O&G) remains unchanged at 15 mg/L for the maximum daily value. The monitoring frequency for this parameter will remain monthly. O&G shall 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 oil/water separator and implementation of 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 the Chelsea River. The MassDEP 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* (MassDEP, September 2003) and in the *Boston Harbor Watershed 1999 Water Quality Assessment Report* (MassDEP, 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 MassDEP'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 ConocoPhillips East Boston Terminal (i.e., Draft Permit limit for O&G of 15 mg/L and implementation of best management practices) should ensure that discharges from the facility do not contribute to 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 includes a Best Management Practice 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. ConocoPhillips has demonstrated its ability to meet the O&G permit condition in the Current Permit.

d. 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.). The pH permit range of 6.5 to 8.5 as identified in the Draft Permit, which is to be monitored on a monthly basis, has been established in accordance with the State Surface Water Quality Standards. 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.

ConocoPhillips has demonstrated its ability to meet the pH conditions in the Current Permit.

e. Polynuclear Aromatic Hydrocarbons (PAHs)

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., fuel oil, asphalt and some jet fuels). Spillage or discharge of these products can serve to introduce PAHs into the environment. PAHs will strongly adsorb to suspended particulates 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). Group I PAHs are seven well known animal carcinogens. They are: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Group II PAHs are the nine priority pollutant PAHs not considered carcinogenic alone, but which can enhance or inhibit the response of the carcinogenic PAHs. They are: acenaphthene, acenaphthylene, anthracene, benzo(ghi)perylene, fluoranthene, fluorine, naphthalene, phenanthrene, and pyrene. Typically, exposure would be to a mixture of PAHs rather than to an individual PAH.

Based on water quality concerns in the Chelsea River, EPA established effluent limits for all sixteen PAHs of 10 µg/L for single PAH compounds and 50 µg/L for the sum of any of the 16 PAHs in the NPDES permit issued in 1990 for the East Boston Terminal which was then owned by the Mobil Oil Company. The 1990 permit was continued until 2000, when the Current Permit was reissued with these same PAH thresholds. ConocoPhillips has demonstrated its ability to meet the PAH limits in the Current Permit.

EPA has reviewed the discharge monitoring data for PAHs submitted by ConocoPhillips since the issuance of the Current Permit in 2000. The 16 PAHs analyzed for were not detected above their respective reporting limits during any of the monthly sampling events which occurred since 2000. The reporting limits for each of the 16 PAHs were approximately 1 µg/L. A summary of the discharge monitoring data submitted by the facility during the time period of 2000 to 2005 is included as Attachment A to this Fact Sheet.

Based on EPA's review of the data from this facility as well as other petroleum bulk storage facilities, EPA has concluded that more stringent permit limits for PAH compounds at Outfall 001

are not required at this time. However, given the potential health concerns related to PAHs, the historic levels of PAHs which have been documented in the sediment of the Chelsea River and Boston Harbor, and the fact that priority organics were one of the "pollutants" identified by MassDEP contributing to the impairment of the Chelsea River, EPA has continued the compliance limits in the Draft Permit. In addition, future sampling and analysis will be required to achieve the following Minimum Level (ML) of reporting for each of the PAH compounds identified below:

Group I PAHs:

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		

Group II PAHs:

Acenaphthene	<0.5 µg/L	Acenaphthylene	<0.2 µg/L
Anthracene	<2.0 µg/L	benzo(ghi)perylene	<0.1 µg/L
Fluoranthene	<0.5 µg/L	fluorene	<0.1 µg/L
Naphthalene	<0.2 µg/L	Phenanthrene	<0.05 µg/L
Pyrene	<0.05 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.

f. Volatile Organic Compounds

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, ethyl benzene, and the three xylene compounds (BTEX) are normally found at relatively high concentrations in gasoline and light distillate products (e.g., diesel fuel). BTEX concentrations typically decrease in the heavier grades of petroleum distillate products (e.g. jet fuel and fuel oil). Since many petroleum spills involve gasoline or diesel fuel, a traditional approach for such spills has been to place limits on the individual BTEX components and/or the sum of total BTEX compounds.

Of these four compounds, benzene has the highest solubility, is one of the most toxic constituents, and is found at relatively high concentrations in gasoline and diesel fuel. The concentration of benzene in gasoline is approximately 20,000 parts per million (Potter and Simmons, 1998). Because of the reasons mentioned above, benzene can be considered one of the most important limiting pollutant parameters found in gasoline or diesel fuel. 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 gasoline and diesel fuel. The primary advantage of using an

indicator-parameter is that it can streamline monitoring efforts while simultaneously maintaining an effective level of environmental protection.

In 1990, EPA established a water quality based effluent limit of 40 µg/L benzene for discharges from the Terminal. The 1990 Permit also required monitoring of toluene, ethyl benzene, and xylenes. These BTEX effluent limits were reissued in the Current Permit (2000).

A summary of the discharge monitoring data submitted by the facility during the time period 2000 to 2005 is included as Attachment A to this Fact Sheet. During that time, benzene concentrations were below the 40 µg/L effluent limit in discharge samples from Outfall 001 on all but one occasion, when in July of 2001 ConocoPhillips reported 52 µg/L of benzene. However, since 2003, when ConocoPhillips began segregating the loading rack storm water and disposing of it off-site, benzene levels have been consistently less than 7 µg/L. Toluene, ethyl benzene and xylene concentrations have been near or below the detection limit of about 1 µg/L.

Based on EPA's review of the data from this facility as well as other petroleum bulk storage facilities, EPA has concluded that more stringent permit limits for BTEX compounds at Outfall 001 are not required at this time. Therefore the maximum daily effluent limit of 30 µg/L for benzene and monitoring requirements for other BTEX compounds are retained due to anti-backsliding.

<u>Ethanol</u>

Ethanol is a fuel oxygenate additive increasingly blended with gasoline to replace MtBE. Ethanol is replacing MtBE as an additive in Massachusetts at most gasoline distribution facilities in 2006 and has been stored at the ConocoPhillips East Boston Terminal since April, 2006.

Ethanol is a clear, colorless liquid, miscible with water and many organic solvents. When released into surface water, it will volatilize or biodegrade and is not expected to adsorb to sediment or bio-concentrate in fish. The use of ethanol as a fuel additive could lead to exposures from water that has been contaminated with ethanol from leaking storage facilities or accidental spills. While new to the gasoline distribution industry in Massachusetts, USEPA has issued effluent limit guidelines for ethanol as a non-conventional pollutant in the pharmaceutical manufacturing point source category (40 CFR 439).

The draft permit includes a requirement for quarterly monitoring of ethanol.

g. Whole Effluent Toxicity

EPA's March 1991, "Technical Support Document for Water Quality-Based Toxics Control" (EPA/505/2-90-001), recommends using an "integrated strategy" containing both pollutant specific (chemical) approaches and whole effluent (biological) toxicity approaches to better detect toxics in effluent discharges. Such information may then be used to control the entrance of those toxic pollutants into the nation's waterways. Pollutant-specific approaches address individual chemicals, whereas whole effluent toxicity approaches can evaluate the effects of possible interactions between pollutants. In addition, the presence of an unknown toxic pollutant can potentially be discovered and addressed through this process.

Section 101(a)(3) of the Clean Water Act specifically makes it national policy to prohibit the discharge of toxic pollutants in toxic amounts, and such discharges are also prohibited by the Massachusetts Water Quality Standards which state, in part, that "all surface waters shall be free

from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife". The NPDES regulations under 40 CFR § 122.44(d)(l)(v) require whole effluent toxicity (WET) limits in a permit when a discharge has a "reasonable potential" to cause or contribute to an excursion above the State's narrative criterion for toxicity.

EPA Region 1 adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance. EPA Region 1 modified this strategy to protect aquatic life and human health in a manner that is both cost effective as well as environmentally protective.

The WET test is a proactive method of protecting the environment so as to properly carry out EPA's Congressional mandate to prevent the discharge of toxic substances into the Nation's waterways. The Current Permit for East Boston Terminal includes an effluent limit for LC_{50} as measured by the WET test using Mysid Shrimp as the test organism. The LC50 is the concentration of wastewater effluent which causes mortality in 50% or fewer organisms. The effluent limit in the Current Permit requires that a sample comprised of 50% or more of effluent (the remainder being dilution water) cause mortality in 50% or fewer organisms. The results of semi-annual WET testing since 2000 have indicated that even without dilution, effluent samples caused mortality in 50% or fewer organisms (see Attachment A). The Draft Permit continues the WET testing requirement on a semi-annual basis.

h. 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.

i. Hydrostatic Test Water Discharges

As described in section V.C.2, hydrostatic test water discharge may contain minimal amounts of foreign matter, trace amounts of hydrocarbons, background material found in Chelsea River water, or residual chlorine. As a precaution, the hydrostatic test water shall be monitored as described below and treated through the Treatment System prior to being discharged to the Chelsea River. In addition, the flow of hydrostatic test water into the Treatment System shall be controlled to prevent it from exceeding the maximum system design flow rate.

j. Best Management Practices 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 Best Management Practices Plan (BMPP) with site-specific BMPs. The BMPP 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 the discharge of pollutants in storm water runoff. The BMPP, upon implementation, becomes a supporting element to any numerical effluent limitations in the Final Permit. Consequently, the BMPP is as equally enforceable as the numerical limits.

The permittee has certified to EPA that a BMPP 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 BMPP is kept current and adhered to, by requiring the permittee to maintain and update the BMPP as changes occur at the facility. In addition, the Draft Permit requires the permittee to provide annual certification to EPA and the MassDEP, 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 BMPP. A signed copy of the certification will be sent each year to EPA and MassDEP as well as appended to the BMPP within thirty (30) days of the annual anniversary of the effective date of the Draft Permit. This certification will be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of the most recent BMPP shall be kept at the facility and be available for inspection by EPA and MassDEP.

2. Outfall 002

a. Flow

The Draft Permit establishes requirements to monitor and report the average monthly and daily maximum flow of treated groundwater using a flow meter. The flow through ground water treatment system as measured at Outfall 002 shall not exceed its design flow.

b. Total Petroleum Hydrocarbons (TPH)

The effluent limits for Outfall 002 include a maximum daily limit of 5 mg/l for TPH. TPH measures the total concentration of all petroleum related hydrocarbon within a specified carbon range (Weisman, 1998). The petroleum related hydrocarbons included within this analysis range from compounds with 6 carbons (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.

c. Cyanide

Compounds containing the cyanide group (CN) are used and readily formed in many industrial processes and can be found in a variety of effluents, such as those from steel, petroleum, plastics, synthetic fibers, metal plating, and chemical industries. Cyanide occurs in water in many forms, including: hydrocyanic acid (HCN), the cyanide ion (CN^-), simple cyanides, metallocyanide complexes, and as organic compounds. "Free Cyanide" is defined as the sum of the cyanide present as HCN and CN^-. The relative concentrations of these forms depend mainly on pH and temperature. Currently, EPA approved analytical methods are available for "total" cyanide and "available" cyanide in water. "Total" cyanide includes all the forms of cyanide. "Available" cyanide includes free cyanide plus those cyanide species that can readily disassociate to release free cyanide.

Both HCN and CN^- are toxic to aquatic life. However, the vast majority of free cyanide usually exists as the more toxic HCN. And, since CN^- readily converts to HCN at pH values that commonly exist in surface waters, EPA's cyanide criteria are stated in terms of free cyanide expressed at CN^-. Free cyanide is a more reliable index of toxicity to aquatic life than total cyanide because total cyanides can include nitriles (organic cyanides) and relatively stable metallocyanide complexes.

Historically, cyanide has not been a monitored parameter at the ConocoPhillips East Boston Terminal. To EPA's knowledge, except for one sample of extracted groundwater analyzed in November 2005, no cyanide analyses of storm water or ground water samples have been conducted**.** However, the results of the lone sample analysis indicated 560 µg/L cyanide in extracted ground water. This level is well above EPA's National Water Quality Criteria for cyanide in salt water of 1 µg/L.

Due to the limited data available, EPA has issued a requirement to monitor available cyanide levels in discharge at Outfall 002 on a monthly basis.

d. 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.). The pH permit range of 6.5 to 8.5 as identified in the Draft Permit, which is to be monitored on a monthly basis, has been established in accordance with the State Surface Water Quality Standards. 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.

e. Polynuclear Aromatic Hydrocarbons (PAHs)

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., fuel oil, asphalt and some jet fuel). Releases of these products can serve to introduce PAHs into ground water. The ground water contamination in the loading rack area at the ConocoPhillips East Boston Terminal is the result historic releases of

both gasoline and heavier fuel oils.

The analytical results of the November 2005 ground water discharge sampling indicated PAH compounds be1ow detection. However, the detection limits were higher than the minimum detection levels (MLs) required under the Draft Permit. Furthermore, historic ground water sampling results, summarized in a Draft Release Abatement Measure Plan (Roux Associates, 2001), showed elevated levels of aromatic extractable petroleum hydrocarbons (EPH), indicative of PAH contamination.

From a technology standpoint, most of the PAH compounds are only slightly soluble in water and amenable to removal by carbon adsorption, a technology planned for the new ground water treatment system. Therefore, stringent effluent limits can be reasonably achieved and are consistent with compliance limits in the Remediation General Permit (MA910000) for discharges from remediation sites.

EPA-NE has divided the sixteen priority pollutant PAH compounds in two groups based on carcinogenicity and based on their general use and likelihood of release to the environment.

<u>Group I PAHs</u>

Group I PAHs, identified as probable human carcinogens, are:

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

EPA has established a maximum daily effluent limit at Outfall 002 for each of the individual Group I PAH compounds equal to the Minimum Level (ML) of reporting for that compound in an aqueous solution. 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. The effluent limits (equal to the MLs) for each Group I PAH are:

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		

Future monitoring will be required to achieve the above MLs. The effluent limit for the aggregate sum of the individual Group I PAH compounds has been set at 10.0 µg/L. This limit reflects the approximate sum of the MLs for each Group I PAH compound. The 10.0 µg/L value reflects a BPJ determination made by EPA based upon technology-based and performance information.

The limits for Group I PAHs in this Draft Permit are consistent with Group I PAH limits established at ground water extraction and treatment system effluent Outfalls at other fuel terminals within the Mystic River Watershed (EPA 2005) as well as with the effluent limits established for similar facilities under the Remediation General Permit (MAG910000).

<u>Group II PAHs</u>

Group II PAHs, identified as non-carcinogenic, are:

Acenaphthene	Acenaphthylene
Anthracene	benzo(ghi)perylene

fluoranthene	fluorene
naphthalene	Phenanthrene
Pyrene	

Group II PAH compounds are more common and are found as significant components of fuels, coal tar products and from their use in manufacturing other products. Naphthalene is a significant component in gasoline and fuel oil releases (discussed in V.E.2.f below).

The toxicity/carcinogenicity of the Group II PAH compounds is considerably less than the Group I PAH compounds. As a result, EPA has established a higher, technology-based maximum daily effluent limit of 100 µg/L for the sum of the individual Group II compounds. The nine (9) Group II PAHs and their respective MLs are:

Acenaphthene	<0.5 µg/L	Acenaphthylene	<0.2 µg/L
Anthracene	<2.0 µg/L	benzo(ghi)perylene	<0.1 µg/L
Fluoranthene	<0.5 µg/L	fluorene	<0.1 µg/L
Naphthalene	<0.2 µg/L	Phenanthrene	<0.05 µg/L
Pyrene	<0.05 µg/L		

Future monitoring will be required to achieve these MLs. EPA has also established an individual technology-based maximum daily limit of 20 µg/L for naphthalene.

f. Volatile Organic Compounds (VOCs)

Benzene, Toluene, Ethyl benzene, and Total Xylenes (BTEX)

As discussed in Part V.E.1.f of this Fact Sheet, benzene can be used as an indicator-parameter for regulatory as well as characterization purposes of water which comes in contact with gasoline and diesel fuel. The primary advantage of using an indicator-parameter is that it can streamline monitoring efforts while simultaneously maintaining an effective level of environmental protection.

Historic ground water data (Roux Associates, 2001) and the November 2005 sampling results of extracted ground water indicated the presence of benzene in ground water in the loading rack area. The November 2005 sampling results indicated benzene at 28.2 µg/L. Historic concentrations of benzene in ground water monitoring wells samples have been as high as 4,600 µg/L. Elevated levels of ethyl benzene, toluene and xylenes have also been measured in the loading rack area.

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, may partition and dissolve into the ground water and potentially reach toxic levels. Accordingly, more stringent and extensive effluent limits are required for groundwater extraction system discharges.

EPA has made a BPJ determination based upon technology-based criteria to establish effluent limits for benzene and total BTEX at 5 µg/L and 100 µg/L, respectively. These effluent limits are reasonably achieved with the technologies proposed for the new ground water treatment system and consistent with effluent limits developed by EPA for the Remediation General Permit (MA910000).

Methyl tertiary-Butyl Ether (MtBE)

A potential contaminant of concern found in gasoline is methyl tertiary-butyl ether (MtBE). MtBE is a synthetic compound used as a blending component in gasoline. Since 1979 it has been added to gasoline to enhance octane levels and to some gasoline since 1992 to fulfill the oxygenate requirements established by 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.

Although MtBE has not been monitored at the ConocoPhillips East Boston Terminal, the facility stored MtBE containing gasoline on site until April of 2006. Historic groundwater samples from monitoring wells on the property (Roux Associates, 2001) as well as a November 2005 sample of extracted groundwater indicate elevated levels of MtBE in the groundwater. The November 2005 sample, taken of water prior to treatment in the Treatment System indicated 6,220 µg/L of MtBE.

Monitoring reports from gasoline remediation sites covered under exclusion authorizations and the Remediation General Permit (MA91000) 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 Outfall 002 in the Draft Permit. The facility is required to monitor and report MtBE concentrations on a monthly basis.

Naphthalene

Naphthalene is a common constituent of coal tars and petroleum. It is used as an intermediate in the formulation of solvents, lubricants and motor fuels. It is one of a number of polynuclear aromatic hydrocarbon (PAH) compounds (see Section V.E.2.e of this Fact Sheet) included as priority pollutants under the CWA. Naphthalene is only slightly soluble in water (approximately 30 mg/l), however it is highly soluble in Benzene and other solvents. Naphthalene is a significant component of fuel oils (seven percent by volume) and is found as a ground water and soil contaminant at a number of older industrial sites.

Naphthalene is unique in that it is commonly measured using both test methods for volatile and semi-volatile organic compounds (VOCs and SVOCs). The other 15 priority pollutant PAHs are only analyzed using SVOC methods. One sample of extracted groundwater from the East Boston Terminal was analyzed for priority pollutant VOCs and SVOCs in November 2005. Naphthalene was reported as below the detection limit of 5.2 µg/L in the SVOC result and at 37 µg/L in the VOC result. A review of historical groundwater sampling data collected from 1999 to 2001 (Roux Associates, 2001) indicated naphthalene concentrations as high as 13,100 µg/L in groundwater monitoring well. Therefore in addition to the effluent limit of 20 µg/L (discussed in Section V.E.2.e of this Fact Sheet), EPA has included a requirement in the Draft Permit that naphthalene be monitored using both SVOC and VOC analytical methods.

3. 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) administer 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 B) 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. A copy of the Draft Permit has been provided to NMFS for review and comment.

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 23 managed species within the NMFS boundaries encompassing the outfall location. A copy of the managed species within the EFH is included in Attachment C to this Fact Sheet. 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 no EFH consultation with NMFS is required because the proposed discharge will not adversely impact the EFH. If adverse impacts are detected as a result of this permit action, NMFS will be notified and an EFH consultation will promptly be initiated. A copy of the Draft Permit has been provided to NMFS for review and comment.

VIII. STATE CERTIFICATION REQUIREMENTS

EPA may not issue a permit unless the MassDEP 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 Surface Water Quality Standards or unless state certification is waived. The staff of the MassDEP has reviewed the Draft Permit and advised EPA that 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

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: Ellen Weitzler, 1 Congress Street, Suite 1100 (CIP), Boston, Massachusetts 02114-2023 and Paul Hogan, Department of Environmental Protection, Division of Watershed Management, 627 Main Street, 2nd Floor, Worcester, MA 01608.or via email to weitzler.ellen@epa.gov and Paul.Hogan@state.ma.us. **The comments should reference the name and permit number of the facility for which they are being provided.**

Any person, prior to the close of the public comment period, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. Public hearings may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates a significant public interest. 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 & MASSDEP CONTACTS

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

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1 Congress Street, Suite 1100 (CIP)
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Paul Hogan, Massachusetts Department of Environmental Protection
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627 Main Street, 2nd Floor Worcester, Massachusetts 01608
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email: paul.hogan@state.ma.us

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Date

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

REFERENCES

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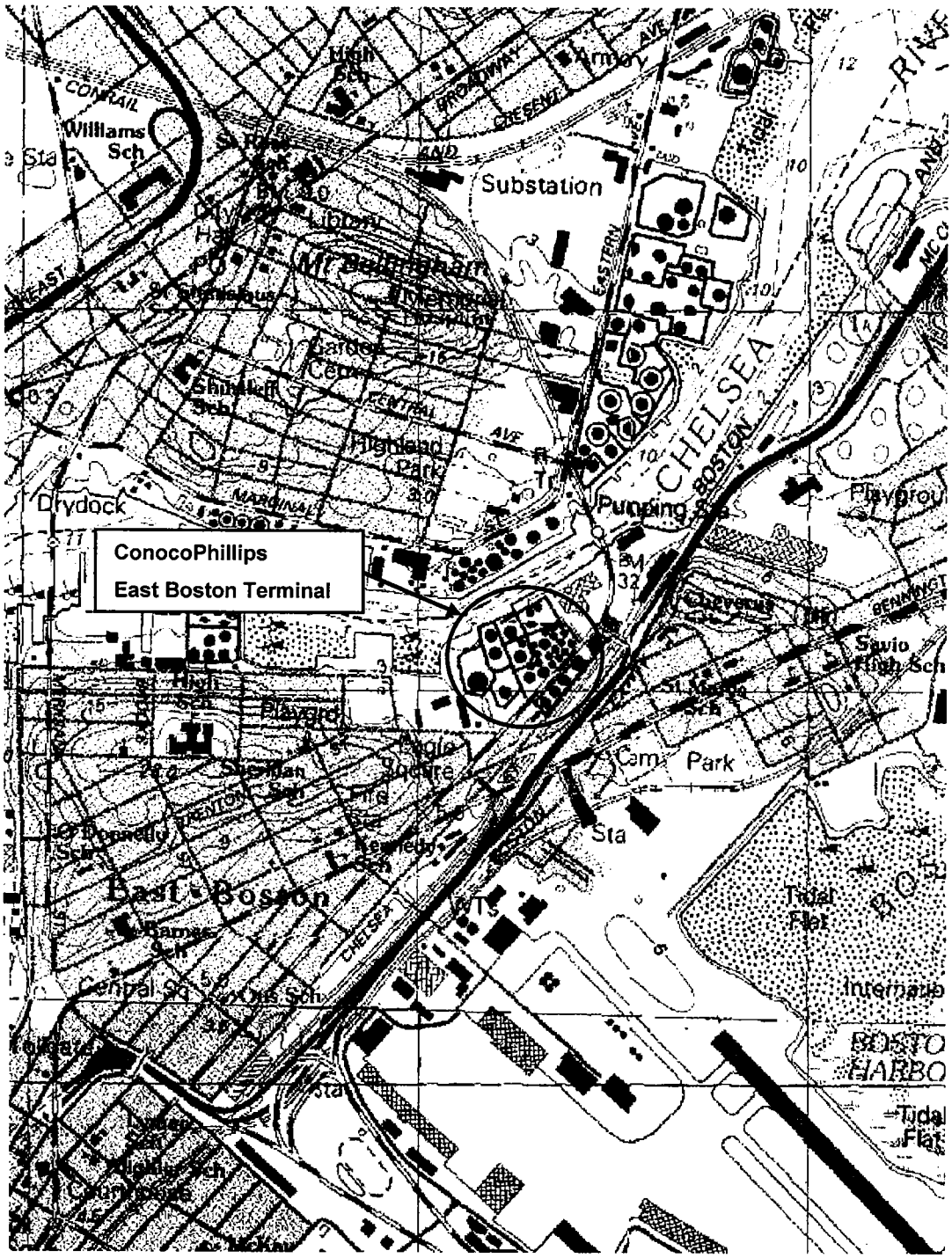
FIGURES



0 .5Km 0 .25Mi

FIGURE 1
SITE LOCUS MAP
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

Source: USGS Boston, Massachusetts
United States 01, July 1991

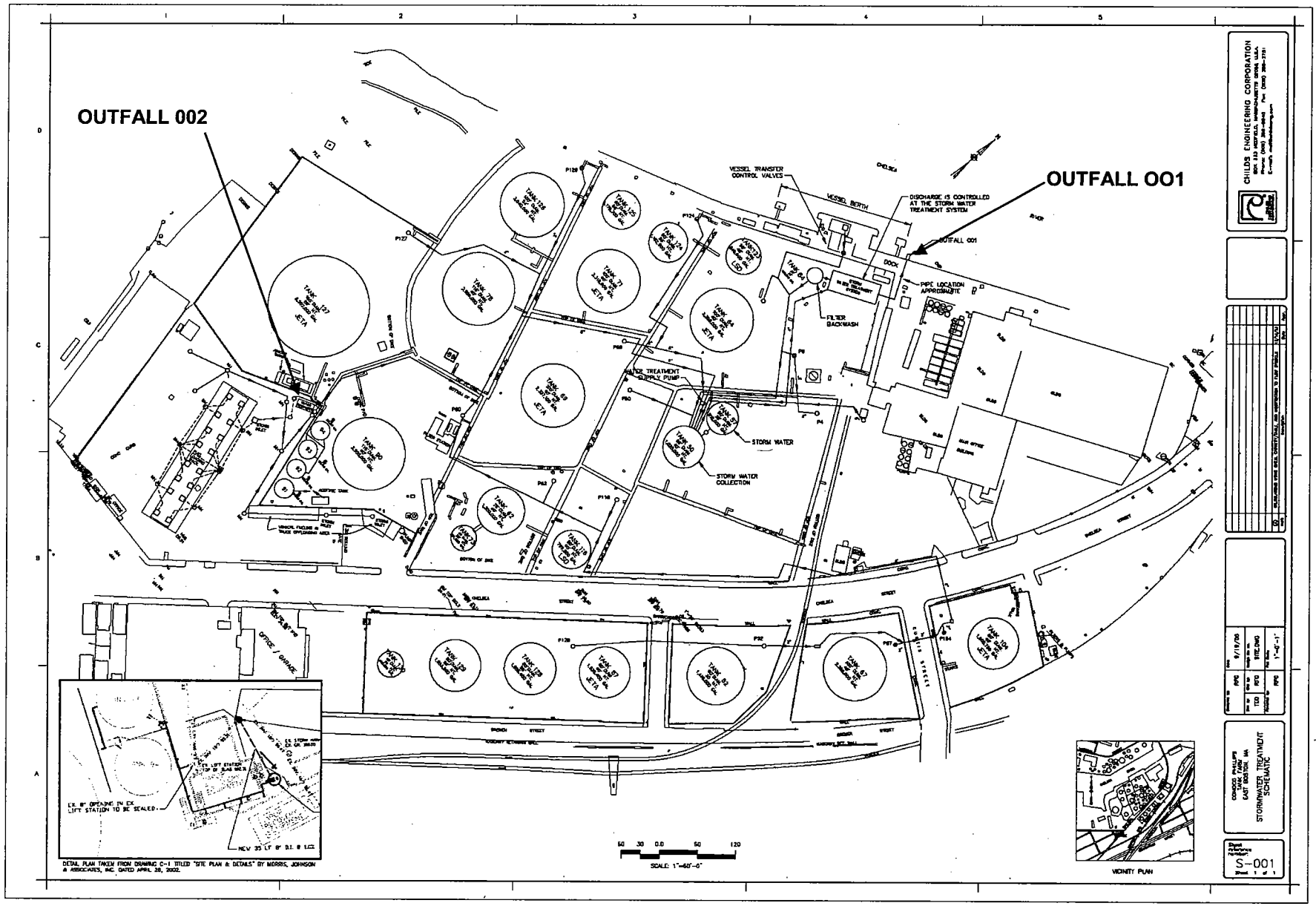


FIGURE 2
SITE PLAN
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

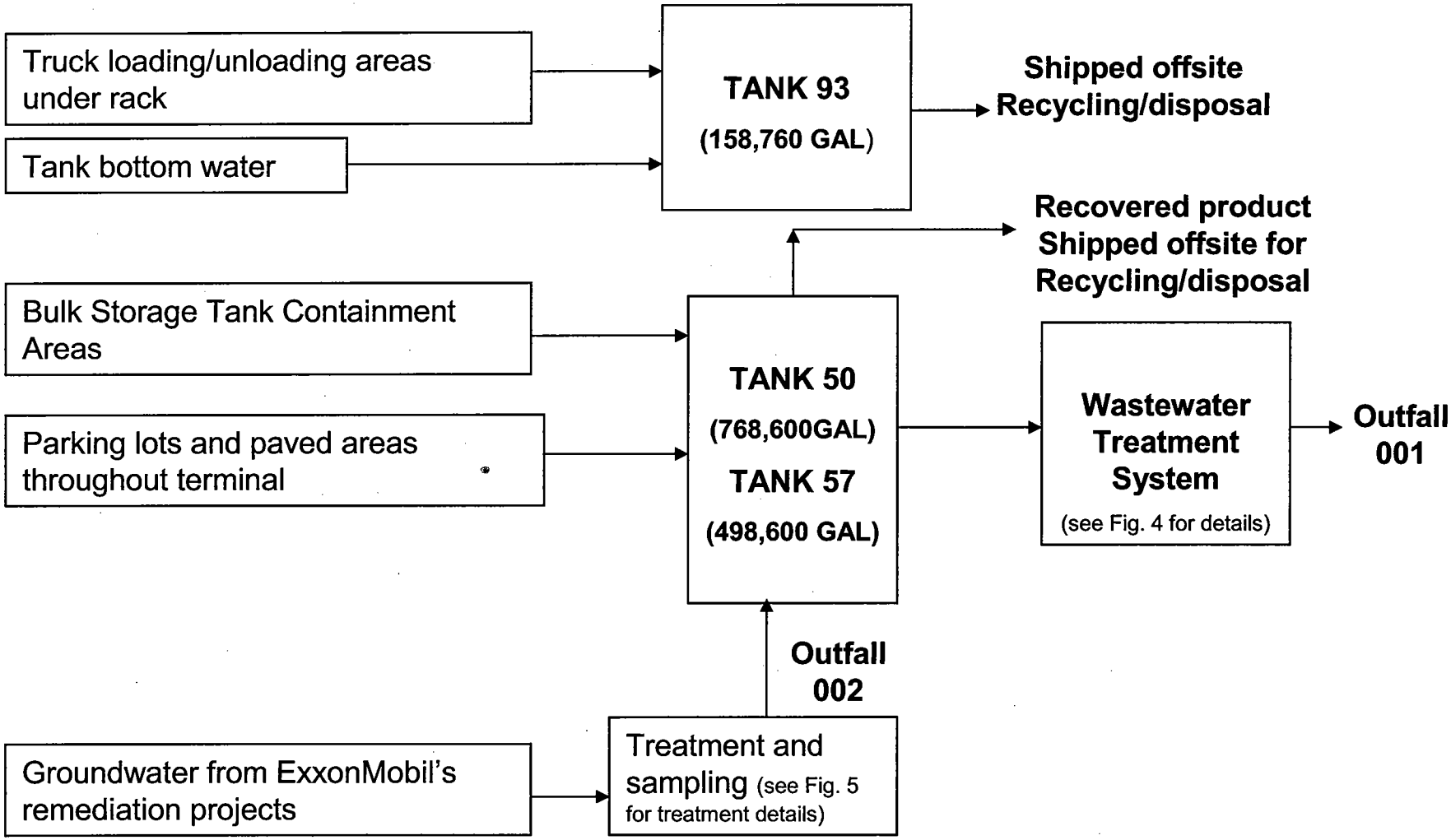


FIGURE 3
COLLECTION & DISCHARGE SCHEMATIC
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

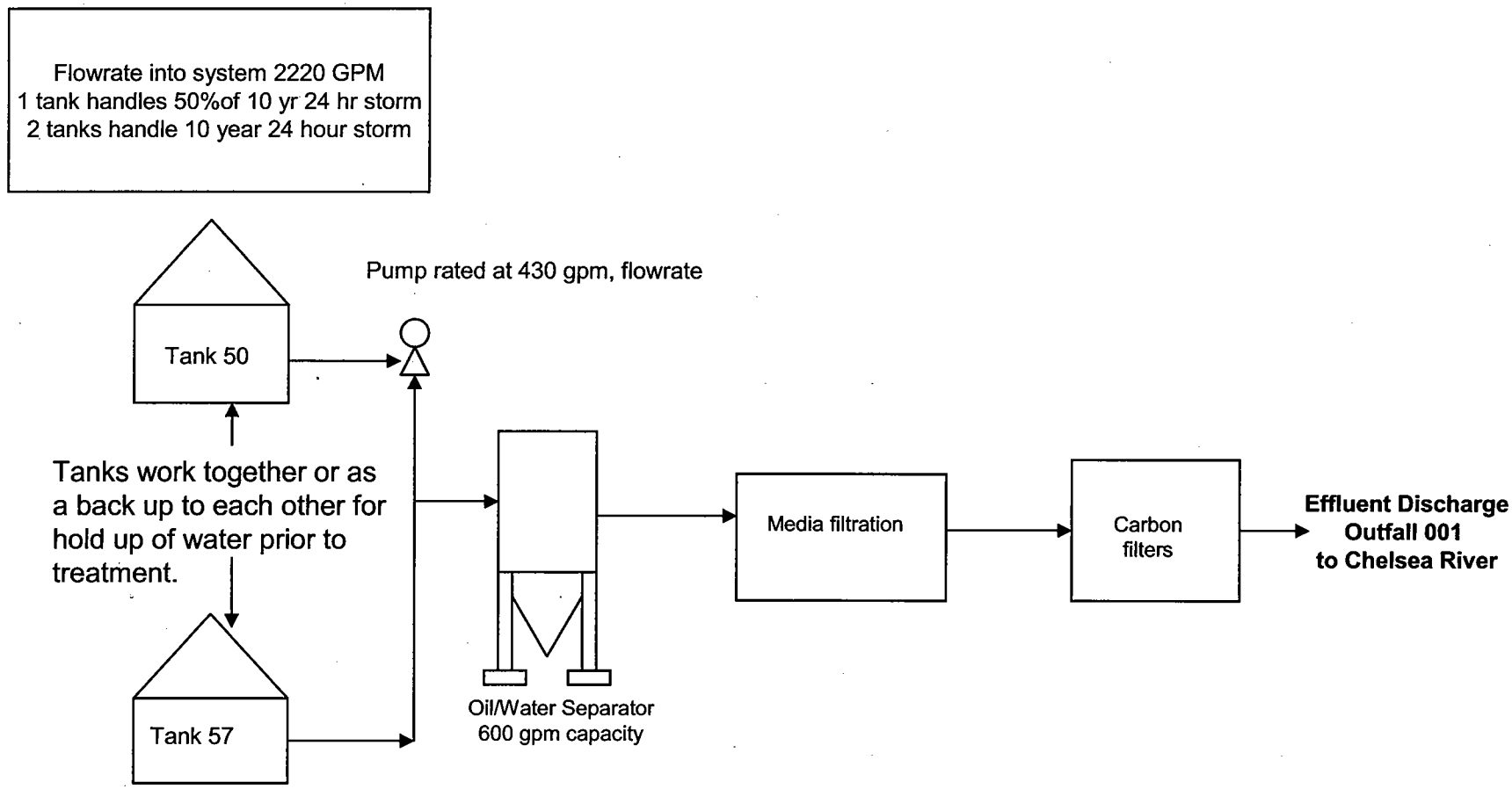


FIGURE 4
STORM WATER TREATMENT SYSTEM SCHEMATIC
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

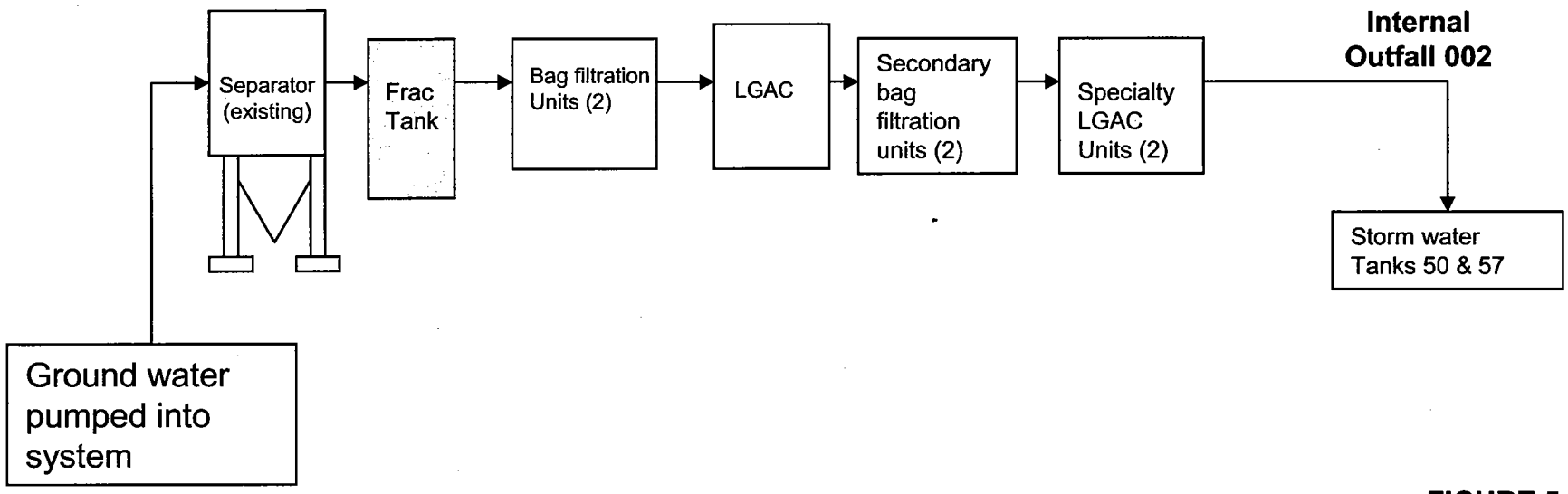


FIGURE 5
GROUND WATER TREATMENT SYSTEM SCHEMATIC
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

ATTACHMENT A

SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS

(2000 TO 2005)

CONOCOPHILLIPS EAST BOSTON TERMINAL

NPDES PERMIT NO. MA0004006

DMR SUMMARY - Conoco Philips
9/30/2000 to 12/31/2005

							VOCs			
Monitoring Period End Date	Flow Max	Flow Ave	pH Max	pH Min	TSS Max	O&G	Benzene	Toluene	Ethylbenzene	Xylene
	MGD	MGD	s.u.	s.u.	mg/l	mg/l	µg/l	µg/l	µg/l	µg/l
31-Dec-05	0.21	0.08	6.9	6.84	<4	<5	4.97	<1	<1	<1
30-Nov-05	0.3	0.12	7.47	7.36	<4	<5	6.75	<1	<1.19	<1
31-Oct-05	0.32	0.23	6.83	6.72	<4	<5	6.42	<1	<1	<1
30-Sep-05	0.26	0.11	6.6	6.52	<4	<5	3.52	<1	<1	<1
31-Jul-05	0.25	0.18	7.47	7.2	0	0	3.57	0	0	0
30-Jun-05	0.23	0.13	6.86	6.75	0	0	5	0	0	0
31-May-05	0.28	0.16	7.91	7.77	0	0	2	0	0	0
30-Apr-05	0.24	0.13	6.96	6.86	11	0	1.72	0	0	0
31-Mar-05[1]	0.337126	0.152963	7.07	6.58	0	0	0.9	0	0	0
28-Feb-05	0.24	0.12	7.13	6.92	0	0	0	0	0	0
31-Jan-05	0	0								
31-Dec-04	0.18	0.093	6.69	6.6	0	0	0	0	0	0
30-Nov-04	0.18	0.15	7.27	6.58	4	0	0	0	0	0
31-Oct-04	0.23	0.12	6.94	6.89	5	0	1.73	0	0	0
30-Sep-04	0.16	0.1	7	6.9	0	0	0	0	0	0
31-Aug-04	0.18	0.1	7.32	7.07	0	0	0	0	0	0
31-Jul-04	0	0								
30-Jun-04	0.18	0.13	7.09	6.96	0	0	0.73	0	0	1.74
31-May-04[1]	0.17	0.79	7.25	7.03	0	0	0	0	0	0
30-Apr-04	0.17	0.09	6.99	6.9	0	11.5	0	0	0	0
31-Mar-04	0.165	0.082	7.03	6.99	0	0	0	0	0	1.25
29-Feb-04	0	0								
31-Jan-04	0.133	0.043	6.73	6.67	4	0	0	0	0	0
31-Dec-03	0.147	0.078	6.76	6.73	0	0	0	0	0	0
30-Nov-03	0.313	0.092	6.91	6.83	0	0	0	0	0	0
31-Oct-03	0.208	0.09	6.77	6.68	0	0	0	0	0	0
30-Sep-03	0.161	0.102	6.74	6.73	0	0	0.8	0	0	0
31-Aug-03	0.268	0.141	6.76	6.72	0	0	0	1.25	0	1.28
31-Jul-03	0	0								
30-Jun-03	0.26	0.153	7.49	7.31	0	0	1.45	1.38	0	1.24
31-May-03	0	0								
30-Apr-03	0.211	0.108	7.3	7.1	0	0	1.91	0	0	0
31-Mar-03	0.177	0.113	7.2	6.88	0	0	1.4	1.82	0	1.32
28-Feb-03	0.187	0.149	7.9	7.6	0	0	0.97	1.12	0	1.73
31-Jan-03	0	0								
31-Dec-02	0.176	0.065	6.7	6.5	0	0	1.46	1.57	0	2.52
30-Nov-02	0.191	0.109	7	6.9	0	0	1.64	1.71	0	4.21
31-Oct-02	0.203	0.125	6.8	6.8	0	0	2.37	1.66	0	3.91
30-Sep-02	0.361	0.244	7.6	6.7	0	0	5.92	3.84	0	2.21
31-Aug-02	0	0								
31-Jul-02	0	0								
30-Jun-02	0.32	0.132	8.4	8.3	0	0	8.08	7.61	0	0
31-May-02	0.464	0.186	6.8	6.6	0	0	2.03	0	0	0
30-Apr-02	0.271	0.114	6.9	6.8	0	0	3.92	0	0	0
31-Mar-02	0.437	0.177	6.7	6.6	0	0	5.9	1.39	0	0
28-Feb-02	0.308	0.117	7.1	7	7	0	6.77	1.54	0	1.35
31-Jan-02	0.323	0.173	7.1	6.75	0	0	6.28	0	0	0
31-Dec-01	0.377	0.19	6.8	6.6	5	0	6.62	1.04	0	0
30-Nov-01	0	0								
31-Oct-01	0.213	0.151	6.6	6.5	10	0	10.1	0	0	0
30-Sep-01	0.136	0.093	7.6	7.5	0	0	11.6	1.4	0	0
31-Aug-01	0.21	0.14	6.6	6.5	0	0	21.5	3.04	0	0
31-Jul-01	0.19	0.11	6.8	6.6	0	0	52.3	7.87	0	1.11
30-Jun-01	0.23	0.14	6.6	6.5	0	0	1.2	1.6	0	0
31-May-01	0.08	0.06	6.7	6.6	0	0	1.6	1.2	0	0
30-Apr-01	0.34	0.15	6.8	6.5	4	0	1.6	1.3	0	0
31-Mar-01	0.25	0.16	6.8	6.6	0	0	1.3	0	0	0
28-Feb-01	0.25	0.11	6.5	6.5	22.4	0	0	0	0	0
31-Jan-01	0.17	0.06	6.5	6.5	11.8	0	5.7	5.6	1.5	7.9
31-Dec-00	0.25	0.15	6.8	6.7	4.5	0	3.7	1.2	0	0
30-Nov-00	0.23	0.13	7.5	7.3	0	0	5.7	0	0	0
31-Oct-00	0.27	0.08	7.3	7	0	0	0	0	0	0
30-Sep-00	0.4	0.19	7.5	7.1	0	0	0	0	0	0
8/00 Permit Limits	Report	Report	8.5	6.5	30/100	15	40	Report	Report	Report
Minimum	0	0	6.5	6.5	0	0	0	0	0	0
Maximum	0.464	0.244	8.4	8.3	22.4	11.5	52.3	7.87	1.5	7.9
Average	0.20	0.11	7.0	6.9	1.8	0.2	3.9	1.0	0.0	0.6
Standard Deviation	0.11	0.06	0.4	0.4	4.2	1.6	7.8	1.8	0.2	1.4
#measurement	62	62	53	54	54	54	54	54	54	54
#exceed 2000 limits	NA	NA	0	0	0	0	1	NA	NA	NA

Notes:
1. Flow data on this date appears anamolous and was not included in statistical calculations

DMR SUMMARY - Conoco Philips
9/30/2000 to 12/31/2005

Monitoring Period End Date	Total 16 PAHs	Group I PAHs						
		Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
31-Dec-05	<1.18	<1.18	<1.18	<1.18	<1.18	<1.18	<1.18	<1.18
30-Nov-05	<1.19	<1.19	<1.19	<1.19	<1.19	<1.19	<1.19	<1.19
31-Oct-05	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12
30-Sep-05	<1.08	<1.08	<1.08	<1.08	<1.08	<1.08	<1.08	<1.08
31-Jul-05	0	0	0	0	0	0	0	0
30-Jun-05	0	0	0	0	0	0	0	0
31-May-05	0	0	0	0	0	0	0	0
30-Apr-05	0	0	0	0	0	0	0	0
31-Mar-05[1]	0	0	0	0	0	0	0	0
28-Feb-05	0	0	0	0	0	0	0	0
31-Jan-05								
31-Dec-04	0	0	0	0	0	0	0	0
30-Nov-04	0	0	0	0	0	0	0	0
31-Oct-04	0	0	0	0	0	0	0	0
30-Sep-04	0	0	0	0	0	0	0	0
31-Aug-04	0	0	0	0	0	0	0	0
31-Jul-04								
30-Jun-04	0	0	0	0	0	0	0	0
31-May-04[1]	0	0	0	0	0	0	0	0 *
30-Apr-04	0	0	0	0	0	0	0	0
31-Mar-04	0	0	0	0	0	0	0	0
29-Feb-04								
31-Jan-04	0	0	0	0	0	0	0	0
31-Dec-03	0	0	0	0	0	0	0	0
30-Nov-03	0	0	0	0	0	0	0	0
31-Oct-03	<1.25	0	0	0	0	0	0	0
30-Sep-03	0	0	0	0	0	0	0	0
31-Aug-03	0	0	0	0	0	0	0	0
31-Jul-03								
30-Jun-03	0	0	0	0	0	0	0	0
31-May-03								
30-Apr-03	0	0	0	0	0	0	0	0
31-Mar-03	0	0	0	0	0	0	0	0
28-Feb-03	0	0	0	0	0	0	0	0
31-Jan-03								
31-Dec-02	0	0	0	0	0	0	0	0
30-Nov-02	9	0	0	0	0	0	0	0
31-Oct-02	0	0	0	0	0	0	0	0
30-Sep-02	0	0	0	0	0	0	0	0
31-Aug-02								
31-Jul-02								
30-Jun-02	0	0	0	0	0	0	0	0
31-May-02	0	0	0	0	0	0	0	0
30-Apr-02	0	0	0	0	0	0	0	0
31-Mar-02	0	0	0	0	0	0	0	0
28-Feb-02	0	0	0	0	0	0	0	0
31-Jan-02	0	0	0	0	0	0	0	0
31-Dec-01	0	0	0	0	0	0	0	0
30-Nov-01								
31-Oct-01	0	0	0	0	0	0	0	0
30-Sep-01	0	0	0	0	0	0	0	0
31-Aug-01	0	0	0	0	0	0	0	0
31-Jul-01	0	0	0	0	0	0	0	0
30-Jun-01	0	0	0	0	0	0	0	0
31-May-01	0	0	0	0	0	0	0	0
30-Apr-01	0	0	0	0	0	0	0	0
31-Mar-01	0	0	0	0	0	0	0	0
28-Feb-01	0	0	0	0	0	0	0	0
31-Jan-01	0	0	0	0	0	0	0	0
31-Dec-00	0	0	0	0	0	0	0	0
30-Nov-00	0	0	0	0	0	0	0	0
31-Oct-00	0	0	0	0	0	0	0	0
30-Sep-00	0	0	0	0	0	0	0	0
8/00 Permit Limits	50	10	10	10	10	10	10	10
Minimum	0	0	0	0	0	0	0	0
Maximum	9	0	0	0	0	0	0	0
Average	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Standard Deviation	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#measurement	54	54	54	54	54	54	54	54
#exceed 2000 limits	0	0	0	0	0	0	0	0

Notes:
1. Flow data on this da

DMR SUMMARY - Conoco Philips
9/30/2000 to 12/31/2005

	Group II PAHs								
Monitoring Period End Date	Acenaphthene µg/l	Acenaphthylene µg/l	Anthracene µg/l	benzo(ghi) perylene µg/l	Fluoranthene µg/l	Fluorene µg/l	Naphthalene µg/l	Phenanthrene µg/l	Pyrene µg/l
31-Dec-05	<1.18	<1.18	<1.18	<1.18	<1.18	<1.18	<1.18	<1.18	<1.18
30-Nov-05	<1.19	<1.19	<1.19	<1.19	<1.19	<1.19	<1.19	<1.19	<1.19
31-Oct-05	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12	<1.12
30-Sep-05	<1.08	<1.08	<1.08	<1.08	<1.08	<1.08	<1.08	<1.08	<1.08
31-Jul-05	0	0	0	0	0	0	0	0	0
30-Jun-05	0	0	0	0	0	0	0	0	0
31-May-05	0	0	0	0	0	0	0	0	0
30-Apr-05	0	0	0	0	0	0	0	0	0
31-Mar-05[1]	0	0	0	0	0	0	0	0	0
28-Feb-05	0	0	0	0	0	0	0	0	0
31-Jan-05									
31-Dec-04	0	0	0	0	0	0	0	0	0
30-Nov-04	0	0	0	0	0	0	0	0	0
31-Oct-04	0	0	0	0	0	0	0	0	0
30-Sep-04	0	0	0	0	0	0	0	0	0
31-Aug-04	0	0	0	0	0	0	0	0	0
31-Jul-04									
30-Jun-04	0	0	0	0	0	0	0	0	0
31-May-04[1]	0	0	0	0	0	0	0	0	0
30-Apr-04	0	0	0	0	0	0	0	0	0
31-Mar-04	0	0	0	0	0	0	0	0	0
29-Feb-04									
31-Jan-04	0	0	0	0	0	0	0	0	0
31-Dec-03	0	0	0	0	0	0	0	0	0
30-Nov-03	0	0	0	0	0	0	0	0	0
31-Oct-03	0	0	0	0	0	0	0	0	0
30-Sep-03	0	0	0	0	0	0	0	0	0
31-Aug-03	0	0	0	0	0	0	0	0	0
31-Jul-03									
30-Jun-03	0	0	0	0	0	0	0	0	0
31-May-03									
30-Apr-03	0	0	0	0	0	0	0	0	0
31-Mar-03	0	0	0	0	0	0	0	0	0
28-Feb-03	0	0	0	0	0	0	0	0	0
31-Jan-03									
31-Dec-02	0	0	0	0	0	0	0	0	0
30-Nov-02	0	0	0	0	0	0	0	0	0
31-Oct-02	0	0	0	0	0	0	0	0	0
30-Sep-02	0	0	0	0	0	0	0	0	0
31-Aug-02									
31-Jul-02									
30-Jun-02	0	0	0	0	0	0	0	0	0
31-May-02	0	0	0	0	0	0	0	0	0
30-Apr-02	0	0	0	0	0	0	0	0	0
31-Mar-02	0	0	0	0	0	0	0	0	0
28-Feb-02	0	0	0	0	0	0	0	0	0
31-Jan-02	0	0	0	0	0	0	0	0	0
31-Dec-01	0	0	0	0	0	0	0	0	0
30-Nov-01									
31-Oct-01	0	0	0	0	0	0	0	0	0
30-Sep-01	0	0	0	0	0	0	0	0	0
31-Aug-01	0	0	0	0	0	0	0	0	0
31-Jul-01	0	0	0	0	0	0	0	0	0
30-Jun-01	0	0	0	0	0	0	0	0	0
31-May-01	0	0	0	0	0	0	0	0	0
30-Apr-01	0	0	0	0	0	0	0	0	0
31-Mar-01	0	0	0	0	0	0	0	0	0
28-Feb-01	0	0	0	0	0	0	0	0	0
31-Jan-01	0	0	0	0	0	0	0	0	0
31-Dec-00	0	0	0	0	0	0	0	0	0
30-Nov-00	0	0	0	0	0	0	0	0	0
31-Oct-00	0	0	0	0	0	0	0	0	0
30-Sep-00	0	0	0	0	0	0	0	0	0
8/00 Permit Limits	10	10	10	10	10	10	10	10	10
Minimum	0	0	0	0	0	0	0	0	0
Maximum	0	0	0	0	0	0	0	0	0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Standard Deviation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#measurement	54	54	54	54	54	54	54	54	54
#exceed 2000 limits	0	0	0	0	0	0	0	0	0

Notes:
1. Flow data on this da

DMR SUMMARY - Conoco Philips
9/30/2000 to 12/31/2005

MONITORING PERIOD END DATE	Total Lead (ug/l)
31-Dec-05	<5
30-Sep-05	8.1
30-Jun-05	0
31-Mar-05	0
30-Sep-04	0
30-Jun-04	0
31-Mar-04	<5
31-Dec-03	0
30-Sep-03	0
30-Jun-03	0
31-Mar-03	0
31-Dec-02	0
30-Sep-02	0
30-Jun-02	3.8
31-Mar-02	0
31-Dec-01	0
30-Sep-01	0
30-Jun-01	0
31-Mar-01	0
31-Dec-00	0
30-Sep-00	0

MONITORING PERIOD END DATE	LC_{50} Min
30-Sep-05	>100
31-Mar-05	>100
30-Sep-04	>100
30-Sep-03	>100
31-Mar-03	>100
30-Sep-02	>100
31-Mar-02	>100
30-Sep-01	>100
31-Mar-01	>100
30-Sep-00	>100.0

ATTACHMENT B

ENDANGERED SPECIES LIST

NOAA Fisheries
Office of Protected Resources

Species Information

- Marine Turtles
- Marine Mammals
  - Cetaceans
  - Pinnipeds
- Marine and Anadromous Fish
- Marine Invertebrates and Plants

Contact Us

Species Information

The Office of Protected Resources works to conserve and recover species listed under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA) in partnership with NOAA Fisheries Regions and Science Centers, environmental organizations, industry groups, other Federal and state agencies, and the academic community.

Species Numbers, Types, and Status
There are 1,300 U.S. "species" listed under the ESA. The Office of Protected Resources manages mostly marine and anadromous species, and the U.S. Fish and Wildlife Service manages the remainder of the listed species, mostly terrestrial and freshwater species.

The Office of Protected Resources manages:

- 62 ESA-listed species
- 40 ESA species of concern
- ~160 marine mammal stocks listed under the MMPA

Threats
Key threats to marine species are largely due to human impacts, including accidental capture in fishing gear, habitat destruction, pollution, overharvest, and ship strikes. These threats may contribute to a species' status as threatened or endangered.

For More Information
Critical Habitat
Integrated Taxonomic Information System
Marine Mammal Stock Assessment Reports
Recovery Plans
Status Reviews
U.S. Fish & Wildlife Service Endangered Species Program

Marine Mammals

Marine & Anadromous Fish

Inv

Photo Credit
Green turtle: Ursula Ke & Peter Bennett
Northern right whale:
Chum salmon: NOAA
White abalone: NOAA

How You Can Help
Responsible Wildlife Viewing
Report a Beached Marine Mammal
Report Wildlife Harassment
Call NOAA's Office of Law Enforcement 24-hour hotline: (800) 853-1964

List of Species under NMFS' Jurisdiction
(E = "endangered"; T = "threatened"; F = "foreign"; n/a = not applicable*)

Marine Mammals (20 listed species)
Manatees and sea otters are also listed under the ESA, but fall under the jurisdiction of the U.S. Fish and Wildlife Service.

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
Cetaceans				
dolphin, Chinese River (*Lipotes vexillifer*)	1989	E (F)	n/a	n/a
dolphin, Indus River (*Platanista minor*)	1991	E (F)	n/a	n/a
porpoise, Gulf of California harbor / vaquita (*Phocoena sinus*)	1985	E (F)	n/a	n/a
whale, blue (*Balaenoptera musculus*)	1970	E	n/a	final
whale, bowhead (*Balaena mysticetus*)	1970	E	n/a	no
whale, fin (*Balaenoptera physalus*)	1970	E	n/a	draft
whale, gray (1 listed DPS) (*Eschrichtius robustus*)				
—Western North Pacific	1970	E	n/a	no
whale, humpback (*Megaptera novaeangliae*)	1970	E	n/a	final
whale, killer (1 listed DPS) (*Orcinus orca*)				
—Southern Resident	2005	E	no	no
whale, Northern right (*Eubalaena glacialis*)	1970	E	yes	final
whale, sei (*Balaenoptera borealis*)	1970	E	n/a	draft
whale, Southern right (*Eubalaena australis*)	1970	E (F)	n/a	n/a

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
whale, sperm (*Physeter macrocephalus*)	1970	E	n/a	no
Pinnipeds				
seal, Caribbean monk (*Monachus tropicalis*)	1967	E	n/a	no
seal, Guadalupe fur (*Arctocephalus townsendi*)	1985	T (F)	n/a	n/a
seal, Hawaiian monk (*Monachus schauinslandi)*	1976	E	yes	final
seal, Mediterranean monk (*Monachus schauinslandi)*	1970	E (F)	n/a	n/a
seal, Saimaa (*Phoca hispida saimensis*)	1993	E (F)	n/a	n/a
sea lion, Steller (2 listed DPSs) (*Eumetopias jubatus*)				
—Eastern stock	1990	T	yes	final
—Western stock	1997	E	yes	final

Marine Turtles (8 listed species)
Recovery plans for marine turtles are developed and implemented by NMFS and USFWS; the plans have been written separately for turtles in the Atlantic and Pacific oceans (and East Pacific for the green turtle) rather than for each listed species.

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
turtle, green (2 listed DPSs) (*Chelonia mydas*)				
—Florida & Mexico's Pacific coast breeding colonies	1978	E	yes	final
—all other areas	1978	T	yes	final
turtle, hawksbill (*Eretmochelys imbricata*)	1970	E	yes	final

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
turtle, Kemp's ridley (*Lepidochelys kempii*)	1970	E	n/a	final
turtle, leatherback (*Dermochelys coriacea*)	1970	E	n/a	final
turtle, loggerhead (*Caretta caretta*)	1978	T	n/a	final
turtle, Olive ridley (2 listed DPSs) (*Lepidochelys olivacea*)				
—Mexico's Pacific coast breeding colonies	1978	E	n/a	final
—all other areas	1978	T	n/a	final

Marine/Anadromous Fish (32 listed species)
All Pacific salmon listings were revisited in 2005 and 2006; for more information see Pacific salmon information at NMFS' Northwest Region.

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
salmon, Atlantic (1 listed DPS) (*Salmo salar*)				
—Gulf of Maine	2000	E	no	final
salmon, chinook (9 listed ESUs) (*Oncorhynchus tshawytscha*)				
—California coastal	1999	T	yes	in process
—Central Valley spring run	1999	T	yes	in process
—Lower Columbia River	1999	T	yes	in process
—Upper Columbia River spring run	1999	E	yes	in process
—Puget Sound	1999	T	yes	draft
—Sacramento River winter run	1994	E	yes	in process
—Snake River fall run	1992	T	yes	in process

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
—Snake River spring/summer run	1992	T	yes	in process
—Upper Willamette River	1999	T	yes	in process
salmon, chum (2 listed ESUs) (*Oncorhynchus keta*)				
—Columbia River	1999	T	yes	in process
—Hood Canal summer run	1999	T	yes	in process
salmon, coho (3 listed ESUs) (*Oncorhynchus kisutch*)				
—Central California coast	2005	E	yes	in process
—Lower Columbia River	2005	T	yes	in process
—Southern Oregon & Northern California coast	1997	T	yes	in process
salmon, sockeye (2 listed ESUs) (*Oncorhynchus nerka*)				
—Ozette Lake	1999	T	yes	in process
—Snake River	1991	E	yes	in process
sawfish, smalltooth (1 listed DPS) (*Pristis pectinata*)				
—U.S. portion of range	2003	E	in process	in process
steelhead trout (10 listed DPSs)				
—Central California coastal	1997	T	yes	in process
—Snake River	1997	T	yes	in process
—Upper Columbia River	1997	E	yes	in process
—Southern California	1997	E	yes	in process
—Middle Columbia River	1999	T	yes	in process
—Lower Columbia River	1998	T	yes	in process
—Upper Willamette River	1999	T	yes	in process

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
—Northern California	2000	T	yes	in process
—South Central California coast	1997	T	yes	in process
—Central Valley California	1998	T	yes	in process
sturgeon, green (1 listed DPS) *(Acipenser medirostris)*				
—southern DPS	2006	T	in process	no
sturgeon, gulf (*Acipenser oxyrinchus desotoi*)	1991	T	no	final
sturgeon, shortnose (*Acipenser brevirostrum*)	1967	E	n/a	final
totoaba (*Totoaba macdonaldi*)	1979	E (F)	n/a	n/a

Marine Invertebrates (1 listed species)

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
abalone, white (*Haliotis sorenseni*)	2001	E	not prudent	in process

Marine Plants (1 listed species)

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
seagrass, Johnson's (*Halophila johnsonii*)	1999	T	yes	final

* **NOTE:** Critical habitat and recovery plans are not required for foreign species; critical habitat is also not required for species listed prior to the 1978 amendments adding critical habitat provisions to the ESA.

Delisted Species

Species	Year Listed	Year Delisted	Status
whale, gray (1 delisted DPS) (*Eschrichtius robustus*)			
—Eastern North Pacific	1970	1994	Delisted from ESA; remains protected under MMPA

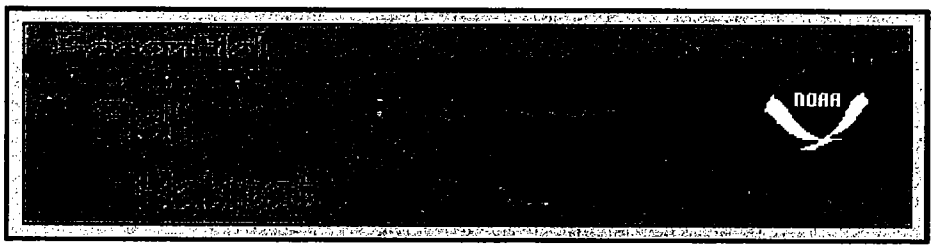
Proposed for Listing

Species	Year Proposed	Status
coral, elkhorn *(Acropora palmata)*	2005	proposed threatened
coral, staghorn *(Acropora cervicornis)*	2005	proposed threatened
steelhead trout (1 proposed DPS) *(Oncorhynchus mykiss)*		
—Puget Sound DPS	2006	proposed threatened

Last updated 4/10/2006

ATTACHMENT C

ESSENTIAL FISH HABITAT DESIGNATION



Guide to Essential Fish Habitat Designations in the Northeastern United States

Important Note To Users

This guide provides a geographic species list of Essential Fish Habitat (EFH) designations completed by the New England Fishery Management Council, Mid-Atlantic Fishery Management Council, South Atlantic Fishery Management Council, and the National Marine Fisheries Service (NMFS) in the Northeastern United States pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. The guide is designed to provide government agencies and other interested parties with a quick reference to determine the species and life stages of fish, shellfish, and mollusks for which EFH has been designated in a particular area. Using a "point and click" format, it lists the EFH species in selected 10' x 10' squares of latitude and longitude along the coast. Although not provided in this guide, EFH has also been designated in offshore areas throughout the Exclusive Economic Zone. This guide lists the EFH species within an area and is not intended for use on its own. The actual EFH descriptions, the species habitat preferences and life history parameters are provided in Guide to EFH Descriptions. The Councils' Fishery Management Plans (FMPs) should be referred to for more extensive information regarding EFH whenever necessary.

To skip the introduction, click here.

To view EFH Designations for Skate Species, which are not in the map below, click here.

Background

The 1996 amendments to the Magnuson-Stevens Act strengthened the ability of NMFS and the Councils to protect and conserve the habitat of marine, estuarine, and anadromous finfish, mollusks, and crustaceans. This habitat is termed "essential fish habitat" and is broadly defined to include "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Act requires the Councils to describe and identify the essential habitat for the managed species, minimize to the extent practicable adverse effects on EFH caused by fishing, and identify other actions to encourage the conservation and enhancement of EFH.

The Act also establishes measures to protect EFH. NMFS must coordinate with other federal agencies to conserve and enhance EFH, and federal agencies must consult with NMFS on all actions or proposed

actions authorized, funded, or undertaken by the agency that may adversely affect EFH. In turn NMFS must provide recommendations to federal and state agencies on such activities to conserve EFH. These recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or undertaken by that agency.

Description of the Guide

To facilitate the EFH consultation process, this guide provides a quick method of ascertaining what species and lifestages have EFH in a given geographic area. The information is presented as tabular summaries for selected 10' x 10' squares of latitude and longitude. Each table includes a short but detailed description of the square, including a table of coordinates, as well as landmarks along the coastline such as towns, cities, necks, points, rocks, islands, bays, coves, shoals, marshes, beaches, banks, estuaries, creeks, thorofares, or rivers. The information for the square descriptions was taken from National Oceanic and Atmospheric Administration (NOAA) Coast Survey nautical charts. An attempt was made to ensure the names used in the description are as thorough as possible. However, if a question arises in regards to a location, please refer to the nautical charts or any reference map. Also, when in doubt concerning whether a project is divided by a square boundary, please refer to a map or chart.

For the offshore squares, the information is based primarily on the offshore trawl survey data that was used to support the Councils' EFH designations. For squares located within major estuaries and bays, the EFH designations are based on Estuarine Living Marine Resources data along with some trawl survey data. For detailed species lists for the major estuaries, select from the estuaries list instead of the 10 minute square. The Guide to EFH Descriptions provides an overall species list categorized by the Council's jurisdictions. Click on the species name to retrieve the EFH Designations as well as additional habitat information, where available. These summaries are not a substitute for the actual EFH designations provided in the Council's FMPs. Users should refer to the Councils' FMPs when questions arise.

Definitions

The tables are fairly straightforward, but the following definitions will help clarify exactly what each summary shows:

10 Minute Square Tables

The notation "X" in a table indicates that EFH has been designated within the square for a given species and life stage.

The notation "n/a" in the tables indicates some of the species either have no data available on the designated lifestages, or those lifestages are not present in the species' reproductive cycle. These species are:

- redfish, which have no eggs (larvae born already hatched);
- long finned squid, short finned squid, surf clam, and ocean quahog which are referred to as pre-recruits and recruits (this corresponds with juveniles and adults in the tables);
- spiny dogfish, which have no eggs or larvae (juveniles born live);
- scup and black sea bass, for which there is insufficient data for the life stages listed, and no EFH designation has been made as of yet (some estuary data is available for all the life stages of these

species, and some of the estuary squares will reflect this)

The Highly Migratory Species' life stages that are summarized within the squares are broken down into neonates, juveniles, and adults. For these species there are no 'egg' designations, and neonates correspond to the heading larvae within each summary table.

Estuaries Tables

S = The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > or = 25.0%).

M = The EFH designation for this species includes the mixing water/ brackish salinity zone of this bay or estuary (0.5% < salinity < 25.0%).

F = The EFH designation for this species includes the tidal freshwater salinity zone of this bay or estuary (0.0% < or = salinity < or = 0.5%).

n/a = The species does not have this lifestage in its life history (dogfish/ redfish), or has no EFH designation for this lifestage (squids, surf clam, ocean quahog). With regard to the squids, the surf clam, and the ocean quahog, juvenile corresponds with pre-recruits, and adult corresponds with recruits in these species' life histories.

These EFH designations of estuaries and embayments are based on the NOAA Estuarine Living Marine Resources (ELMR) program (Jury et al. 1994; Stone et al. 1994).

Disclaimer

The process involved in converting the EFH designations into this format was tedious. It consisted of determining the designations within each square, square by square and species life stage by species life stage, and then compiling the information into each table. Information has been double checked, but some errors may appear. When questions arise, the Councils' Fishery Management Plans are ultimately and legally determinative of the geographic limits of EFH.

To use the Guide, click here.

If you have comments on the Guide, send an e-mail message tojill.ortiz@noaa.gov.

Summary of Essential Fish Habitat (EFH) Designation

10' x 10' Square Coordinates:

Boundary	North	East	South	West
Coordinate	42° 30.0' N	71° 00.0' W	42° 20.0' N	71° 10.0' W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the Atlantic Ocean within the square within Massachusetts Bay and within Boston Harbor affecting the following: South Boston, MA., Boston, MA., Chelsea River, Mystic River, Charles River, East Boston, MA., Chelsea, MA., Orient Heights, and most of Logan Airport.

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod *(Gadus morhua)*	X	X	X	X
haddock *(Melanogrammus aeglefinus)*	X	X		
pollock *(Pollachius virens)*	X	X	X	X
whiting *(Merluccius bilinearis)*	X	X	X	X
offshore hake *(Merluccius albidus)*				
red hake *(Urophycis chuss)*	X	X	X	X
white hake *(Urophycis tenuis)*	X	X	X	X
redfish *(Sebastes fasciatus)*	n/a			
witch flounder *(Glyptocephalus cynoglossus)*				
winter flounder *(Pleuronectes americanus)*	X	X	X	X
yellowtail flounder *(Pleuronectes ferruginea)*	X	X	X	X
windowpane flounder *(Scopthalmus aquosus)*	X	X	X	X
American plaice *(Hippoglossoides platessoides)*	X	X	X	X
ocean pout *(Macrozoarces americanus)*	X	X	X	X
Atlantic halibut *(Hippoglossus hippoglossus)*	X	X	X	X
Atlantic sea scallop *(Placopecten magellanicus)*	X	X	X	X
Atlantic sea herring *(Clupea harengus)*		X	X	X
monkfish *(Lophius americanus)*				
bluefish *(Pomatomus saltatrix)*				

long finned squid *(Loligo pealei)*	n/a	n/a	X	X
short finned squid *(Illex illecebrosus)*	n/a	n/a	X	X
Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X
Atlantic mackerel *(Scomber scombrus)*	X	X	X	X
summer flounder *(Paralicthys dentatus)*				X
scup *(Stenotomus chrysops)*	n/a	n/a	X	X
black sea bass *(Centropristus striata)*	n/a		X	X
surf clam *(Spisula solidissima)*	n/a	n/a	X	X
ocean quahog *(Artica islandica)*	n/a	n/a		
spiny dogfish *(Squalus acanthias)*	n/a	n/a		
tilefish *(Lopholatilus chamaeleonticeps)*				
bluefin tuna *(Thunnus thynnus)*			X	X