

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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

ConocoPhillips Company

is authorized to discharge from a facility located at

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

to receiving water named

Chelsea River/Mystic River Watershed (MA71)

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

This permit shall become effective on the first day of the calendar month immediately following 60 days after signature.

This permit and the authorization to discharge expire at midnight, five (5) years from last day of the month preceding the effective date.

This permit supersedes the permit issued on August 14, 2000

This permit consists of **17** pages in Part I including effluent limitations, monitoring requirements, **27** pages in Part II including General Conditions and Definitions, and **8** pages in Attachment A including Marine Acute Toxicity Test Procedure and Protocol.

Signed this 25th day of August, 2006

/s/ SIGNATURE ON FILE

Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

Glenn Haas, Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge treated effluent from **Serial Number Outfall 001** to the Chelsea River. The discharge is comprised of ground water from Outfall 002, stormwater and infrequent flows of hydrostatic test water. Such discharge shall: 1) be limited and monitored by the permittee as specified below; and 2) not cause a violation of the State Water Quality Standards of the receiving water.

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirements ⁽¹⁾	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow Rate ⁽²⁾	gpm	Report	Report	When Discharging	Meter
Total Flow ⁽³⁾	Mgal/ Month	Report Monthly Total	----	When Discharging	Meter
Total Suspended Solids (TSS)	mg/L	30	100	1/Month ⁽⁴⁾	Grab
Oil and Grease (O&G)	mg/L	----	15	1/Month ⁽⁴⁾	Grab
pH	S.U.	----	6.5 to 8.5 ⁽⁵⁾	1/Month ⁽⁴⁾	Grab

Part I.A.1 (Continued)

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirements ⁽¹⁾	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Polynuclear Aromatic Hydrocarbons (PAHs)					
Group I PAH Compounds ⁽⁶⁾	µg/L		10 ⁽⁶⁾	Quarterly ⁽⁴⁾	Grab
Group II PAH Compounds ⁽⁶⁾	µg/L	----	10 ⁽⁶⁾	Quarterly ⁽⁴⁾	Grab
Sum of all PAHs present ⁽⁶⁾	µg/L	----	50 ⁽⁶⁾	Quarterly ⁽⁴⁾	Grab
Volatile Organic Compounds (VOCs)					
Benzene	µg/L	----	40	Quarterly ⁽⁴⁾	Grab
Toluene	µg/L	----	Report	Quarterly ⁽⁴⁾	Grab
Ethylbenzene	µg/L	----	Report	Quarterly ⁽⁴⁾	Grab
Total Xylenes	µg/L	----	Report	Quarterly ⁽⁴⁾	Grab
Ethanol ⁽⁷⁾⁽⁸⁾	µg/L	----	Report	Quarterly ⁽⁴⁾	Grab
LC ₅₀	%		>50%	2/Year	Grab

See page 4 for explanation of footnotes

Footnotes (Outfall 001):

1. All samples shall be collected at the outlet from the stormwater treatment system.
2. For Flow Rate, the permittee shall report the maximum daily flow rate of water discharged by the facility during the reporting period. The maximum daily flow rate, which is to be measured in the units of gallons per minute (gpm), shall be based upon the totalizer flow results or an approved equivalent flow measuring device.
3. For Total Flow, the value reported represents the sum of the flow for each day that water is discharged during that month. The total monthly flow rate shall be based upon the totalizer flow results or an approved equivalent flow measuring device and shall be reported in the units of millions of gallons/month (Mgal/month).
4. Sampling frequency of 1/month is defined as the sampling of one (1) event in each calendar month. Sampling frequency of quarterly is defined as the sampling of one (1) event in each quarter. Quarters are defined as the interval of time between the months of: January through March, inclusive; April through June, inclusive; July through September, inclusive; and October through December, inclusive. **Quarterly sampling shall be performed concurrently with the monthly monitoring event.** The permittee shall submit the results to EPA and MassDEP of any additional testing done to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii).
5. See Part I.A.4., Page 8.
6. See Part I.A.17 on Page 9 for a definition of Group I and Group II PAHs.
7. LC50 (Lethal Concentration 50 Percent) is the concentration of wastewater (effluent) causing mortality to 50 percent (%) of the test organisms. The "50 % or greater limit" is defined as a sample which is composed of 50 % or greater effluent, the remainder being dilution water. The limit is considered to be a maximum daily limit.
8. The permittee shall conduct 48-Hour Static Acute Whole Effluent Toxicity (WET) test on effluent samples from Outfall 001 two times a year, in March and September, using one specie, Mysid Shrimp (Mysidopsis Bahia) and following the protocol in Attachment A (Marine Acute Toxicity Test Procedure and Protocol dated September 1996). Toxicity test results are to be submitted within 30 days after the sampling date with the routine Discharge Monitoring Reports (DMRs).

Part I.A. (continued)

2. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge treated groundwater from ConocoPhillips East Boston Terminal through internal waste stream **Serial Number Outfall 002** to the Chelsea River via Outfall 001. The discharge is comprised of treated ground water. Such discharge shall: 1) be limited and monitored by the permittee as specified below; and 2) not cause a violation of the State Water Quality Standards of the receiving water.

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirements ⁽¹⁾	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow Rate ⁽²⁾	gpm	Report	Report	When Discharging	Meter
Total Flow ⁽³⁾	Mgal/ Month	Report Monthly Total	----	When Discharging	Meter
Total Petroleum Hydrocarbons (TPH)	mg/L	----	5	1/Month ⁽⁴⁾	Grab
Cyanide ⁽⁵⁾	µg/L	----	Report	1/Month ⁽⁴⁾	Grab
pH	S.U.	----	6.5 to 8.5 ⁽⁶⁾	1/Month ⁽⁴⁾	Grab

Part I.A.2 (continued)

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirements ⁽¹⁾	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Polynuclear Aromatic Hydrocarbons (PAHs)					
Group I PAH Compounds ⁽⁷⁾	µg/L	----	10 ⁽⁸⁾	1/Month ⁽⁴⁾	Grab
Group II PAH Compounds ⁽⁷⁾	µg/L	----	100 ⁽⁹⁾	1/Month ⁽⁴⁾	Grab
Naphthalene	µg/L	----	20 ⁽⁹⁾	1/Month ⁽⁴⁾	Grab
Volatile Organic Compounds (VOCs)					
Benzene	µg/L	----	5	1/Month ⁽⁴⁾	Grab
Toluene	µg/L	----	Report	1/Month ⁽⁴⁾	Grab
Ethylbenzene	µg/L	----	Report	1/Month ⁽⁴⁾	Grab
Total Xylenes ⁽¹⁰⁾	µg/L	----	Report	1/Month ⁽⁴⁾	Grab
BTEX	µg/L	----	100	1/Month ⁽⁴⁾	Grab
Methyl Tertiary-Butyl Ether (MTBE) ⁽¹¹⁾	µg/L	----	70	1/Month ⁽⁴⁾	Grab
Naphthalene	µg/L	----	20	1/Month ⁽⁴⁾	Grab

See page 7 for explanation of footnotes

Footnotes (Outfall 002):

1. All samples shall be collected at the outlet from the groundwater treatment system.
2. For Flow Rate, the permittee shall report the maximum daily flow rate of treated ground water discharged by the facility during the reporting period. The maximum daily flow rate, which is to be measured in the units of gallons per minute (gpm), shall be based upon the totalizer flow results or an approved equivalent flow measuring device.
3. For Total Flow, the value reported represents the sum of the flow for each day that ground water is discharged during that month. The total monthly flow rate shall be based upon the totalizer flow results or an approved equivalent flow measuring device and shall be reported in the units of millions of gallons/month (Mgal/month).
4. Sampling frequency of 1/month is defined as the sampling of one (1) event in each calendar month. Sampling frequency of quarterly is defined as the sampling of one (1) event in each quarter. Quarters are defined as the interval of time between the months of: January through March, inclusive; April through June, inclusive; July through September, inclusive; and October through December, inclusive. **Quarterly sampling shall be performed concurrently with the monthly monitoring event.** The permittee shall submit the results to EPA and MassDEP of any additional testing done to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii).
5. For the first 12 months of operations the untreated groundwater (influent) and effluent cyanide concentrations shall be reported. After the first twelve months of operations, only effluent cyanide concentrations shall be reported. The detection limit for cyanide analyses shall be less than or equal to 10.0 µg/L.
6. See Part I.A.4., Page 8.
7. See Part I.A.17., Page 9.
8. The effluent limit for each individual Group I PAH compound is being set at the Minimum Level (ML) of reporting (See Part I.A.18., Page 9). The effluent limit for the aggregate sum of the Group I PAH compounds is being set at 10.0 µg/L based on the approximate sum of the MLs for each individual Group I PAH compound. For purposes of determining compliance/non-compliance, any value of a Group I PAH compound detected below its ML shall be considered as non-detect.
9. See Part I.A.19, Page 9.
10. The permit includes an effluent limit for the sum of benzene, toluene, ethylbenzene, and total xylenes (BTEX) compounds reported.
11. The permittee shall sample and analyze for naphthalene using analytical methods for semi-volatile organic compounds and volatile organic compounds.

Part I.A. (Continued)

3. The discharges either individually or in combination shall not cause a violation of State Water Quality Standards of the receiving waters.
4. The pH of the effluent shall not be less than 6.5 nor greater than 8.5 at any time unless these values are exceeded as a result of natural causes.
5. The discharge shall not cause objectionable discoloration of the receiving waters.
6. The discharge shall not contain a visible oil sheen, foam, nor floating solids at any time.
7. The discharge shall not contain materials in concentrations or combinations which are hazardous or toxic to human health, aquatic life of the receiving surface waters or which would impair the uses designated by its classification.
8. There shall be no discharge of tank bottom water and/or bilge water alone or in combination with storm water discharge or other wastewater.
9. The discharge shall not impart color, taste, turbidity, toxicity, radioactivity or other properties which cause those waters to be unsuitable for the designated uses and characteristics ascribed to their use.
10. Notwithstanding specific conditions of this permit, the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.
11. The permittee shall inspect, operate, and maintain the storm water treatment system and the ground water remediation system at the facility to ensure that the Effluent Limitations and Conditions contained in this permit are met. The permittee shall ensure that all components of the facility's Best Management Practice Plan, including those which specifically address the operation and maintenance of the groundwater remediation system as well as the oil/water separator, sand filters, carbon adsorption units, pumps, and other components of the storm water conveyance and treatment system, are complied with.
12. Chemicals (i.e. disinfecting agents, detergents, emulsifiers, etc.), bioremedial agents including microbes shall not be added to the collection and treatment systems without prior approval by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) to prevent hydrocarbon and/or particulate matter carryover into the Chelsea River.
13. There shall be no discharge of any sludge and/or bottom deposits from any storage tank(s), basin(s), and/or diked area(s) to the receiving waters. Examples of storage tanks and/or basins include, but are not limited to: primary catch basins, stilling basins, O/W Separators, petroleum product storage tanks, baffled storage tanks collecting spills, and tank truck loading rack sumps.
14. The bypass of storm water runoff, wash water, or water used at the facility is prohibited except where necessary to avoid loss of life, injury, or severe property damage. Each bypass shall be

sampled for all of the effluent characteristics identified in Part I.A.1 of this permit (i.e., monthly and quarterly) and the results reported to EPA within forty-five (45) days of the initiation of the bypass. These bypass reporting requirements are in addition to those already identified in 40 Code of Federal Regulations (CFR) §122.41(m).

15. EPA may modify this permit in accordance with EPA regulations in 40 Code of Federal Regulations (CFR) §122.62 and §122.63 to incorporate more stringent effluent limitations, increase the frequency of analyses, or impose additional sampling and analytical requirements.
16. The appearance of any size sheen attributable to the discharge from the ConocoPhillips terminal shall be reported immediately by the permittee to the appropriate U.S. Coast Guard Officer in accordance with Section 311 of the Clean Water Act (CWA). This requirement is in addition to any reporting requirements contained in this National Pollutant Discharge Elimination System (NPDES) permit.
17. Group I PAH compounds, as identified in the effluent limits for Outfalls 001 and 002, consist of the following seven compounds: 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 PAH compounds, as identified in the effluent limits for Outfalls 001 and 002 consist of the following nine compounds: acenaphthene, acenaphthylene, anthracene, benzo(ghi)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene.
18. The following MLs as identified in parenthesis next to each constituent shall be achieved during the monitoring of Group I PAH compounds: 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), and indeno(1,2,3-cd)pyrene (<0.15 µg/L).
19. The nine (9) Group II PAH compounds as identified in the effluent limits for Outfall 002 and their respective MLs consist of the following: 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), and pyrene (<0.05 µg/L). The sum of the nine Group II PAH compounds shall not exceed a total limit of 100 µg/L. EPA has also established an individual maximum daily effluent limit of 20 µg/L for naphthalene.
20. The permittee shall attach a copy of the laboratory case narrative to the respective Discharge Monitoring Report Form submitted to EPA and MassDEP for each sampling event reported. The laboratory case narrative shall include a copy of the laboratory data sheets for each analyses (identifying the test method, the analytical results, and the detection limits for each analyte) and provide a brief discussion of whether all appropriate QA/QC procedures were met and were within acceptable limits.
21. All existing manufacturing, commercial, mining and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:
 - a. That any activity has occurred or will occur which would result in the discharge, on a routine basis, of any toxic pollutant which is not limited in the permit, if that discharge

will exceed the highest of the following “notification levels:”

- (1) One hundred micrograms per liter (100 ug/l);
 - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or
 - (4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).
- b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels:”
- (1) Five hundred micrograms per liter (500 ug/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7).
 - (4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).
- c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

22. Treatment System Flow Controls

- a. Written notification and approval by EPA and the MassDEP shall be required, should the permittee propose changes to either the groundwater or storm water conveyance or treatment systems which have the potential to cause the maximum design flow rate through the any component of the storm water or ground water treatment system to be exceeded.
- b. The permittee shall document, and submit to EPA, the design flow used as a basis for design of the new groundwater treatment system.

23. Toxics Control

- a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.
- b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

24. Hydrostatic Test Water Discharges

- a. The hydrostatic test water shall be treated through the storm water treatment system prior to being discharged through Outfall 001 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 design flow rate of the treatment system.

B. BEST MANAGEMENT PRACTICES/STORM WATER POLLUTION PREVENTION PLAN

1. The permittee shall maintain, update and implement the Best Management Practices Plan to account for any changes that occur at the facility which could impact the plan. The permittee shall be required to provide an annual report that includes the proper 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 the BMPP.
2. The certification shall be signed in accordance with the requirements identified in 40 CFR §122.22 and a copy of the certification shall 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. The permittee shall keep a copy of the most recent BMPP at the facility and shall make it available for inspection by EPA and MassDEP.
3. The BMPP shall contain the following elements:
 - a. Pollution Prevention Team
 - b. Site Description
 - c. Receiving Waters and Wetlands
 - d. Summary of Potential Pollutant Sources
 - e. Spills and Leaks
 - f. Sampling Data
 - g. Storm Water Controls
 - (1) Description of Existing and Planned Best Management Practices (BMPs)
 - (2) BMP Types to be Considered
 - (3) Non-Structural BMPs
 - i. Good Housekeeping
 - ii. Minimize Exposure
 - iii. Preventive Maintenance
 - iv. Spill Prevention and Response Procedures
 - v. Routine Facility Inspections
 - vi. Employee Training
 - (4) Structural BMPs
 - i. Sediment and Erosion
 - ii. Management of Runoff
 - iii. Example BMPs

- (5) Other Controls
 - (6) Details of each element, above, can be found in Section 4 of the Storm Water Multi-Sector General Permit at 65 FR 64812-64815 (2000)
4. The BMPP shall include, at a minimum, the following items:
- a. Description of Potential Pollutant Sources – The BMPP must provide a description of potential sources which may be reasonably expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants draining the facility. The description must address each pollutant for which monitoring is required (see Sections I.A.1 and 2, above). The BMPP must identify all activities and significant materials, which may potentially be significant pollutant sources. The BMPP shall include:
 - (1) A drainage site map indicating: a delineation of the drainage area of each storm water outfall, each existing structural control measure to reduce pollutants in storm water runoff, locations where significant materials are exposed to storm water, locations where significant leaks or spills have occurred, a delineation of all impervious surfaces, all surface water bodies, all separate storm sewers, and the locations of the following activities where such areas are exposed to storm water: fueling stations, vehicle and equipment maintenance and/or cleaning areas, material handling areas, process areas and waste disposal areas. ConocoPhillips shall include a map that delineates all known or suspected storm water pipes that run through its property and to note where the pipes connect;
 - (2) A topographic map extending one-quarter of a mile beyond the property boundaries of the facility;
 - (3) An estimate of the overall runoff coefficient for the site, determined by an acceptable method, such as area weighting;
 - (4) A narrative description of significant materials that have been treated, stored or disposed of in a manner to allow exposure to storm water between the time of three years prior to the issuance of this Permit to the present; method of on-site storage or disposal; materials management practices employed to minimize contact of these materials with storm water runoff between the time of three years prior to the issuance of this Permit and the present; materials loading and access areas; the location and description of existing structural and non-structural control measures to reduce pollutants in storm water runoff; and description of any treatment the storm water receives;
 - (5) A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at the facility three (3) years prior to the effective date of this Permit to the present;
 - (6) A list of any pollutant limited in effluent guidelines to which a facility is subject under 40 CFR Subchapter N, any pollutants listed on an NPDES permit to discharge process water, and any information required under 40

CFR 122.21(g)(iii)-(v);

- (7) For each area of the facility that generates storm water discharges with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an estimate of the types of pollutants, which are likely to be present in storm water;
 - (8) A summary of existing sampling data describing pollutants in storm water discharges from the facility; and
- b. Storm Water Management Controls - The facility must develop a description of storm water management controls appropriate for the facility and implement such controls. The appropriateness for implementing controls listed in the BMPP must reflect identified potential sources of pollutants at the facility. The description of storm water management controls must address the following minimum components, including a schedule for implementing such controls:
- (1) Pollution Prevention Team - The BMPP must identify a specific individual(s) within the facility organization as members of a team that are responsible for developing the BMPP and assisting the facility manager in its implementation, maintenance, and revision. The BMPP must clearly identify the responsibilities of each team member. The activities and responsibilities of the team must address all aspects of facility's BMPP.
 - (2) Risk Identification and Assessment/Material Inventory - The BMPP must assess the potential of various sources at the facility to contribute pollutants to storm water discharge associated with the industrial activity. The BMPP must include an inventory of the types of materials handled. Each of the following must be evaluated for the reasonable potential for contributing pollutants to runoff: loading and unloading operations, outdoor manufacturing or processing activities, significant dust or particulate generating processes, and on-site waste disposal practices. Factors to consider include the toxicity of chemicals; quantity of chemicals used, produced, or discharged; the likelihood of contact with storm water, and the history of significant leaks or spills of toxic or hazardous pollutants.
 - (3) Preventative Maintenance - A preventative maintenance program must involve inspections and maintenance of storm water management devices (i.e. oil/water separators, catch basins, track mats) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdown or failures resulting in discharges of pollutants to surface waters.
 - (4) Good Housekeeping - Good housekeeping requires the maintenance of a clean orderly facility.
 - (5) Spill Prevention and Response Procedure - Areas where potential spills can occur and their accompanying drainage points, must be identified clearly in the BMPP. The potential for spills to enter the storm water drainage system

must be eliminated whenever feasible. Where appropriate, specific material handling procedures, storage requirements, and procedures for cleaning up spills must be identified in the BMPP and made available to the appropriate personnel.

- (6) Storm Water Management - The BMPP must contain a narrative consideration of the appropriateness of traditional storm water management practices. Based on an assessment of the potential of various sources at the facility to contribute pollutants to the storm water discharge, the BMPP must provide that measures, determined to be reasonable and appropriate, must be implemented and maintained.
 - (7) Sediment and Erosion Prevention - The BMPP must identify areas which; due to topography, activities, or factors; have a high potential for significant soil erosion and identify measures to limit erosion.
 - (8) Employee Training - Employee training programs must inform personnel responsible for implementing activities identified in the BMPP, or otherwise responsible for storm water management at all levels, of the components and goals of the BMPP. Training should address topics such as spill response, good housekeeping and material management practices. The BMPP must identify periodic dates for such training.
 - (9) Visual Inspections - Qualified facility personnel must be identified to inspect designated equipment and facility areas. Material handling areas must be inspected for evidence of, or the potential for, pollutants entering the drainage system. A tracking or follow up procedure must be used to ensure that the appropriate action has been in response to the inspection. Records of inspections must be maintained for five (5) years.
 - (10) Recordkeeping and Internal Reporting Procedures - Incidents such as spill, or other discharges, along with other information describing the quality and quantity of storm water discharges must be included in the records. All inspections and maintenance activities must be documented and maintained on site for at least five (5) years.
- c. Site Inspection - An annual site inspection must be conducted by appropriate personnel named in the BMPP to verify that the description of potential pollutant sources required under part B.1 is accurate, that the drainage map has been updated or otherwise modified to reflect current conditions, and controls to reduce pollutants in storm water discharges identified in the BMPP are being implemented and are adequate. A tracking or follow-up procedure must be used to ensure that the appropriate action has been taken in response to the inspection. Records documenting significant observations made during the site inspection must be retained as part of the BMPP for a minimum of five (5) years.
 - d. Consistency with Other Plans - Storm water management controls may reflect requirements for Spill Prevention Control and Counter-measure (SPCC) plans under

Section 311 of the CWA.

- e. Amending the BMPP - The permittee shall immediately amend the BMPP whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the State; a release of reportable quantities of hazardous substances and oil; or if the BMPP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges. Changes must be noted and then submitted to EPA and/or MassDEP. Amendments to the BMPP may be reviewed by EPA and/or MassDEP. If the BMPP is reviewed the permittee may be notified at any time that the BMPP does not meet one or more of the minimum requirements. After such notification by the EPA and/or MassDEP, the permittee shall make changes to the BMPP and shall submit a written certification that the requested changes have been made. Unless otherwise provided by the EPA and/or MassDEP, the permittee shall have thirty (30) days after such notification to make the necessary changes.
5. A copy of the BMPP shall be provided to the City of Boston upon written request to the facility by the City of Boston.

C. REQUEST FOR REDUCTION IN MONITORING

1. The permittee may request a reduction in certain monitoring requirements for Outfall 002 upon demonstration by ongoing sampling and analytical data that the effluent consistently meets effluent limitations. The permittee may request a reduction of monitoring at Outfall 002 from 1/month to quarterly. To be eligible for a reduction on the effluent monitoring frequency, the permittee must provide 12 months of data demonstrating compliance. This type of change requires prior approval by the Director and MassDEP. Prior to receiving written approval, the permittee must continue to monitor at the frequency specified in the permit.

D. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the effective date of the permit.

Signed and dated originals of these, and all other reports required herein, shall be submitted to EPA at the following address:

Environmental Protection Agency, Region 1
Water Technical Unit (SEW)
P.O. Box 8127
Boston, Massachusetts 02114

In addition, a second copy of each hydrostatic testing letter/report submitted in accordance with this permit shall be sent to EPA at the following address:

Environmental Protection Agency, Region 1

OEP/Industrial Permits Branch
1 Congress Street, Suite 1100 (CIP)
Boston, Massachusetts 02114

Signed and dated Discharge Monitoring Report Form(s) and all other reports required by this permit shall also be submitted to the State at the following addresses:

Massachusetts Department of Environmental Protection
Northeast Regional Office
Bureau of Waste Prevention
205 B Lowell Street
Wilmington, MA 01887

and

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

E. STATE PERMIT CONDITIONS

1. This Discharge Permit is issued jointly by the EPA and the MassDEP under Federal and State law, respectively. As such, all the terms and conditions of this Permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chap. 21, §43.
2. Each Agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this Permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as a NPDES Permit issued by the EPA. In the event this Permit is declared invalid, illegal or otherwise issued in violation of Federal law, this Permit shall remain in full force and effect under State law as a Permit issued by the Commonwealth of Massachusetts.

RESPONSE TO COMMENTS
REGARDING THE RESISSUANCE OF THE FOLLOWING NPDES PERMIT
CONCOPHILLIPS EAST BOSTON TERMINAL MA0004006

Introduction:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) solicited public comments from May 24, 2006, through June 22, 2006 on the draft National Pollution Discharge Elimination System (NPDES) permit to be issued to ConocoPhillips East Boston Terminal.

The Draft NPDES Permit is primarily for the discharge of storm water and treated ground water and occasionally water used for the hydrostatic testing of repaired tanks. The facility discharges to Chelsea River.

During the public-notice (comment) period EPA-New England received comments from the Commonwealth of Massachusetts Riverways Program (Riverways). Several of the comments submitted by Riverways were supportive of the approach and provisions of the draft permit. EPA acknowledges these comments and has limited detailed responses to five comments in which Riverways offers suggested changes to permit provisions or seeks clarifications.

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit and any appropriate changes made to the public-noticed draft permit as a result of the comments. The Final Permit is substantially identical to the draft permit that were available for public comment. Although EPA's decision making has benefited from the comments submitted, the information and arguments submitted did not result in any substantial new changes to the permit. EPA did, however, improve certain requirements in the permits as a result of the comments raised. These improvements and changes are further explained in this document and are reflected in the Final Permit.

Summary of Changes Made to the Final Permit

1. The permittee shall provide the City of Boston with a current copy of their Best Management Practices Plan upon written request. (Part I.B.5)
2. The detection limit for cyanide analyses shall be 10 µg/l. (Part I.A.2, footnote 5)
3. For the first 12 months following startup of the groundwater treatment system, the permittee shall sample, analyze and report the untreated groundwater for cyanide. (Part I.A.2, footnote 5)

Comments from Cindy Delpapa, Massachusetts Riverways Program

COMMENT NO. 1

As stated in the Fact Sheet, the effectiveness of an oil and water separator (OWS) is in great part a function of a flow rate at or below the design flow. Given the maximum design flow rate for the ConocoPhillips OWS is 600 gallons per minute (gpm), we would strongly advocate for a flow limitation reflecting this design flow or, preferably, a slightly lower flow to allow a margin of safety.

RESPONSE NO. 1

Paragraph 22a in Part 1, Section A of the draft permit requires written notification and approval should ConocoPhillips propose any changes in treatment or conveyance systems that would have the potential to cause the maximum design flow rate through any component of the storm water or ground water treatment system to be exceeded. EPA is confident that the current storm water conveyance system (with a pump rated to less than 600 gpm, followed by a flow restriction device) provides adequate protection against exceeding the OWS design flow, as demonstrated in the discharge monitoring summary attached to the fact sheet. The requirement to notify and seek approval from EPA and MassDEP if the system is changed, protects that margin of safety.

COMMENT NO. 2

The best management practices plan (BMPP) required of this facility is a key element of this permit and its ability to protect the receiving water. Having the BMPP elements equally enforceable is an important and sound part of the permit. We would like to suggest the BMPP be made available for inspection not exclusively to the EPA and MassDEP but to any interested party upon request.

RESPONSE NO. 2

In response to this comment, EPA will include language in the final permit requiring ConocoPhillips to provide a copy of its BMPP to the City of Boston, upon the submittal of a written request by the City of Boston to ConocoPhillips.

COMMENT NO.3

The draft permit has added a requirement to monitor for cyanide in outfall 2. The single piece of data on cyanide levels associated with this site showed excessive elevated levels of cyanide in extracted groundwater. This finding leads us to question the judiciousness of not imposing a cyanide limitation given the recent finding and the grave toxicity of cyanide. Since the EPA's National Water Quality Criteria for cyanide in salt water has been determined, we would like to see a limitation of 1 µg/l imposed for outfall 2 to be protective of this receiving water which is the recipient of discharges from many bulk petroleum facilities.

RESPONSE NO. 3

In the derivation of effluent limits for discharges from ConocoPhillips, EPA has considered both state and federal water quality criteria for all parameters. When establishing water quality based criteria, EPA is required by 40 C.F.R. § 122.44(d)(1)(ii) to consider the dilution of the effluent in the receiving water, which in this case, is several orders of magnitude. Due to the low flow of the discharges from the groundwater treatment system (typically 5,760 gallons per day) from internal Outfall 002 and the resulting dilution when that flow is combined with storm water (typically 110,000 gallons per day), the discharge from Outfall 001 into Chelsea River will not

likely contain measurable levels of cyanide. Therefore, EPA does not believe that the discharge of treated groundwater from Outfall 001 (via Outfall 002) has a reasonable potential to exceed water quality criteria in the Chelsea River.

In addition to the dilution described above, the inclusion in the permit of a technology-based monitoring requirement for cyanide at internal Outfall 002 provides an opportunity to further ensure that the final effluent is protective of water quality in the Chelsea River. Technology-based effluent limit guidelines for cyanide in contaminated ground water discharges have not been published to date. Concentration-based effluent guidelines that exist for other industries are all greater than 1 mg/l, are pre-treatment standards (i.e. assume further treatment and dilution in a publicly owned treatment works), and are therefore not applicable to this case. However, EPA may develop technology based standards based on well documented data collection from existing treatment systems.

In this case of cyanide contaminated groundwater, there is only one sample that been collected and analyzed for cyanide. The remediation program at the site was initiated due to known releases of petroleum product which would not normally be associated with cyanide contamination. The origins of the cyanide contamination are currently not known. However, to further characterize the nature and treatability of the cyanide, without severely interrupting the ongoing effort to remove petroleum product from underneath the loading dock area at ConocoPhillips (which otherwise may migrate to the Chelsea River), the permit allows the discharge of groundwater that has been treated to remove cyanide. Monthly monitoring of cyanide in effluent from Outfall 002 will provide additional data which can be used to develop technology-base cyanide limits, if necessary, at a later date. To better monitor the viability of the cyanide removal technology, EPA will include a requirement to meet a maximum detection limit for cyanide analysis of 10µg/l in the final permit as well as to measure cyanide in the extracted, untreated groundwater for 12 months following startup of the treatment system.

COMMENT NO. 4

The Fact Sheet Appendix contains information from past monitoring. Included in the list of monitoring results is information about lead. Was monitoring and reporting a requirement in the existing permit? If there were monitoring requirements for this metal why has this proposed permit dropped the requirement? The data indicates a finding of 8.1 µg/l of lead in September of 2005. What is the criteria for lead concentration in salt water? Is there reasonable potential for this discharge to exceed criteria? We strongly advocate for a continuance of lead monitoring given the recent elevated concentration found in the effluent.

RESPONSE NO. 4

The requirement to monitor and report lead concentrations in samples from Outfall 001 has been carried over in subsequent permits since 1990 when two effluent samples indicated elevated lead concentrations.

The Criteria Continuous Concentration (CCC) water quality standard, for dissolved lead in salt water is 8.1 µg/l. The CCC is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed to indefinitely without resulting in an unacceptable effect. There is no evidence from the quarterly monitoring that the discharge from Outfall 001 has exceeded this level for an extended period of time. The Criteria Maximum Concentration (CMC), or acute, water quality standard for dissolved lead in salt water is 210 µg/l, well above the maximum concentration measured at Outfall 001.

EPA disagrees with the proposal to continue quarterly monitoring for lead for the following reasons:

- Lead monitoring during the most recent permit cycle indicated only 4 detectable measurements of lead in samples from outfall 001 out of 21 quarterly samples. The average total lead concentration of discharges from Outfall 001 was demonstrated to be less than the water quality criteria even with conservative assumptions about partitioning between dissolved and undissolved lead.
- The facility no longer stores lead containing fuels at their facility making discharges of lead laden storm water highly unlikely.
- The analysis of a contaminated groundwater sample from the loading dock area showed no detectable concentration of lead.
- EPA has not completely removed lead monitoring from the permit since lead analysis (along with analyses for other heavy metals) will continue to be part of the semi-annual whole effluent toxicity LC₅₀ testing (see page 3 of the permit) as described in Attachment A to the permit.

COMMENT NO. 5

Chelsea River is the recipient of numerous effluent discharges from bulk petroleum facilities. The waterway is known to be impaired and not able to meet water quality standards on several fronts. Given the degraded state of the water way and the relatively high number of like dischargers into this small coastal creek, we believe industrial category standard effluent limits, such as TSS and oil and grease limits may not be protective enough to make inroads into the degraded quality of Chelsea River. If possible, we would like to suggest an iterative process where permit limitations are gradually made more stringent until such time as water quality standards are met. Maintaining the status quo has not made gains in water quality and this situation begs for more water quality, rather than technologically achievable, limitations be considered.

RESPONSE NO. 5

EPA shares the goal of improving water quality in the Chelsea River iteratively with each permit renewal. We use the NPDES regulatory tools in setting water quality based effluent limits, technology based effluent limits and/or best management practice (BMP) requirements to move towards that goal. When setting effluent limits, NPDES regulations require that both water quality based and technology based effluent limits be evaluated and that the most stringent effluent limits be used in permits. Water quality based effluent limits are not always the most stringent since the regulations require the dilution capacity of the receiving water be included in the derivation of water quality based effluent limits.

In the case of storm water, the most efficient way to ensure that rain water flowing over and collected by an industrial facility leaves the property with minimal contamination is by implementing management practices that prevent rain water from contacting products stored or used on site that may contain contaminants. For that reason, EPA requires facilities to maintain BMP plans, educate their staff and submit annual certifications that their BMP plans have been updated and are being fully implemented. EPA routinely inspects bulk petroleum storage facilities, such as ConocoPhillips to ensure that this is being done. The BMPs are the first, and most critical, defense mechanisms that protect water quality in storm water. These include maintenance of product transfer and storage equipment, the presence of a roof over the loading

rack, and other spill control and countermeasure procedures. The management of storm water at bulk storage facilities also includes a number of “safety net” BMPs, due to the large quantity of fuel product stored there, to minimize the potential releases to the environment in the case of a leak or spill. At ConocoPhillips these safety nets include visual inspection of storm water collected in containment areas to check for floating product, storage of storm water in holding tanks prior to discharge (providing separation detention time and opportunity for further inspection), and the operation of an oil/water separator. Therefore, the oil/water separator is only one of a series of efforts to prevent discharge of contaminants in storm water.

That said, the BMPs described above, are not the technology standard for process waste water or the remediation of contaminated groundwater. Beginning in 2005, with the reissuance of NPDES permits at seven other petroleum bulk storage facilities on the Chelsea River, EPA has focused considerable effort on ensuring that storm water discharges from such facilities are not combined with non-storm water flows that require additional treatment to remove dissolved contaminants. To that end, EPA has

- required comprehensive characterization of groundwater discharges, pipe infiltration and other dry weather flows from remediation sites;
- prohibited the discharge of untreated contaminated ground water and established internal outfalls for such discharges (such as Outfall 002 at ConocoPhillips);
- prohibited the discharge of tank bottom water from outfalls; and
- prohibited the use of detergents to wash vehicles in storm water collection areas.

These efforts are intended to reduce the total mass loading of contaminants discharged and to contribute, along with other efforts in the area, to water quality improvements in the Chelsea River.

ATTACHMENT A
MARINE ACUTE
TOXICITY TEST PROCEDURE AND PROTOCOL
East Boston Terminal Company

I. GENERAL REQUIREMENTS

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

- Mysid Shrimp (Mysidopsis bahia) definitive 48 hour test.

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

II. METHODS

Methods to follow are those recommended by EPA in:

Weber, C.I. et al. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, Fourth Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH. August 1993, EPA/600/4-90/027F.

Any exceptions are stated herein.

III. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for the chemical and physical analyses. The remaining sample shall be dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual oxidants (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. A thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) should also be run.

All samples held overnight shall be refrigerated at 4°C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected at a point away from the discharge which is free from toxicity or other sources of contamination. Avoid collecting near areas of obvious road or agricultural runoff, storm sewers or other point source discharges. An additional control (0% effluent) of a standard laboratory water of known quality shall also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a conductivity, salinity, total suspended solids, and pH similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. Written requests for use of an alternative dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency-New England
1 Congress Street
Suite 1100 (CMA)
Boston, MA 02203

It may prove beneficial to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

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

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

1. Test type	Static, non-renewal
2. Salinity	25ppt $\pm$ 10 percent for all dilutions by adding dry ocean salts
3. Temperature ($^{\circ}$ C)	20 $^{\circ}$ C $\pm$ 1 $^{\circ}$ C or 25 $^{\circ}$ C $\pm$ 1 $^{\circ}$ C
4. Light quality	Ambient laboratory illumination
5. Photoperiod	16 hour light, 8 hour dark
6. Test chamber size	250 ml
7. Test solution volume	200 ml
8. Age of test organisms	1-5 days
9. No. Mysids per test chamber	10
10. No. of replicate test chambers per treatment	4
11. Total no. Mysids per test concentration	40
12. Feeding regime	Light feeding using concentrated <u>Artemia</u> nauplii while holding prior to initiating the test
13. Aeration ²	None
14. Dilution water	Natural seawater, or deionized water mixed with artificial sea salts
15. Dilution factor	≥ 0.5
16. Number of dilutions ³	5 plus a control. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.

- | | |
|----------------------------|---|
| 17. Effect measured | Mortality - no movement of body appendages on gentle prodding |
| 18. Test acceptability | 90% or greater survival of test organisms in control solution |
| 19. Sampling requirements | For on-site tests, samples are used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection. |
| 20. Sample volume required | Minimum 1 liter for effluents and 2 liters for receiving waters |

Footnotes:

1. Adapted from EPA/600/4-90/027F.
2. If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks are recommended.
3. When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

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

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

17. Effect measured	Mortality-no movement on gentle prodding.
18. Test acceptability	90% or greater survival of test organisms in control solution.
19. Sampling requirements	For on-site tests, samples must be used within 24 hours of the time they are removed from the sampling device. Off-site test samples must be used within 36 hours of collection.
20. Sample volume required	Minimum 1 liter for effluents and 2 liters for receiving waters.

Footnotes:

1. Adapted from EPA/600/4-90/027F.
2. If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks recommended.
3. When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

VI. CHEMICAL ANALYSIS

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

<u>Parameter</u>	<u>Effluent</u>	<u>Diluent</u>	<u>Minimum Quanti- fication Level (mg/L)</u>
pH	x	x	---
Salinity	x	x	PPT(0/00)
Total Residual Oxidants ^{*1}	x	x	0.05
Total Solids and Suspended Solids	x	x	---
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5

Total Metals

Cd	X	0.001
Cr	X	0.005
Pb	X	0.005
Cu	X	0.0025
Zn	X	0.0025
Ni	X	0.004
Al	X	0.02

Superscript:

*1 Total Residual Oxidants

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

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

or use USEPA Manual of Methods Analysis of Water or Wastes, Method 330.5.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration

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

Methods of Estimation:

- Probit Method
- Spearman-Karber
- Trimmed Spearman-Karber
- Graphical

See flow chart in Figure 6 on page 77 of EPA 600/4-90/027F for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See flow chart in Figure 13 on page 94 of EPA 600/4-90/027F.

VIII. TOXICITY TEST REPORTING

The following must be reported:

- Description of sample collection procedures, site description;

- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody; and
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicity test data must be included.
- Raw data and bench sheets.
- ~~All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)~~
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.
- Statistical tests used to calculate endpoints.

**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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Figure 1 – Site Locus Map

Figure 2 – Site Plan

Figure 3 – Collection and Discharge Schematic

Figure 4 – Storm Water Treatment System Schematic

Figure 5 – Ground Water Treatment System Schematic

ATTACHMENT A - Summary of Discharge Monitoring Data

ATTACHMENT B - Endangered Species List

ATTACHMENT C - Essential Fish Habitat Designation

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.

Ethanol

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)(1)(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 LC₅₀ 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 (C₆) atoms to compounds with 25 carbon atoms (C₂₅). 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, metalocyanide 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 metalocyanide 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 below 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.

Group I PAHs

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).

Group II PAHs

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:

Ellen Weitzler, EPA New England - Region I
1 Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023
Telephone: (617) 918-1582 FAX: (617) 918-1505
email: weitzler.ellen@epa.gov

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

Date

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

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FIGURES

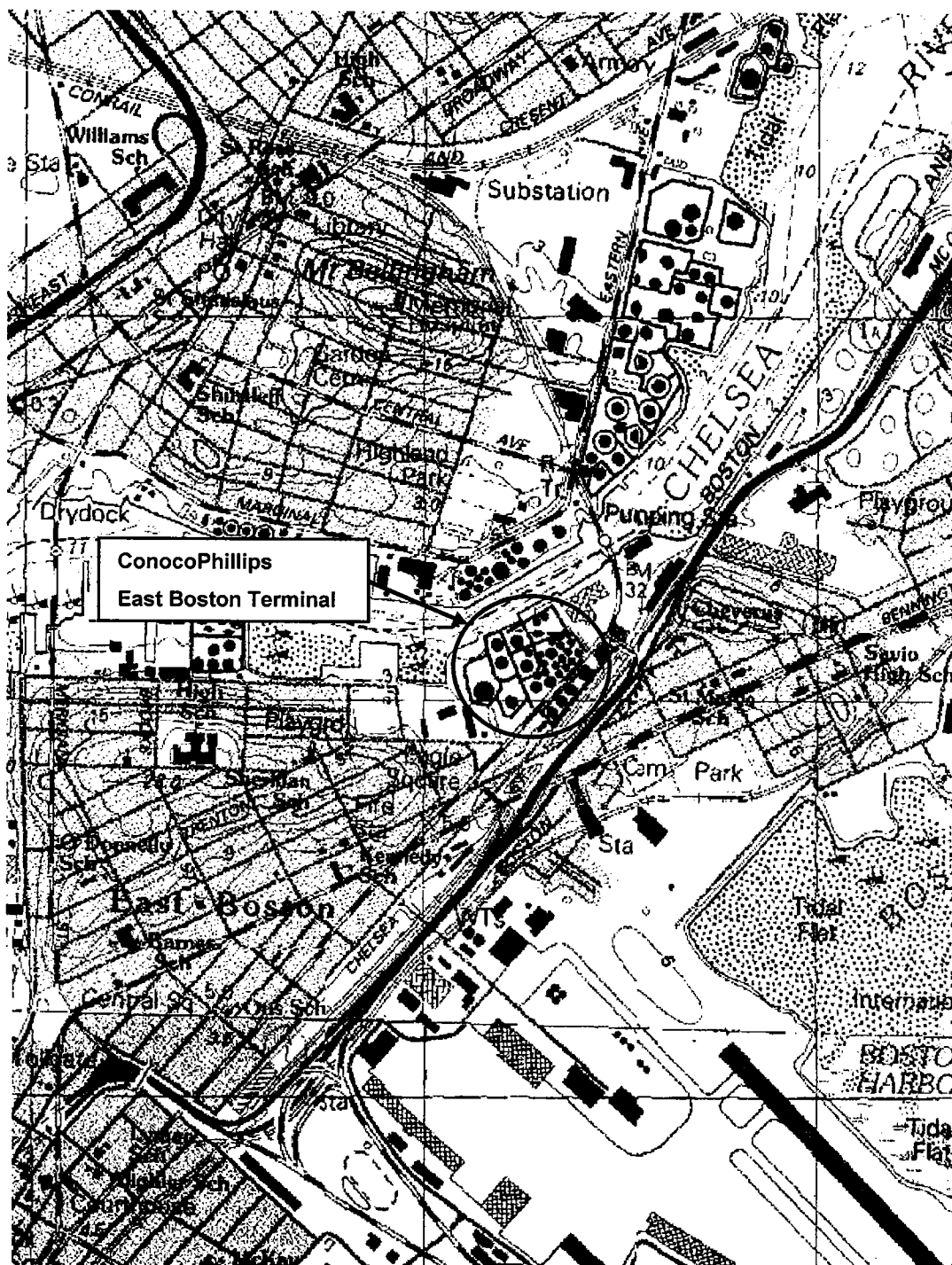


FIGURE 1
SITE LOCUS MAP
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

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

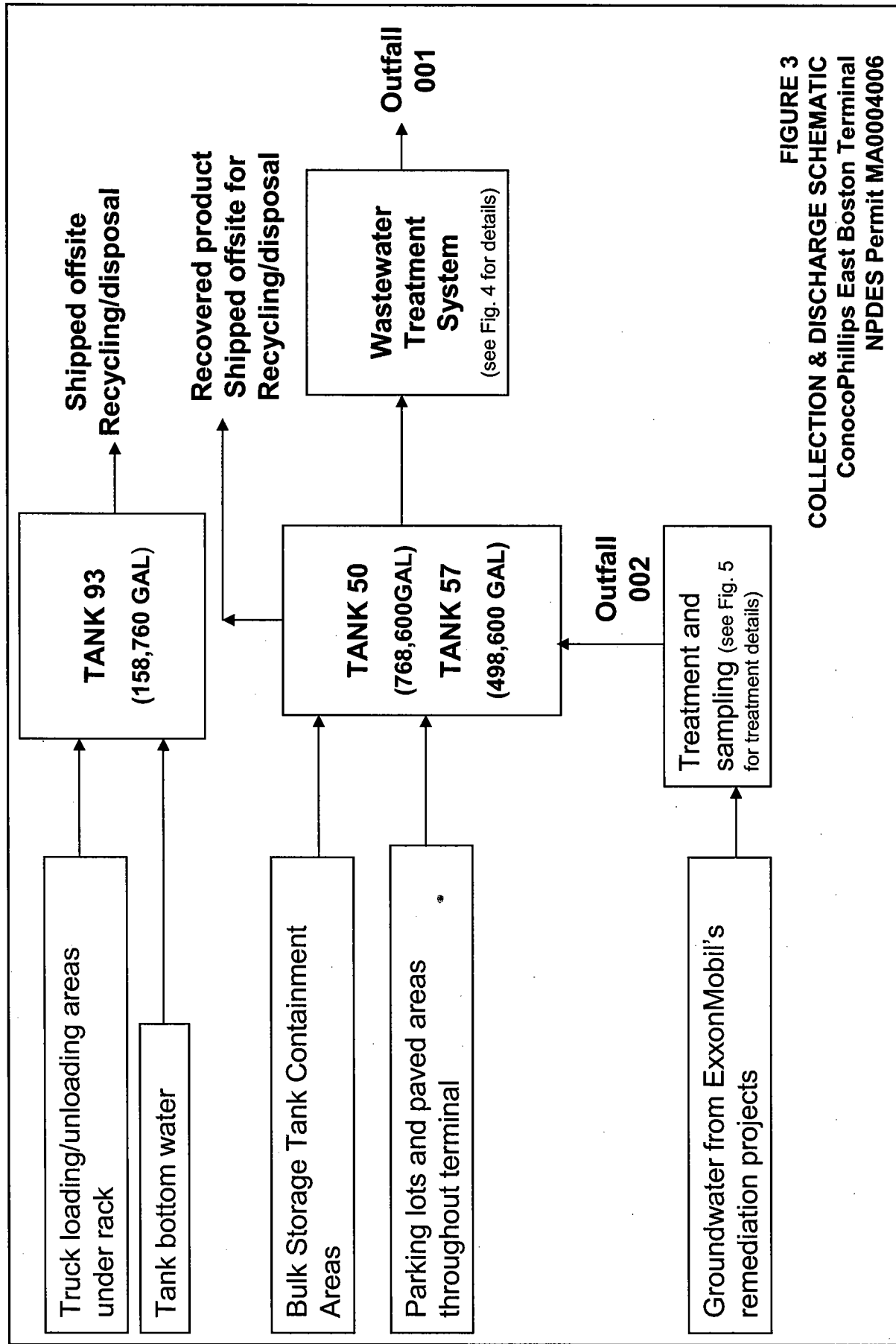


FIGURE 3
COLLECTION & DISCHARGE SCHEMATIC
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

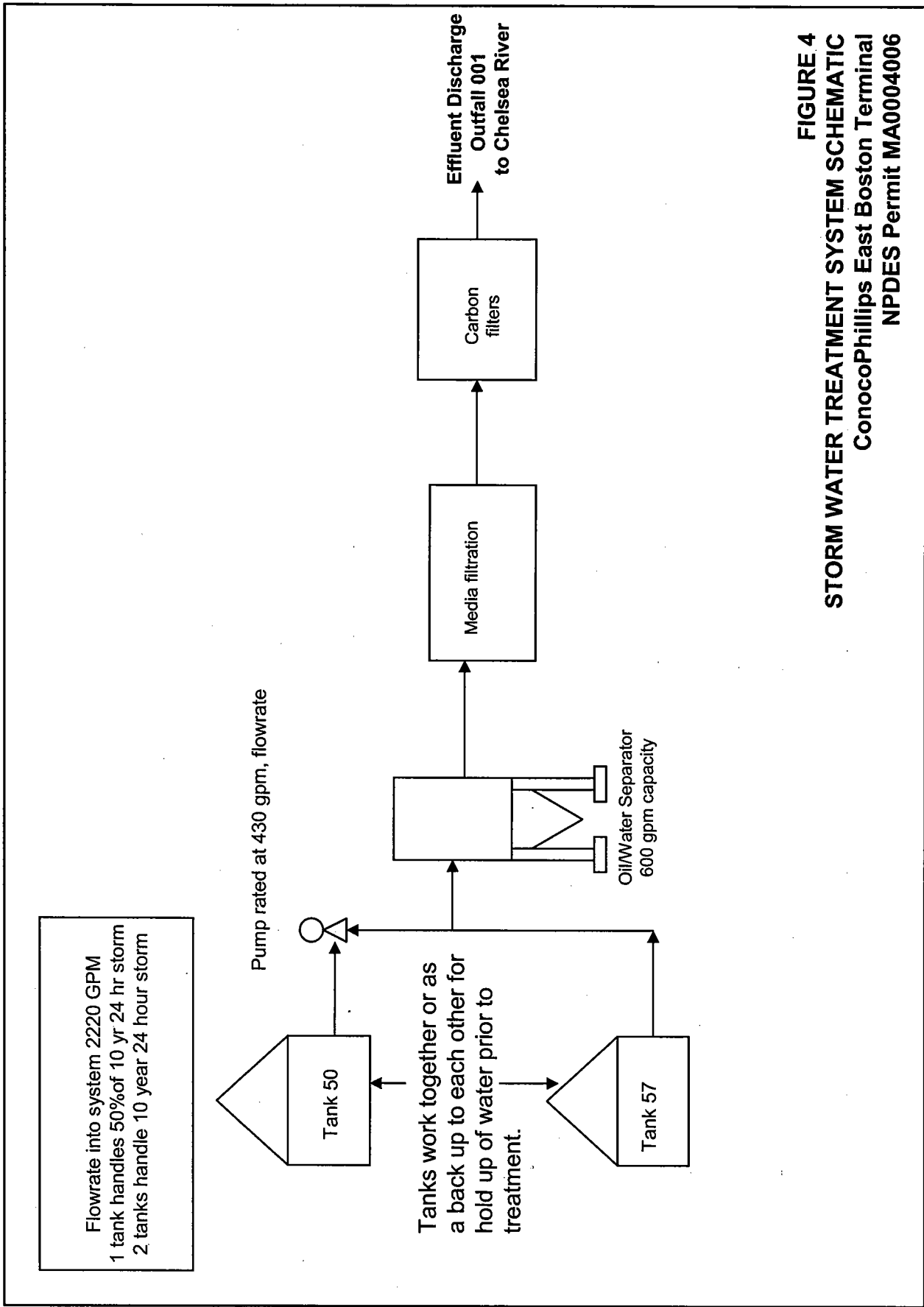


FIGURE 4
STORM WATER TREATMENT SYSTEM SCHEMATIC
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

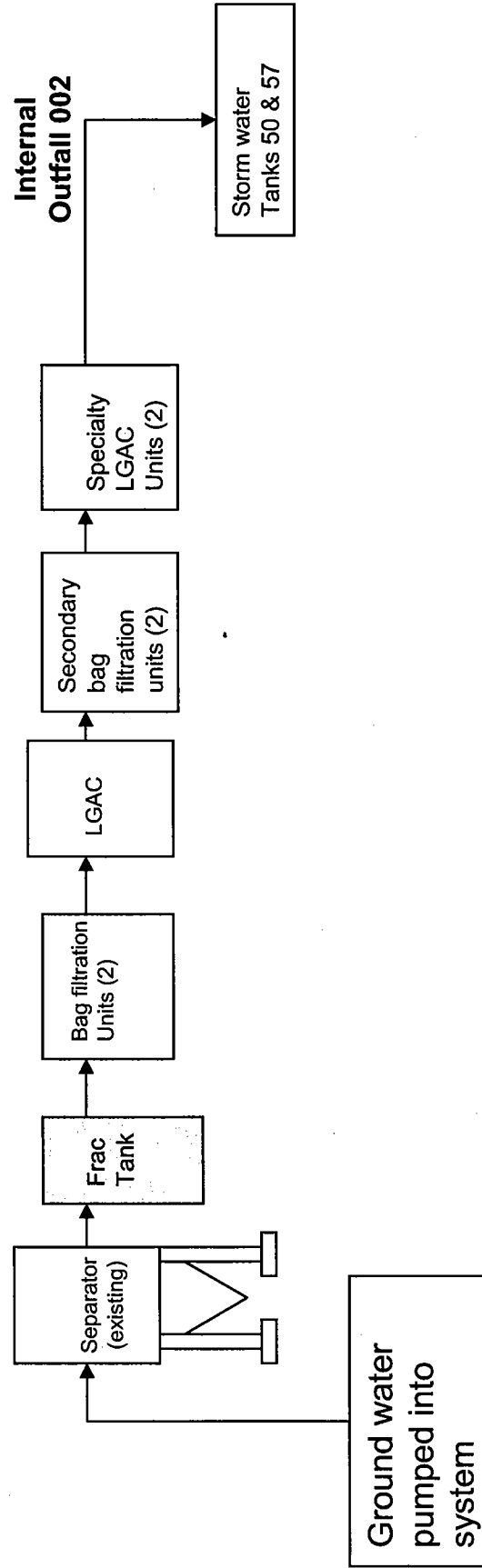


FIGURE 5
GROUND WATER TREATMENT SYSTEM SCHEMATIC
ConocoPhillips East Boston Terminal
NPDES Permit MA0004006

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

Monitoring Period End Date	VOCs									
	Flow Max	Flow Ave	pH Max	pH Min	TSS Max	O&G	Benzene	Toluene	Ethylbenz	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 anomalous 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 μg/l	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
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

Monitoring Period End Date	Group II PAHs								
	Acenaphthene	Acenaphthylene	Anthracene	benzo(ghi)perylene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene
	µg/l	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	<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

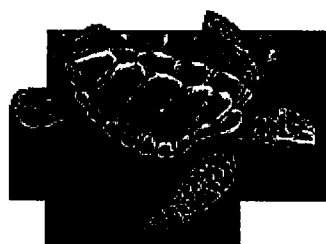
DMR SUMMARY - Conoco Philips
9/30/2000 to 12/31/2005

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

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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



**For Kids
& Teache**

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

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
whale, sperm (<i>Physeter macrocephalus</i>)	1970	E	n/a	no
<i>Pinnipeds</i>				
seal, Caribbean monk (<i>Monachus tropicalis</i>)	1967	E	n/a	no
seal, Guadalupe fur (<i>Arctocephalus townsendi</i>)	1985	T (F)	n/a	n/a
seal, Hawaiian monk (<i>Monachus schauinslandi</i>)	1976	E	yes	final
seal, Mediterranean monk (<i>Monachus schauinslandi</i>)	1970	E (F)	n/a	n/a
seal, Saimaa (<i>Phoca hispida saimensis</i>)	1993	E (F)	n/a	n/a
sea lion, Steller (2 listed DPSs) (<i>Eumetopias jubatus</i>)				
—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) (<i>Chelonia mydas</i>)				
—Florida & Mexico's Pacific coast breeding colonies	1978	E	yes	final
—all other areas	1978	T	yes	final
turtle, hawksbill (<i>Eretmochelys imbricata</i>)	1970	E	yes	final

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
turtle, Kemp's ridley (<i>Lepidochelys kempii</i>)	1970	E	n/a	final
turtle, leatherback (<i>Dermochelys coriacea</i>)	1970	E	n/a	final
turtle, loggerhead (<i>Caretta caretta</i>)	1978	T	n/a	final
turtle, Olive ridley (2 listed DPSs) (<i>Lepidochelys olivacea</i>)				
—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) (<i>Salmo salar</i>)				
—Gulf of Maine	2000	E	no	final
salmon, chinook (9 listed ESUs) (<i>Oncorhynchus tshawytscha</i>)				
—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) (<i>Oncorhynchus keta</i>)				
—Columbia River	1999	T	yes	in process
—Hood Canal summer run	1999	T	yes	in process
salmon, coho (3 listed ESUs) (<i>Oncorhynchus kisutch</i>)				
—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) (<i>Oncorhynchus nerka</i>)				
—Ozette Lake	1999	T	yes	in process
—Snake River	1991	E	yes	in process
sawfish, smalltooth (1 listed DPS) (<i>Pristis pectinata</i>)				
—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) (<i>Acipenser medirostris</i>)				
—southern DPS	2006	T	in process	no
sturgeon, gulf (<i>Acipenser oxyrinchus desotoi</i>)	1991	T	no	final
sturgeon, shortnose (<i>Acipenser brevirostrum</i>)	1967	E	n/a	final
totoaba (<i>Totoaba macdonaldi</i>)	1979	E (F)	n/a	n/a

Marine Invertebrates (1 listed species)

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

Marine Plants (1 listed species)

Species	Year Listed	Status	Critical Habitat*	Recovery Plan*
seagrass, Johnson's (<i>Halophila johnsonii</i>)	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

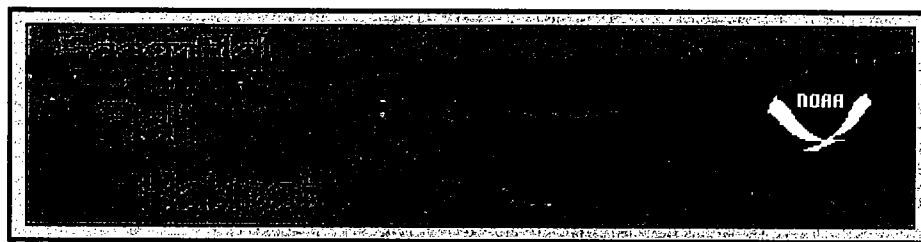
Species	Year Listed	Year Delisted	Status
whale, gray (1 delisted DPS) (<i>Eschrichtius robustus</i>) —Eastern North Pacific	1970	1994	Delisted from ESA; remains protected under MMPA

Proposed for Listing

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

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 $\geq 25.0\%$).

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

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

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 to tojill.ortiz@noaa.gov.

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

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

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PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

- a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.
- b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed \$25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both.
- c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.

Note: See 40 CFR §122.41(a)(2) for complete “Duty to Comply” regulations.

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

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4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including “sludge-only facilities”), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

- a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words “confidential business information” on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).
- b. Claims of confidentiality for the following information will be denied:
 - (1) The name and address of any permit applicant or permittee;
 - (2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).
- c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

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8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

- (1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

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- (2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

- (1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
- (3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.
ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

- a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

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administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
 - (4) The permittee complied with any remedial measures required under B.3. above.
- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.
- c. Records of monitoring information shall include:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) The date(s) analyses were performed;
 - (4) The individual(s) who performed the analyses;
 - (5) The analytical techniques or methods used; and
 - (6) The results of such analyses.
- d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.
- e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by

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imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The permittee shall allow the Regional Administrator or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

- a. **Planned Changes.** The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:
 - (1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
 - (2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
 - (3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- b. **Anticipated noncompliance.** The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- c. **Transfers.** This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

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incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

- d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.
 - (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.
 - (2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.
 - (3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.
- e. Twenty-four hour reporting.
 - (1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
 - (2) The following shall be included as information which must be reported within 24 hours under this paragraph.
 - (a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
 - (b) Any upset which exceeds any effluent limitation in the permit.
 - (c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)
 - (3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

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- f. Compliance Schedules. Reports of compliance or noncompliance with, any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.
- h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

- a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)
- b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and Federal standards and limitations to which a “discharge”, a “sewage sludge use or disposal practice”, or a related activity is subject to, including “effluent limitations”, water quality standards, standards of performance, toxic effluent standards or prohibitions, “best management practices”, pretreatment standards, and “standards for sewage sludge use and disposal” under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

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Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in “approved States”, including any approved modifications or revisions.

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of “daily discharges” over a calendar month calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month.

Average weekly discharge limitation means the highest allowable average of “daily discharges” measured during the calendar week divided by the number of “daily discharges” measured during the week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of “waters of the United States.” BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

- (a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.
- (b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.
- (c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

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- (d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.
- (e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a “discharge” which occurs without interruption throughout the operating hours of the facility except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

Daily Discharge means the discharge of a pollutant measured during the calendar day or any other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the “daily discharge” is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the “daily discharge” is calculated as the average measurement of the pollutant over the day.

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by “approved States” as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA’s.

Discharge of a pollutant means:

- (a) Any addition of any “pollutant” or combination of pollutants to “waters of the United States” from any “point source”, or
- (b) Any addition of any pollutant or combination of pollutants to the waters of the “contiguous zone” or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation (See “Point Source” definition).

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

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to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any “indirect discharger.”

Effluent limitation means any restriction imposed by the Regional Administrator on quantities, discharge rates, and concentrations of “pollutants” which are “discharged” from “point sources” into “waters of the United States”, the waters of the “contiguous zone”, or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under Section 304(b) of CWA to adopt or revise “effluent limitations”.

EPA means the United States “Environmental Protection Agency”.

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- (a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- (b) Therefore is a cause of a violation of any requirement of the POTW’s NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

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

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

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populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable “daily discharge” concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as “maximum concentration” or “Instantaneous Maximum Concentration” during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean “a value that shall not be exceeded” during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of “Maximum Daily Discharge” and “Average Daily Discharge” concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an “approved program”.

New Discharger means any building, structure, facility, or installation:

- (a) From which there is or may be a “discharge of pollutants”;
- (b) That did not commence the “discharge of pollutants” at a particular “site” prior to August 13, 1979;
- (c) Which is not a “new source”; and
- (d) Which has never received a finally effective NPDES permit for discharges at that “site”.

This definition includes an “indirect discharger” which commences discharging into “waters of the United States” after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a “site” for which it does not have a permit; and any offshore rig or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a “site” under EPA’s permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

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An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a “new discharger” only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a “discharge of pollutants”, the construction of which commenced:

- (a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or
- (b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means “National Pollutant Discharge Elimination System”.

Owner or operator means the owner or operator of any “facility or activity” subject to regulation under the NPDES programs.

Pass through means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW’s NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an “approved” State.

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

- (a) Sewage from vessels; or
- (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

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Primary industry category means any industry category listed in the NRDC settlement agreement (Natural Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D. D.C. 1979)); also listed in Appendix A of 40 CFR Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (b) not a “POTW”.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a “State” or “municipality”.

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

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

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

Section 313 water priority chemical means a chemical or chemical category which:

- (1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);
- (2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and
- (3) satisfies at least one of the following criteria:
 - (i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
 - (ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
 - (iii) are pollutants for which EPA has published acute or chronic water quality criteria.

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

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Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets, raw materials used in food processing or production, hazardous substance designated under section 101(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 CFR §110.10 and §117.21) or Section 102 of CERCLA (see 40 CFR § 302.4).

Sludge-only facility means any “treatment works treating domestic sewage” whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants means any pollutant listed as toxic under Section 307 (a)(1) or, in the case of “sludge use or disposal practices” any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, “domestic sewage” includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a “treatment works treating domestic sewage”, where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

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

Waters of the United States means:

- (a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;
- (b) All interstate waters, including interstate “wetlands”;
- (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands”, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
 - (1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;
 - (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (3) Which are used or could be used for industrial purposes by industries in interstate commerce;
- (d) All impoundments of waters otherwise defined as waters of the United States under this definition;
- (e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;
- (f) The territorial sea; and
- (g) “Wetlands” adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

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Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

- (1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and
- (2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

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classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

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Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

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

Industrial wastewater is wastewater generated in a commercial or industrial process.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

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Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

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

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

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Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to: domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

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

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Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

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

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl ₂	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

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TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M ³ /day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH ₃ -N	Ammonia nitrogen as nitrogen
NO ₃ -N	Nitrate as nitrogen
NO ₂ -N	Nitrite as nitrogen
NO ₃ -NO ₂	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

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Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	“Whole effluent toxicity” is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	“Chronic (Long-term Exposure Test) – No Observed Effect Concentration”. The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	“Acute (Short-term Exposure Test) – No Observed Effect Concentration” (see C-NOEC definition).
LC ₅₀	LC ₅₀ is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC ₅₀ = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.