

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),

**Irving Oil Terminals, Inc.**

is authorized to discharge from a facility located at

**Irving Oil Terminal -Revere  
41 Lee Burbank Highway  
Revere, MA 02151**

to receiving water named

**Chelsea River/Mystic River Watershed (MA71)**

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

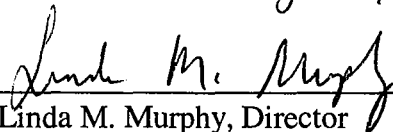
This permit shall become effective sixty days from the date of signature.

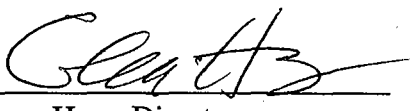
This permit and the authorization to discharge expire at midnight, five (5) years from the effective date.

This permit supersedes the permit issued on October 2, 1997.

This permit consists of 12 pages in Part I including effluent limitations, monitoring requirements, and 35 pages in Part II including General Conditions and Definitions.

Signed this 30 day of June, 2015

  
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 storm water runoff from the Irving Oil Terminal - Revere facility through Outfall Serial Number 001 to the Chelsea River. 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 <sup>(1)</sup> |             |
|------------------------------------------------|----------------|-------------------------|---------------------------|----------------------------------------|-------------|
|                                                |                | Average Monthly         | Maximum Daily             | Measurement Frequency                  | Sample Type |
| Flow Rate Oil/Water Separator 1 <sup>(3)</sup> | gpm            | ----                    | 615                       | When Discharging                       | Estimate    |
| Flow Rate Oil/Water Separator 2 <sup>(4)</sup> | gpm            | ----                    | 80                        | When Discharging                       | Estimate    |
| Total Flow <sup>(5)</sup>                      | Mgal/<br>Month | Report Monthly<br>Total | ----                      | When Discharging                       | Estimate    |
| Total Suspended Solids (TSS)                   | mg/L           | 30                      | 100                       | 2/Month <sup>(2)</sup>                 | Grab        |
| Oil and Grease (O&G) <sup>(6)</sup>            | mg/L           | ----                    | 15                        | 1/Month <sup>(2)</sup>                 | Grab        |
| pH                                             | S.U.           | ----                    | 6.5 to 8.5 <sup>(7)</sup> | 1/Month <sup>(2)</sup>                 | Grab        |

See pages 4 and 5 for explanation of footnotes

## Part I.A.1, Continued

| Effluent Characteristic                                 | Units | Discharge Limitation |               | Monitoring Requirements <sup>(1)</sup> |             |
|---------------------------------------------------------|-------|----------------------|---------------|----------------------------------------|-------------|
|                                                         |       | Average Monthly      | Maximum Daily | Measurement Frequency                  | Sample Type |
| Polynuclear Aromatic Hydrocarbons (PAHs) <sup>(8)</sup> |       |                      |               |                                        |             |
| Benzo(a)anthracene                                      | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Benzo(a)pyrene                                          | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Benzo(b)fluoranthene                                    | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Benzo(k)fluoranthene                                    | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Chrysene                                                | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Dibenzo(a,h)anthracene                                  | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Indeno(1,2,3-cd)pyrene                                  | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Naphthalene                                             | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Volatile Organic Compounds (VOCs)                       |       |                      |               |                                        |             |
| Benzene                                                 | µg/L  | ----                 | 51            | Quarterly <sup>(2)</sup>               | Grab        |
| Toluene                                                 | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Ethylbenzene                                            | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Total Xylenes                                           | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |
| Methyl Tertiary-Butyl Ether (MTBE)                      | µg/L  | ----                 | Report        | Quarterly <sup>(2)</sup>               | Grab        |

See pages 4 and 5 for explanation of footnotes

**Footnotes:**

1. All samples shall be collected from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (i.e., greater than 0.1 inch rainfall) storm event. All samples are to be grab samples taken within thirty (30) minutes of the initiation of the discharge from the outfall(s) where practicable, but in no case later than within the first hour of discharge from the outfall(s). Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at a point downstream of the discharge from both Oil/Water (O/W) Separators but before the effluent is discharged into and/or mixes with the Chelsea River.
2. Sampling frequency of 1/month and 2/month is defined respectively as the sampling of one (1) and two (2) storm event(s) (as defined above in Footnote No. 1) in each calendar month. Sampling frequency of quarterly is defined as the sampling of one (1) storm event (as defined above in Footnote No. 1) 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 MADEP 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).
3. For the Flow Rate from Oil/Water (O/W) Separator 1 (collecting the storm water runoff from the portion of the facility located at 41 Lee Burbank Highway), the maximum daily value represents the estimated maximum instantaneous flow rate identified by the facility as passing through this O/W Separator for each day that storm water is discharged during the reporting period. The maximum instantaneous flow rate, which is to be reported in the units of gallons per minute (gpm), shall be based upon the estimated flow rate passing through the flow reduction device and the pump interlock system installed by the facility to control the rate at which storm water enters this O/W Separator.
4. For the Flow Rate from O/W Separator 2 (collecting the storm water runoff from the portion of the facility located at 40 Lee Burbank Highway), the maximum daily value represents the estimated maximum instantaneous flow rate identified by the facility as passing through this O/W Separator for each day that storm water is discharged during the reporting period. The maximum instantaneous flow rate, which is to be reported in the units of gallons per minute (gpm), shall be based upon the estimated flow rate passing through the flow reduction device installed by the facility to control the rate at which storm water enters this O/W Separator.
5. For Total Flow, the value reported represents the estimated sum of the flow for each day that storm water is discharged during that month. The total monthly flow rate shall be determined based upon the estimated flow rate passing through both O/W Separators during the reporting period. Total Flow shall be reported in the units of millions of gallons/month (Mgal/month). The permittee shall also report the total number of days during the reporting period in which there was a discharge from the outfall(s) (to be noted on DMR form under "Event Total" parameter).

**Footnotes (continued):**

6. O&G is to be measured using EPA Method 1664
7. See Part I.A.3., Page 5
8. See Part I.A.16., Page 6

**Part 1.A. (Continued)**

2. The discharge either individually or in combination shall not cause a violation of State Water Quality Standards of the receiving waters.
3. 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.
4. The discharge shall not cause objectionable discoloration of the receiving waters.
5. The discharge shall not contain a visible oil sheen, foam, nor floating solids at any time.
6. 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.
7. There shall be no discharge of tank bottom water and/or bilge water alone or in combination with storm water discharge or other wastewater.
8. 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.
9. 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.
10. The permittee shall inspect, operate, and maintain the O/W Separators 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 Storm Water Pollution Prevention Plan including those which specifically address the operation and maintenance of the O/W Separator(s) and other components of the storm water conveyance system are complied with.

11. 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 (MADEP) to prevent hydrocarbon and/or particulate matter carryover into the Chelsea River.
12. 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.
13. 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).
14. EPA may modify this permit in accordance with EPA regulations in 40 CFR §122.62 and §122.63 to incorporate more stringent effluent limitations, increase the frequency of analyses, or impose additional sampling and analytical requirements.
15. The appearance of any sheen attributable to the discharge from this facility 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.
16. Reporting of Polynuclear Aromatic Hydrocarbons (PAHs) will be based on the Minimum Level (ML) of reporting. 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(s) of concern in reagent water. PAH analysis shall include the following compounds and their respective MLs as identified in parenthesis for each compound: 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), and naphthalene (0.2 µg/L).

17. The permittee shall attach a copy of the laboratory case narrative to the respective Discharge Monitoring Report Form submitted to EPA and MADEP 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.
18. 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.

**19. Wastewater Treatment System Flow Control**

a. Written notification and approval by EPA and the MADEP shall be required, should the permittee propose changes to either the storm water conveyance or treatment systems which have the potential to cause the maximum design flow rate through the O/W Separators to be exceeded.

**20. 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.

**21. Hydrostatic Test Water Discharges**

a. The hydrostatic test water shall be monitored as described below and treated through O/W Separator 1 prior to being discharged through Outfall 001 to the Chelsea River. In addition, the flow of hydrostatic test water into O/W Separator 1 shall be controlled to prevent it from exceeding the maximum design flow rate of the separator.

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

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

1. Total Suspended Solids (TSS)
2. Oil & Grease (O&G)
3. pH
4. Dissolved Oxygen (DO)
5. Total Residual Chlorine
6. Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX)
7. MTBE

**8. PAHs**

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

d. During discharge (i.e., approximately at the same time the three effluent grab samples are taken), the flow exiting through the O/W Separator or outfall should be observed in order to prevent the inadvertent release of hydrocarbons to the receiving water(s). In the event that there is evidence of such a release (e.g., visible oil sheen and/or noticeable increase in turbidity of discharge water), the permittee shall immediately halt the discharge of hydrostatic test water and take steps to correct the problem.

e. Any changes to these procedures must be approved by EPA and the MADEP prior to their implementation.

f. The permittee shall submit a letter/report to EPA, the MADEP, and the Director of Public Works of the municipality in which the facility is located, summarizing the results of the hydrostatic test within forty-five (45) days of completion of the test. This report shall contain: the date(s) during which the hydrostatic testing occurred; the volume of hydrostatic test water discharged; a copy of the laboratory data sheets for each analyses, providing the test method, the detection limits for each analyte, and a brief discussion of whether all appropriate QA/QC procedures were met and were within acceptable limits; and a brief discussion of the overall test results and how they relate to the Effluent Limitations in this permit.

g. The U.S. Environmental Protection Agency shall reserve the right to re-open the permit, in accordance with 40 CFR §122.62(a)(2), to examine hydrostatic test water discharges in the event that sampling results indicate that the standards for the assigned classification of the Chelsea River might not be attained using only an O/W Separator for treatment of such discharges.

**B. BEST MANAGEMENT PRACTICES/STORM WATER POLLUTION PREVENTION PLAN**

1. The permittee shall maintain, update and implement the Storm Water Pollution Prevention Plan (SWPPP) to account for any changes that occur at the facility which could impact the plan. The permittee shall be required to provide annual certification to EPA and the MADEP documenting that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in compliance with the SWPPP.

2. In order to reduce the transportation of particulate matter to storm water conveyance and treatment devices at this facility, the permittee shall amend its existing SWPPP to include sweeping of paved areas at a frequency of no less than twice per year. At least one of the sweeping events shall occur in the early spring (i.e., March to April) to maximize the removal of solids which may have accumulated at the facility over the winter.
3. The permittee shall reevaluate its Best Management Practices (BMPs) for preventing and controlling the discharge of TSS. The results of this evaluation shall be submitted to EPA concurrent with the first annual certification by each facility of its SWPPP. Specifically, as part of this evaluation each facility shall be required to discuss and identify whether any changes, modifications and/or improvements are needed at the facility for the following items: 1) the effectiveness of the existing BMPs for reducing TSS loading; 2) the effectiveness of the current operation and maintenance performed on storm water conveyance and treatment systems for reducing TSS loading; 3) the effectiveness of surface soil conditions in the tank farm areas for reducing TSS loading; 4) the effectiveness of the existing treatment technology (i.e., Oil/Water Separator) for reducing TSS loading; and 5) the effectiveness of additional treatment technologies (and cost) which could be implemented to further reduce TSS levels.
4. The permittee shall amend its existing SWPPP to identify what special provisions and conditions the facility will use for containing and treating ethanol, should it be spilled. This amendment shall take into account the analytical challenges for monitoring of this compound and the limited effectiveness of an Oil/Water Separator in treating this compound. The portions of the amended SWPPP shall be sent to the EPA and the MADEP within ninety (90) days of the effective date of this permit.
5. The certification shall be signed in accordance with the requirements identified in 40 CFR §122.22 and a copy of the certification will be sent each year to EPA and MADEP as well as appended to the SWPPP within thirty (30) days of the annual anniversary of the effective date of the Draft Permit. The permittee shall keep a copy of the most recent SWPPP at the facility and shall make it available for inspection by EPA and MADEP.
6. A copy of the SWPPP shall be provided to the municipality in which the facility is located upon written request by such municipality to the facility.

**C. REOPENER CLAUSES**

1. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable standard or limitation promulgated or approved under sections 301(b)(2)(C) and (d), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

- a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
  - b. Controls any pollutants not limited in the permit.
2. This permit may be modified to incorporate new analytical methods and/or additional treatment for ethanol in the event that the changes made to the SWPPP are not effective and/or protective in controlling the discharge of this compound to the receiving water.

**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 and evaluations required herein, shall be submitted to EPA at the following address:

EPA New England - 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:

EPA New England - 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  
One Winter Street  
Boston, MA 02108

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 MADEP 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 MA DEP 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 U.S. Environmental Protection Agency. 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.

NPDES PART II STANDARD CONDITIONS  
(January, 2007)

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NPDES PART II STANDARD CONDITIONS  
(January, 2007)

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.

NPDES PART II STANDARD CONDITIONS  
(January, 2007)

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,

## NPDES PART II STANDARD CONDITIONS (January, 2007)

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  $1 \times 10^{-7}$  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.

## NPDES PART II STANDARD CONDITIONS (January, 2007)

*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 <sub>2</sub> | 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 <sup>3</sup> /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 <sub>3</sub> -N               | Ammonia nitrogen as nitrogen                                                                                |
| NO <sub>3</sub> -N               | Nitrate as nitrogen                                                                                         |
| NO <sub>2</sub> -N               | Nitrite as nitrogen                                                                                         |
| NO <sub>3</sub> -NO <sub>2</sub> | 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                                                                                        |

NPDES PART II STANDARD CONDITIONS  
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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 <sub>50</sub>   | LC <sub>50</sub> is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC <sub>50</sub> = 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.                                                                                                            |

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

**FACT SHEET**

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

**NPDES PERMIT NO: MA0001929**

**PUBLIC NOTICE DATE:**

**NAME AND ADDRESS OF APPLICANT:**

**Irving Oil Terminals, Inc.  
700 Maine Avenue  
Bangor, ME 04401**

**NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:**

**Irving Oil Terminal - Revere  
41 Lee Burbank Highway  
Revere, MA 02151**

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

**CLASSIFICATION: SB**

**I. PROPOSED ACTION**

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for the re-issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge treated storm water into the designated receiving water. The permit, which was issued to Irving Oil Terminals, Inc. for the Revere, Massachusetts facility (Irving Oil) on October 2, 1997 (the Current Permit), became effective on November 1, 1997, and expired on November 1, 2002. A permit renewal application was not submitted to EPA by the facility until May 10, 2004. As a result the permit could not be administratively continued. In August of 2004, EPA brought an enforcement action against Irving Oil Terminals, Inc. over the company's discharge of storm

water without a permit. Irving Oil agreed to settle the action by paying the Government a \$50,000 penalty.

## **II. TYPE OF FACILITY**

The Irving Oil facility is engaged in the receipt, storage, and distribution of petroleum products. The spectrum of fuels handled by this facility consists of gasoline, distillate products (e.g., diesel fuel and No.2 Fuel Oil), ethanol, and various product additives. Petroleum products are received in bulk quantities at the terminal's marine vessel dock located along the Chelsea River on the west side of Lee Burbank Highway (Route 1A). Product is then transferred underneath Lee Burbank Highway to the facility's tank farm located on the east side of the highway. Final distribution of product is conducted primarily at the facility's truck loading rack and on occasion at the marine vessel dock when product is shipped off-site. The NPDES discharge consists of: treated storm water runoff from pervious and impervious areas at the facility including the tank farm, loading rack, property leased by Thrifty car rental agency, and the marine vessel dock. Occasionally, the NPDES discharge also includes treated water from the hydrostatic testing of repaired tanks. The storm water and hydrostatic test water discharges are to the Chelsea River through Outfall 001 (See Figure 1).

## **III. SUMMARY OF MONITORING DATA**

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

## **IV. PERMIT LIMITATIONS AND CONDITIONS**

The effluent limitations, monitoring requirements, and any implementation schedule, if required, may be found in Part I (Effluent Limitations and Monitoring Requirements) of the draft NPDES permit (Draft Permit). The permit application is part of the administrative file (Permit No. MA0001929).

## **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 be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 [See 40 CFR §125.3(a)(2)]. Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA can not be authorized by a NPDES permit.

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

## 2. Water Quality-Based Requirements

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

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

Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts. The State of Massachusetts has a similar narrative criteria in their water quality regulations that prohibits such discharges [See Massachusetts 314 CMR 4.05(5)(e)]. The 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 or more stringent than the Current Permit and accordingly will continue to protect the existing uses of the Chelsea River.

## **B. Description of Facility**

Irving Oil is a bulk petroleum facility with operations consisting of the receipt, storage, and distribution of petroleum products. The terminal is located along the eastern shore of the Chelsea River, approximately two and one-half (2.5) miles northeast of the confluence of the Mystic and Chelsea Rivers (See Figure 1). The facility, which comprises approximately twenty-five (25) acres, consists of a tank farm, a terminal yard, a car rental business, and a marine vessel dock (See Figure 2). The Thrifty car rental agency currently leases the dock side of the property (40 Lee Burbank Highway). Rental vehicles are stored, fueled, and maintained on this property.

Most of the product stored at the facility (with the exception of some limited inventory transported by tanker truck) is delivered in bulk quantities by ship or barge to the marine vessel dock located along the Chelsea River. The dock is jointly owned by Irving Oil and Global Petroleum Corporation (NPDES Permit No. MA0003425). The marine vessel dock is equipped with two (2) manifold areas for receipt and distribution of product. One manifold can handle ships or barges, the other barges only. Each manifold area has a steel drip pan located beneath it to recover any potentially spilled product. Product off-loaded from the ship or barge is piped to the tank farm located on the opposite side of Lee Burbank Highway (41 Lee Burbank Highway).

The tank farm generally consists of aboveground steel storage tanks and product piping. There are eleven (11) aboveground bulk product storage tanks located within the tank farm. These tanks have a total gross storage capacity of approximately 752,500 barrels (or approximately 32 million gallons). Ten (10) of the tanks are used to store petroleum products and the remaining tank contains ethanol. The tank farm also contains four smaller aboveground tanks used to store fuel additives. The fuel additive tanks have a total storage capacity of approximately 49,000 gallons.

Secondary containment for the tank farm is provided through the use of earthen berms surrounding each of the bulk storage tanks. The secondary containment has been sized to hold at least 110 to 130 percent of the largest tank's storage capacity plus an added volume to hold any fire-extinguishment chemicals, water and/or precipitation. The berms are used to help prevent any potentially spilled petroleum products from migrating from one containment area to another or into any surrounding waterways. There is a valve located within each bermed area which can be manually opened or closed to either allow the storm water to drain into the main storm water conveyance system or be retained within that bermed area.

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

The Terminal Yard generally consists of the area outside of the tank farm secondary containment structures. The Terminal Yard has an office building, workshop trailer, equipment storage building, fire foam system house, truck loading rack, BOL (Bill of Lading) House, testing shed (contains equipment for testing product), electrical house, and fork lift shed (contains fork lift and 55-gallon drums of glycol). There is also a 10,000 gallon Balance Return Tank located within the terminal yard. This underground fiberglass storage tank contains residual petroleum product which is collected from truck loading operations. Oil/Water Separators for the handling of storm water are located on both the terminal yard/tank farm side and the dock side of the property.

Final distribution of product is primarily completed at the truck loading rack area. The facility occasionally loads distillate products onto barges for off-site shipment. The product spectrum

stored at the facility consists of gasoline (high and low octane grades), diesel, No.2 Fuel Oil, and ethanol. The facility is capable of blending some petroleum products at the truck loading rack (e.g., high and low octane grades of gasoline to produce a mid range grade). There are no other chemical processes/reactions which occur at the facility.

### **C. Description of Discharge**

Storm water is primarily collected at the facility from within the following areas: the terminal yard, the secondary containment area of the tank farm, the car rental agency, and the marine vessel dock. The tank farm and terminal yard are located on the east side of Lee Burbank Highway and as such have their own storm water collection and treatment system. Similarly, the property leased by the car rental agency and the marine vessel dock, which are located on the west side of the highway, have their own storm water collection and treatment system. However, the discharge from all areas of the facility is through one outfall (Outfall 001) into the Chelsea River. A more detailed description of the discharge is provided below.

As mentioned in the previous section, the bulk storage tanks at the facility are located within earthen berms to control the runoff of any storm water and/or potentially spilled product. Storm water accumulating within these areas either evaporates, infiltrates into the ground, or is drained into the terminal's underground storm water conveyance system. Accumulated water which is to be drained, is directed to low elevation catch basins. The water is visually inspected by facility staff and as long as it is free of petroleum products (i.e., there is no visible sheen) a series of valves are opened and the water is allowed to drain by gravity into the bermed area surrounding Tank #3.

Storm water runoff within the terminal yard is directed toward several low elevation catch basins. At the truck loading rack, the roof over this area directs storm water away from the truck rack equipment and loading operations to perimeter drains and individual catch basins. Storm water from this portion of the terminal yard is directed to an underground concrete holding tank located south of the Office Building. This 3,000 gallon holding tank is equipped with two 10-horsepower pumps that automatically pump the water into the secondary containment surrounding Tank #3 whenever the water level in the tank is sufficiently high.

The storm water accumulating in the containment area around Tank #3 (i.e., from the tank farm and terminal yard) drains into a concrete sump located in the western corner of this bermed area. The sump is equipped with two 3-horsepower pumps, each with a reported pumping capacity of approximately 375 gallons per minute (gpm). Only one pump can be manually activated at a time as a result of an electrical interlock system installed in August of 2004. Water is pumped from the sump to the main Oil/Water (O/W) Separator (O/W Separator 1) whenever one of the pumps has been activated.

Runoff which enters the trench drains beneath the roof surrounding the truck loading racks flows into a concrete holding tank located northwest of the rack. This tank is designed to act as a small

O/W Separator for any petroleum product spilled during truck loading operations. Water is siphoned off the bottom of the tank into a nearby 1,000 gallon lift station sump (leaving any accumulated petroleum product on the surface). A 5-horsepower pump is used to convey water from the lift station to O/W Separator 1. The pump is rated for a flow rate of approximately 250 gpm. The facility installed an orifice plate into the discharge line of the lift station in October of 2004 to reduce the flow rate into O/W Separator 1. The orifice plate reduces the size of the discharge opening in the pipe from 8 inches to 2 inches.

O/W Separator 1, the main separator for the facility (i.e., handling the runoff from the terminal yard and tank farm) is located southeast of the Office Building nearby the Vapor Recovery Unit (VRU). The separator is an in-ground baffle/weir type unit with a storage capacity of approximately 25,000 gallons. The facility has identified that O/W Separator 1 has a maximum design flow rate of 615 gpm. The discharge from O/W Separator 1 flows by gravity underneath Lee Burbank Highway to the facility's permitted NPDES outfall (Outfall 001) located on the eastern bank of the Chelsea River.

Flow rates through O/W Separators are not to exceed the design capacity of the separator (thereby minimizing the potential for carry-over). Irving Oil has indicated that the flow rate through O/W Separator 1 is controlled through two mechanisms. First, the flow rate of storm water from the tank farm area and a portion of the terminal yard (i.e., water conveyed through the sump located nearby Tank #3) is limited through the installation of an electrical interlock system. The interlock system prevents both pumps in the sump from operating at the same time thereby limiting the flow rate from this portion of the facility into O/W Separator 1 to approximately 375 gpm. Secondly, a flow restriction device (i.e., orifice plate) was installed in the line conveying runoff from beneath the truck loading rack canopy to O/W Separator 1. The orifice plate reduces the flow into the separator to approximately 180 gpm. With the controls provided by both of these mechanisms, the storm water entering O/W Separator 1 is limited to a maximum flow rate of approximately 555 gpm.

Storm water runoff from the car rental agency on the west side of the highway flows across paved portions of the site to a single catch basin located adjacent to another O/W Separator (O/W Separator 2). The separator is an in-ground baffle/weir unit located northwest of the car rental agency building. The facility has identified that O/W Separator 2 has a maximum design flow rate of 390 gpm. The discharge from O/W Separator 2 flows by gravity and intercepts the pipe conveying runoff from the tank farm and terminal yard side of operations to the nearby outfall into Chelsea River.

The eight (8) inch pipe leading to O/W Separator 2 has been equipped with a flow restriction device (i.e., orifice plate) which reduces the size of the opening in the pipe to two (2) inches. Based on the calculations provided by Irving Oil, the orifice plate reduces the flow into O/W Separator 2 to approximately 147 gpm.

Domestic sanitary sewage from the building leased to the car rental agency is discharged to a septic system located between the building and the Chelsea River. The car wash facility at the rental car agency is connected to a self-contained water recycling system.

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

Irving Oil has indicated that all tank bottom water is consolidated and hauled off-site by a licensed waste hauler(s) for treatment and disposal elsewhere. There have been several hydrostatic-test water discharges reported at the facility since the issuance of the Current Permit. The Chelsea River was used as the source of water for these tests. Discharge monitoring and reporting were conducted for these testing events in accordance with the procedures described in Part I.A.8 of the Current Permit. Results from the testing of the hydrostatic test water shows conformance with the requirements and conditions identified in Part I.A.8 of the Current Permit. There is no groundwater remediation system presently in operation at the facility. A permit modification or issuance of a separate NPDES permit would be needed should the facility initiate any discharge from a groundwater remediation system.

This Draft Permit authorizes the discharge of storm water runoff and hydrostatic test water from one outfall (Outfall 001) at the facility.

#### **D. Discharge Location**

The receiving water, Chelsea River (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 4.0) resides with the MADEP. The MADEP evaluated and developed a comprehensive list of the assessed waters and the most recent list was published in the *Massachusetts Year 2002 Integrated List of Waters* (MADEP, September 2003). The list identifies the Chelsea River as one of the waterways within the State of Massachusetts that is considered impaired. The impairment, as identified by the MADEP, is related to the

presence of the following “pollutants”, which were not considered to be present due to natural causes: priority organics, unionized ammonia, organic enrichment/low dissolved oxygen, pathogens, oil and grease, taste, odor and color, and turbidity.

The MADEP is required under the CWA to develop a Total Maximum Daily Load (TMDL) for a water body once it is identified as impaired. A TMDL is essentially a pollution budget designed to restore the health of a water body. A TMDL typically identifies the source(s) of the pollutant from direct and indirect discharges, determines the maximum amount of pollutant, including a margin of safety, that can be discharged to a specific water body while maintaining water quality standards for designated uses, and outlines a plan to meet the goal. A TMDL has not yet been developed for the Chelsea River. In the interim, EPA is developing the conditions for this permit based on a combination of water quality standards and best professional judgement. Should a TMDL be developed in the future, and if that TMDL identifies that the discharge from the facility is causing or contributing to the 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).

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

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

Storm water discharges from activities associated with petroleum bulk stations and terminals must satisfy best conventional technology (BCT) and best available technology (BAT) requirements and must comply with more stringent water quality standards if BCT and BAT requirements are not adequate. On September 25, 1992, EPA promulgated through its General

Permit for Storm Water Discharge Associated with Industrial Activity, that the minimum BAT/BCT requirement for storm water discharges associated with industrial activity is a Storm Water Pollution Prevention Plan (SWPPP) [57 FR, 44438]. EPA has included SWPPP requirements in the Draft Permit. In addition, EPA has 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 Irving Oil, authorizing the discharge of storm water and hydrostatic test water, includes numeric effluent limits and requires the development, implementation, and annual review of the SWPPP 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.

#### 1. Flow

The typical treatment technology employed by petroleum bulk storage terminals for storm water runoff is an O/W Separator. This device uses gravity to separate the lower-density oils from water; resulting in an oil phase above the oil/water interface and a heavier particulate phase (sludge) on the bottom of the separator. Accordingly, the sizing of O/W Separators 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 O/W Separators such that the oil and/or particulate phases are not entrained to the waterway, it is important that the flow through the separator be maintained at or below the maximum design flow rate of the separator. In order to ensure that this criteria was being met, EPA and the MADEP required as part of the Current Permit, that the facility identify both the maximum design flow rating of the O/W Separator and the measures taken by the facility to ensure that the maximum design flow rate would not be exceeded (See Part I.A.4 of the Current Permit).

In response to this permit requirement, Irving Oil identified that the maximum design flow rating of O/W Separator 1, which is used to treat the runoff from the tank farm and terminal yard, is 615 gpm. Irving Oil also indicated that the flow rate into O/W Separator 1 is controlled through the use of an electrical interlock system and a flow restriction device (See Section V.C of this Fact Sheet). The total flow rate entering O/W Separator 1 is limited through the use of both mechanisms to approximately 555 gpm which is below the maximum design flow rate of the separator.

There is also a second O/W Separator located west of the highway which is used to treat the runoff from the portion of the property leased to the car rental agency. Irving Oil has identified a maximum design flow rate of approximately 390 gpm for O/W Separator 2. Irving Oil also indicated that the flow rate into O/W Separator 2 is controlled through the use of a flow

restriction device (i.e., orifice plate). The orifice plate limits the flow into this O/W Separator to approximately 147 gpm

Since the flow into both of the facility's O/W Separators does not exceed the maximum design flow rating of each unit, Irving Oil has demonstrated their compliance with Part I.A.4 of the Current Permit. The Draft Permit requires that the facility provide written notification and receive approval by EPA and MADEP for any proposed changes which have the potential to cause the maximum design flow rate through the O/W Separator(s) to be exceeded.

EPA and MADEP are using the design flow information submitted by Irving Oil for each O/W Separator to identify the maximum daily effluent limit for the Flow Rate from Outfall 001 in the Current Permit. An instantaneous flow rate of 615 gpm for the main O/W Separator (O/W Separator 001) and 390 gpm for the second O/W Separator (O/W Separator 002), will become the Flow Rate limits for Outfall 001 in the Draft Permit. The flow control device or system as described above and the identification of an instantaneous maximum flow rate should ensure compliance with "proper operation" as described at 40 CFR §122.41(e).

## 2. 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 has been reduced in the Draft Permit from semi-monthly to monthly based upon the facility's performance during the previous permit cycle.

The TSS limits in the Draft Permit are based upon the limits established in the Current Permit in accordance with the anti-backsliding requirements found in 40 CFR §122.44(l). Heavy metals and polynuclear aromatic hydrocarbons are readily adsorbed onto particulate matter and the release of these compounds can to an extent, be 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 O/W Separator and set corresponding limits in the guidelines (See 40 CFR Part 423 "low volume waste sources"). Given the similarities between the storage of petroleum products at bulk stations and terminals and the storage of fuel oil at steam electric facilities, EPA is using the same TSS limits established for steam electric facilities for bulk petroleum storage facilities.

There were several instances during the previous permit cycle when TSS limits were exceeded as shown in the summary of the discharge monitoring data submitted by the facility during the time period of 1998 to 2003 (See Attachment A to this Fact Sheet). There does not appear to be any observable trends associated with these sporadic occasions of elevated TSS levels, other than to note that most of the elevated levels, which were for the monthly average TSS limit, occurred early on in the permit cycle. Overall, the facility has been able to meet its TSS limits over the last permit cycle through the proper operation of a correctly-sized O/W Separator, appropriate source controls, routine inspections, preventative maintenance, and implementation of best management practices.

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

EPA believes that the controls in place at Irving Oil (i.e., Draft Permit limit for O&G of 15 mg/L and implementation of best management practices) should ensure that the storm water discharge from the facility does not contribute to the further impairment of Chelsea River. An effluent limit

for O&G of 15 mg/L should ensure that the discharge from the facility will be free from oil, grease, and petrochemicals that might produce a visible film on the surface of the water. Best Management Practices being implemented by the facility, which includes a Storm Water Pollution Prevention Plan, ensures that there is a program in place at the facility to limit the amount of pollutants being discharged with storm water runoff. Best Management Practices are fully enforceable permit conditions that serve to prevent pollution, rather than simply treat it. Irving Oil has consistently demonstrated its ability to meet the O&G permit condition in the Current Permit as shown in the summary of the discharge monitoring data submitted during the time period of 1998 to 2003 (See Attachment A to this Fact Sheet). The one exception being February of 2000, when the monitoring results for O&G (i.e., 15.3 mg/L) slightly exceeded the effluent limit for this parameter.

#### 4. pH

Massachusetts State Surface Water Quality Standards require the pH of Class SA and Class SB waters to be within the range of 6.5 to 8.5 standard units (S.U.). 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.

A summary of the discharge monitoring data submitted by the facility during the time period of 1998 to 2003 is included as Attachment A to this Fact Sheet. There were several occasions during the previous permit cycle when the pH of the discharge was below 6.5. This was not considered a violation since the Current Permit did not contain an effluent limit for pH.

#### 5. 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 and asphalt). 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). Several of these PAHs are well known animal carcinogens, others are not considered carcinogenic alone but can enhance or inhibit the response of the carcinogenic PAHs. Typically, exposure would be to a mixture of PAHs rather than to an individual PAH.

EPA required the permittee to submit a PAH pollutant scan (for the 16 PAH compounds identified as priority pollutants) from the storm water outfall at the facility as part of the permit renewal application process for the Current Permit because of the health concerns discussed

above and the potential for PAHs to be present in some of the heavier petroleum distillate and residual products stored at the facility. A similar requirement was put in place for the petroleum bulk stations and terminals located in South Portland, Maine starting in the early 1990's.

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

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

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

A summary of the discharge monitoring data submitted by the facility during the time period of 1998 to 2003 is included as Attachment A to this Fact Sheet. A separate summary table providing the monitoring results for PAHs with their respective detection limits during the time period of 1998 to 2003 can be found in Attachment B to this Fact Sheet. The reporting limits for each of the seven (7) PAH compounds were typically around 1 µg/L (or 1 part per billion).

EPA has reviewed the discharge monitoring data submitted for PAHs by Irving Oil and other nearby Chelsea Creek petroleum storage terminals since the issuance of their Current Permits (since approximately 1997 - 1998). PAHs were not detected in the storm water discharge from the Irving Oil facility during a majority of the twenty-three (23) quarterly sampling events. In the four (4) sampling events where PAHs were detected, the concentrations identified for most compounds were very close to the laboratory's minimum level of reporting (i.e., approximately 1 µg/L). On one occasion (i.e., during the first quarter of 2001), the facility reported a total PAH concentration of 12.8 µg/L. A majority of the petroleum storage terminals located along Chelsea Creek did not detect the presence of any PAHs in the monitoring data submitted by them since the issuance of their respective Current Permits.

EPA is not imposing effluent limits for PAHs in the Draft Permit for this facility at this time given the overall low levels detected. However, EPA will require the Irving Oil facility to implement additional steps as part of the Best Management Practices used by the facility to control and reduce the concentration of PAHs in their discharge. EPA believes that the PAH

concentrations found in the discharge from this facility can be further reduced as evidenced by the monitoring results obtained from the other petroleum storage terminals located along Chelsea Creek. The additional requirements to be implemented by the permittee are discussed further in Section V.E.11 of this Fact Sheet and Part I.B.2 of the Draft Permit.

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

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

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

EPA has added naphthalene to the list of PAH compounds to be reported without limits by the facility in the Draft Permit. Naphthalene is considered an important limiting pollutant parameter based upon the prevalence of this compound in petroleum products and its toxicity (i.e., naphthalene has been identified as a possible human carcinogen).

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

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

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

VOCs such as benzene, toluene, ethylbenzene, 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., fuel oils). 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 one of the highest solubilities, it is one of the most toxic constituents, and it 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.

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

In establishing the effluent limit for VOCs in the Draft Permit, EPA reviewed all appropriate criteria including the most recent Federal Water Quality Criteria and the quarterly monitoring results for BTEX obtained from the discharges of all of the petroleum bulk stations and terminals along Chelsea River. A summary of the discharge monitoring data submitted by the facility during the time period of 1998 to 2003 is included as Attachment A to this Fact Sheet. A separate summary table providing the monitoring results for BTEX with respective detection limits during the time period of 2001 to 2003 can be found in Attachment C to this Fact Sheet. Benzene

concentrations identified in the discharge from the facility were typically non-detect (i.e., below the laboratory reporting limit of 5.0 µg/L). On the few occasions where benzene was detected in the discharge from the facility, it was reported at one to two orders of magnitude below the effluent limit in the Current Permit (i.e., 500 µg/L). Similarly, a majority of the quarterly sampling events did not detect the presence of toluene, ethylbenzene, and total xylenes in the discharge from the facility. On the few occasions where any of these compounds were detected, they were typically reported at very low concentrations (i.e., in the low parts per billion range).

EPA continues to believe that the approach taken in the Current Permit (i.e., quarterly monitoring for BTEX and the establishment of an effluent limit for benzene) is an effective way of monitoring and controlling the quality of the storm water discharge at the facility and as such has incorporated similar requirements into the Draft Permit. However, EPA has chosen to change the maximum daily effluent limit for benzene in the Draft Permit from 500 µg/L to 51 µg/L. The benzene limit of 51 µg/L represents the current Federal Water Quality Criteria for benzene which has been adopted by the State of Massachusetts (See 314 CMR 4.05(5)(e)). The new limit is based on the human health criteria associated with the consumption of aquatic organisms (USEPA, 2002). EPA believes that this more stringent limit is necessary for the protection of human health and to maintain the water quality standards established under Section 303 of the CWA.

#### 7. Methyl Tertiary-Butyl Ether (MTBE)

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

Most of the research conducted on MTBE to date has focused on human-health, specifically the health effects associated with the inhalation of the chemical. Independent expert review by groups who have assessed MTBE inhalation health risks have not concluded that the use of MTBE in gasoline poses an imminent threat to public health. However, there is limited data available concerning what the health effects may be for the most likely potential route of exposure - a person swallowing (ingesting) MTBE. As a result, EPA has not set a national drinking water standard for MTBE. However, some states have established their own limit for drinking water standards. Within the New England area, the states of New Hampshire and

Massachusetts have established a drinking water standard for MTBE of 13 µg/L and 70 µg/L, respectively.

A more limited amount of information is available regarding the aquatic toxicity of MTBE. A public/private partnership was established in 1997 to help review the available information and to develop aquatic toxicity data sufficient to calculate ambient water quality criteria for MTBE. The public/private partnership consisted of representatives from private companies, trade associations, and EPA. Existing aquatic toxicity data were evaluated for acceptability, consistent with EPA guidance, and additional freshwater and marine tests were conducted to satisfy the federal criteria database requirements. Through their efforts, the public/private partnership was able to develop proposed freshwater and marine water quality criteria for MTBE (ES&T, 2002). The preliminary freshwater criteria for acute and chronic exposure effects developed through this workgroup are 151 and 51 milligrams MTBE/Liter of water (or 151,000 µg/L and 51,000 µg/L), respectively. The preliminary marine criteria for acute and chronic exposure effects are 53 and 18 milligrams MTBE/Liter of water (or 53,000 µg/L and 18,000 µg/L), respectively.

Spillage and leaks from above-ground gasoline storage tanks and/or truck loading rack areas can transport quantities of MTBE to surface waters via the storm water drainage system. Discharges of MTBE via the storm water system have the potential to impact the water quality of Chelsea River. Thus, EPA included discharge monitoring requirements for MTBE (without limitations) as part of Current Permit issued to this facility in 1997. EPA required this monitoring in order to determine if any limitations on MTBE discharges from the terminal was warranted.

EPA has reviewed the discharge monitoring data submitted by the facility for MTBE and compared the results with available benchmarks. In identifying the most appropriate benchmark for petroleum bulk stations and terminals, EPA considered the type of discharge (e.g., intermittent) and location of the discharge (e.g., the Chelsea River is designated by the State of Massachusetts for the uses of protection of aquatic life and wildlife, and for primary and secondary contact recreation but not as a drinking water source). Based on the above information EPA used the preliminary marine water quality criteria for acute toxicity of MTBE (e.g., 53,000 µg/L) as its benchmark. As can be seen, from a review of the discharge monitoring data submitted by the facility (See Attachments A and C to this Fact Sheet), the concentrations of MTBE found in the outfall from this facility are typically several orders of magnitude smaller than the preliminary water quality criteria benchmark of 53,000 µg/L.

Based on EPA's review of the data from this facility as well as the other petroleum bulk stations and terminals which collected MTBE data, EPA has concluded that effluent limits for MTBE are not required at this time. However, given the potential health concerns, the type of petroleum products stored at the facility, and the physical properties of this compound, EPA will require the facility to continue to monitor for MTBE on a quarterly basis from the storm water outfall(s).

## 8. Tank-Bottom and Bilge Water

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

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

## 9. Hydrostatic Test Water Discharges

Occasionally repairs are made at the facility to the tanks and the piping used for the storage and conveyance of petroleum products. To ensure safe working conditions during this maintenance work, storage tanks and/or pipe networks are rigorously cleaned (e.g., "Poly Brushed", "Squeegee Pigged") and certified as being "gas-free." After completing certain maintenance work, the vessels and/or pipe networks may require hydrostatic testing (e.g., to be filled with water and monitored for changes in water levels) before product replacement. Some of the bulk petroleum storage facilities located along Chelsea River use the river as a source of test water. Thus, hydrostatic test water discharge may contain minimal amounts of foreign matter, trace amounts of hydrocarbons, and other background material found in the river. Other facilities use potable water as a source of test water and as a result there may be some residual chlorine present in the discharge. As a precaution, the hydrostatic test water shall be monitored as described below and treated through O/W Separator 1 prior to being discharged to the Chelsea River. In addition, the flow of hydrostatic test water into O/W Separator 1 shall be controlled to prevent it from exceeding the maximum design flow rate of the separator.

At a minimum, four (4) representative samples shall be taken of the hydrostatic test water: one (1) grab sample of the influent test water; and three (3) serial-grab samples of the hydrostatic test water effluent. The influent grab sample shall be taken approximately midway through the fill segment of the hydrostatic test procedure. The three (3) effluent serial-grab samples shall be taken over the duration of the entire discharge segment of the hydrostatic test procedure. The first effluent serial-grab sample shall be taken during the initial phase of discharge; the second around the midpoint; and the third near the end of the discharge. The effluent serial-grab samples shall

be obtained before discharge into O/W Separator 1 and/or mixing with any storm water or other non-storm water flow.

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

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

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

During discharge (i.e., approximately at the same time the three effluent grab samples are taken), the flow exiting through O/W Separator 1 and the outfall should be observed in order to prevent the inadvertent release of hydrocarbons to the receiving water(s). In the event that there is evidence of such a release (e.g., visible oil sheen and/or noticeable increase in turbidity of discharge water), the permittee shall immediately halt the discharge of hydrostatic test water and take steps to correct the problem.

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

The permittee shall submit a letter/report to EPA and the MADEP, summarizing the results of the transfer within forty-five (45) days of completion of the test. This report shall contain: the date(s) of hydrostatic test water transfer; the source of the test water; the volume of test water transferred; a copy of the analytical results identifying the detection limits and associated quality assurance/quality control information for all of the discharge monitoring required in the Draft Permit; and a brief discussion of the overall test results and how they relate to the discharge parameters and their respective effluent limits identified in the Draft Permit.

#### 10. Prohibition of Non-Storm Water Discharges

Non-storm water discharges including fire protection foam, either in concentrate form or as a foam diluted with water, are excluded from coverage under this permit. EPA believes that there

is a significant potential for these discharges to be contaminated. Thus, the permittee is required to obtain a separate NPDES permit for these non-storm water discharges prior to any such discharge or seek the necessary approval(s) from the appropriate local pretreatment authority to discharge to the sanitary sewer system.

However, this permit authorizes some non-storm water discharges. These discharges potentially include treated effluent from firefighting activities, fire hydrant flushings, boiler blow-down, and potable water sources which may include vehicle, equipment, and surface wash-down waters which do not have chemicals (such as solvents, soaps, emulsifiers and/or detergents) added. To prevent hydrocarbon and/or particulate carry-over through the treatment system, the permittee shall not add chemicals, soaps, detergents, solvents, emulsifiers, etc. to any fresh water wash-down collection and treatment system without prior approval by EPA and the MADEP.

Treated effluent from these activities means that the effluent shall be directed to the O/W Separator(s) either alone or commingled with storm water, prior to discharge from Outfall 001. No additional monitoring requirements, other than those specified in the Draft Permit, are necessary for these types of discharges.

#### 11. Storm Water Pollution Prevention Plan

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

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

The permittee has certified to EPA that a SWPPP was developed and implemented for this facility in accordance with the schedule and requirements identified in the Current Permit. The Draft Permit continues to ensure that the SWPPP is kept current and adhered to, by requiring the permittee to maintain and update the SWPPP as changes occur at the facility.

As mentioned in Section V.E.5 of this Fact Sheet, PAH compounds were detected in the discharge from this facility in the low parts per billion range. Although these concentrations are considered fairly low, EPA believes their presence warrants some additional action on the part of the permittee. Therefore, the permittee shall be required to identify in the SWPPP what additional steps the facility will take (e.g., spill prevention, operation and maintenance, training) to further reduce the concentration of PAHs detected in their discharge. The facility will also identify as part of the annual certification discussed below, the effectiveness of these steps in further reducing the PAH concentrations detected in their discharge. In the event that these actions prove ineffective in further reducing the PAH concentrations, the permit may be subject to modification pursuant to 40 CFR §122.62.

The Draft Permit requires the permittee to provide annual certification to EPA and the MADEP, documenting that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in compliance with its SWPPP. A signed copy of the certification will be sent each year to EPA and MADEP as well as appended to the SWPPP within thirty (30) days of the annual anniversary of the effective date of the Draft Permit. This certification will be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of the most recent SWPPP shall be kept at the facility and be available for inspection by EPA and MADEP.

## 12. Additional Requirements and Conditions

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

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

## VI. **ENDANGERED SPECIES ACT**

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish.

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

## **VII. ESSENTIAL FISH HABITAT**

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the NMFS if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat" (EFH). The Amendments define EFH as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," (16 U.S.C. § 1802 (10)). "Adverse impact" means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Id.

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

A review of the relevant essential fish habitat information provided by NMFS indicates that essential fish habitat has been designated for 15 managed species within the NMFS boundaries encompassing the outfall location. A copy of the managed species within the EFH is included in Attachment E 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 a formal EFH consultation with NMFS is not required because the proposed discharge will not adversely impact the EFH. If adverse impacts are detected as a result of this permit action, NFMS will be notified and an EFH consultation will promptly be initiated.

## VIII. STATE CERTIFICATION REQUIREMENTS

EPA may not issue a permit unless the MADEP certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Surface Water Quality Standards or unless state certification is waived. The staff of the MADEP 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

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

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection Attn: Neil Handler, 1 Congress Street, Suite 1100 (CIP), Boston, Massachusetts 02114-2023 or via email to [handler.neil@epa.gov](mailto:handler.neil@epa.gov). **The comments should reference the name and permit number of the facility for which they are being provided.**

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

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

## **X. EPA & MADEP CONTACTS**

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

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

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

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Date

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

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Weisman, Wade, 1998. *Analysis of Hydrocarbons in Environmental Media, Volume 1*. Total Petroleum Hydrocarbon Criteria Working Group Series, March 1998.

## **FIGURES**

**ATTACHMENT A**

**SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS**

**(1998 TO 2003)**

**IRVING OIL**

**NPDES PERMIT NO. MA0001929**

**ATTACHMENT B**

**SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS**

**(1998 TO 2003)**

**FOR POLYNUCLEAR AROMATIC COMPOUNDS**

**IRVING OIL**

**NPDES PERMIT NO. MA0001929**

**ATTACHMENT C**

**SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS**

**(2001 TO 2003)**

**FOR VOLATILE ORGANIC COMPOUNDS**

**IRVING OIL**

**NPDES PERMIT NO. MA0001929**

**ATTACHMENT D**

**ENDANGERED SPECIES LIST**

**ATTACHMENT E**

**ESSENTIAL FISH HABITAT DESIGNATION**



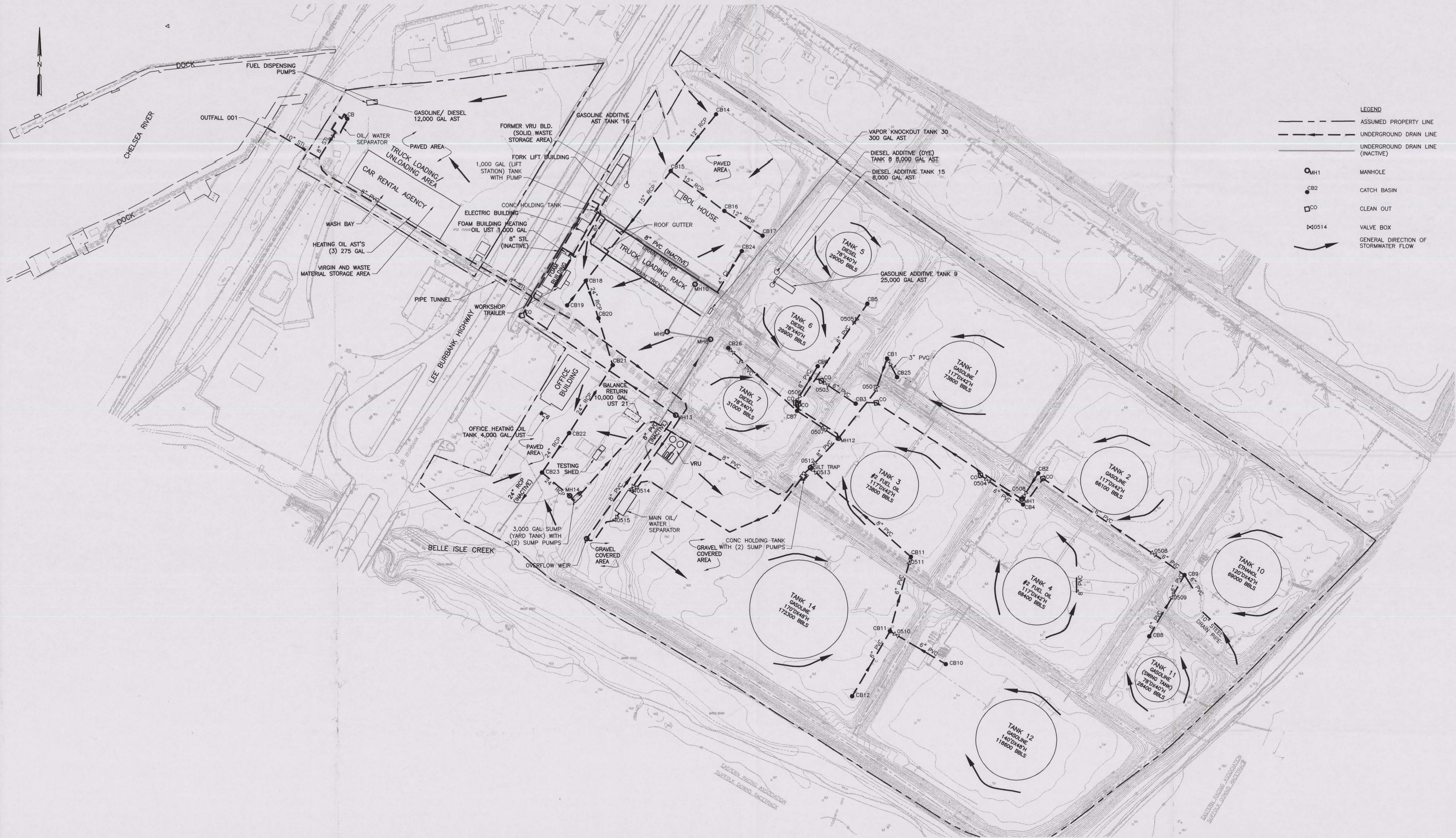
Base maps from USGS 7.5 Topo Quad  
Boston North (1991) and Lynn (1988) Massachusetts

0 0.5 1.0  
SCALE IN MILES



DATE 4/23/04  
DWN jal  
APP  
REV  
PROJECT #103451

**Figure 1-1**  
  
IRVING OIL TERMINAL  
41 LEE BURBANK HIGHWAY  
REVERE, MASSACHUSETTS  
  
**SITE LOCATION MAP**



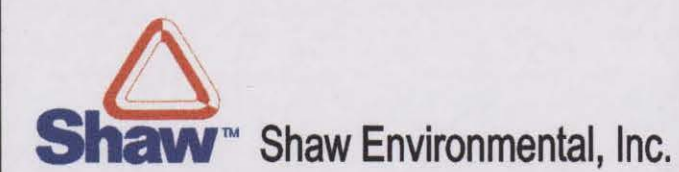
# SOURCE:

1. DRAIN LINES, CATCH BASINS, MANHOLES AND VALVE BOXES DIGITIZED FROM A PLAN PROVIDED BY TOSCO REFINING COMPANY, REVERE, MASS. TITLED "STORMWATER POLLUTION PREVENTION PLAN" DATED: 4/22/98. DRAWING NUMBER 10165-000CS-1-1.
2. PROPERTY EASTERLY OF LEE BURBANK HIGHWAY TAKEN FROM A PLAN PROVIDED BY IRVING OIL CORPORATION, TITLED "PRODUCT PIPING G. A. ETHANOL, PBOB & RBOB PIPING", DATED 02/05/03.
3. PROPERTY WESTERLY OF LEE BURBANK HIGHWAY FROM AERIAL SURVEY PROVIDED BY GLOBAL PETROLEUM.

# NOTES:

1. TOP OF TANK FARM DIKES AND/ OR FENCE LINE ASSUMED TO FOLLOW PROPERTY LINES AND FENCE LINES.
2. DRAINAGE AREAS FOR OUTFALL 001 ENCOMPASSED WITHIN PROPERTY LINES.
3. HERBICIDES APPLIED TO DIKE AREAS AND GRAVEL COVERED AREAS.

| REV | DATE   | DESCRIPTION | DWN BY | DES BY | CHK BY | APP BY |
|-----|--------|-------------|--------|--------|--------|--------|
| 1   | 5/5/04 | J.O.D.      |        |        |        |        |



IRVING OIL CORPORATION  
LEE BURBANK HIGHWAY  
REVERE, MASSACHUSETTS

SITE PLAN

DRAWING NO.

1-2

PROJECT NO.

104351

**ATTACHMENT A**

**SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS**

**(1998 TO 2003)**

**IRVING OIL**

**NPDES PERMIT NO. MA0001929**

# IRVING OIL TERMINAL - REVERE DMR RESULTS (1998 - 2003)

NPDES PERMIT NO. MA0001929

QL \*\*\*\*\* QL

## 001 - OIL/WATER SEPARATOR

Monitoring Parameter: Flow Rate (gal/min)

Permit Limit: Report Only

Monitoring Frequency: Once/Rain Event

Sample Type: Curve

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 01/31/98                    |                      |                             | 450                       |                                       | 0             |
| 02/28/98                    |                      |                             | 450                       |                                       | 0             |
| 04/30/98                    |                      |                             | 450                       |                                       | 0             |
| 05/31/98                    |                      |                             | 450                       |                                       | 0             |
| 06/30/98                    |                      |                             | 450                       |                                       | 0             |
| 07/31/98                    |                      |                             | 450                       |                                       | 0             |
| 08/31/98                    |                      |                             | 450                       |                                       | 0             |
| 09/30/98                    |                      |                             | 450                       |                                       | 0             |
| 10/31/98                    |                      |                             | 450                       |                                       | 0             |
| 11/30/98                    |                      |                             | 450                       |                                       | 0             |
| 12/31/98                    |                      |                             | 450                       |                                       | 0             |
| 01/31/99                    |                      |                             | 450                       |                                       | 0             |
| 02/28/99                    |                      |                             | 450                       |                                       | 0             |
| 03/31/99                    |                      |                             | 450                       |                                       | 0             |
| 04/30/99                    |                      |                             | 450                       |                                       | 0             |
| 05/31/99                    |                      |                             | 450                       |                                       | 0             |
| 06/30/99                    | C                    |                             |                           |                                       |               |
| 07/31/99                    | C                    |                             |                           |                                       |               |
| 08/31/99                    |                      |                             | 450                       |                                       | 0             |
| 09/30/99                    |                      |                             | 450                       |                                       | 0             |
| 10/31/99                    |                      |                             | 450                       |                                       | 0             |
| 11/30/99                    |                      |                             | 450                       |                                       | 0             |
| 12/31/99                    |                      |                             | 450                       |                                       | 0             |
| 01/31/00                    |                      |                             | 450                       |                                       | 0             |
| 02/29/00                    |                      |                             | 450                       |                                       | 0             |
| 03/31/00                    |                      |                             | 450                       |                                       | 0             |
| 04/30/00                    |                      |                             | 450                       |                                       | 0             |
| 05/31/00                    |                      |                             | 450                       |                                       | 0             |
| 06/30/00                    |                      |                             | 450                       |                                       | 0             |
| 07/31/00                    |                      |                             | 450                       |                                       | 0             |
| 08/31/00                    |                      |                             | 450                       |                                       | 0             |
| 09/30/00                    |                      |                             | 450                       |                                       | 0             |
| 10/31/00                    |                      |                             | 450                       |                                       | 0             |
| 11/30/00                    |                      |                             | 450                       |                                       | 0             |
| 12/31/00                    | C                    |                             |                           |                                       |               |
| 01/31/01                    | C                    |                             |                           |                                       |               |
| 02/28/01                    |                      |                             | 450                       |                                       | 0             |
| 03/31/01                    |                      |                             | 450                       |                                       | 0             |
| 04/30/01                    |                      |                             | 450                       |                                       | 0             |
| 05/31/01                    |                      |                             | 450                       |                                       | 0             |
| 06/30/01                    |                      |                             | 450                       |                                       | 0             |
| 07/31/01                    |                      |                             | 450                       |                                       | 0             |
| 08/31/01                    |                      |                             | 450                       |                                       | 0             |
| 09/30/01                    |                      |                             | 450                       |                                       | 0             |
| 10/31/01                    |                      |                             | 450                       |                                       | 0             |
| 11/30/01                    |                      |                             | 450                       |                                       | 0             |
| 12/31/01                    |                      |                             | 450                       |                                       | 0             |
| 01/31/02                    |                      |                             | 450                       |                                       | 0             |
| 02/28/02                    |                      |                             | 450                       |                                       | 0             |
| 03/31/02                    |                      |                             | 450                       |                                       | 0             |
| 04/30/02                    |                      |                             | 450                       |                                       | 0             |
| 05/31/02                    |                      |                             | 450                       |                                       | 0             |
| 06/30/02                    |                      |                             | 450                       |                                       | 0             |

|          |   |     |   |
|----------|---|-----|---|
| 07/31/02 |   | 450 | 0 |
| 08/31/02 |   | 450 | 0 |
| 09/30/02 |   | 450 | 0 |
| 10/31/02 |   | 450 | 0 |
| 11/30/02 |   | 450 | 0 |
| 12/31/02 |   | 450 | 0 |
| 01/31/03 | C |     |   |
| 02/28/03 | C |     |   |
| 03/31/03 |   | 450 | 0 |
| 04/30/03 |   | 450 | 0 |
| 05/31/03 |   | 450 | 0 |
| 06/30/03 |   | 450 | 0 |
| 07/31/03 |   | 450 | 0 |
| 08/31/03 |   | 450 | 0 |
| 09/30/03 |   | 450 | 0 |
| 10/31/03 |   | 450 | 0 |
| 11/30/03 |   | 450 | 0 |
| 12/31/03 |   | 450 | 0 |

**001 - OIL/WATER SEPARATOR**

**Monitoring Parameter: pH (S.U.)**

**Permit Limit: Report Only**

**Monitoring Frequency: Once/Month**

**Sample Type: Grab**

| <u>Monitoring<br/>Period Ending</u> | <u>No<br/>Disch.<br/>Code</u> | <u>Reported<br/>Monthly<br/>Avg.</u> | <u>Reported<br/>Daily<br/>Max.</u> | <u>Percent Violations<br/>Monthly<br/>Avg.</u> | <u>Daily<br/>Max.</u> |
|-------------------------------------|-------------------------------|--------------------------------------|------------------------------------|------------------------------------------------|-----------------------|
| 01/31/98                            |                               |                                      | 7.2                                |                                                | 0                     |
| 02/28/98                            |                               |                                      | 7.5                                |                                                | 0                     |
| 04/30/98                            |                               |                                      | 7.8                                |                                                | 0                     |
| 05/31/98                            |                               |                                      | 7.8                                |                                                | 0                     |
| 06/30/98                            |                               |                                      | 7.8                                |                                                | 0                     |
| 07/31/98                            |                               |                                      | 7.4                                |                                                | 0                     |
| 08/31/98                            |                               |                                      | 6.8                                |                                                | 0                     |
| 09/30/98                            |                               |                                      | 7.3                                |                                                | 0                     |
| 10/31/98                            |                               |                                      | 7.5                                |                                                | 0                     |
| 11/30/98                            |                               |                                      | 7.6                                |                                                | 0                     |
| 12/31/98                            |                               |                                      | 7.6                                |                                                | 0                     |
| 01/31/99                            |                               |                                      | 7.6                                |                                                | 0                     |
| 02/28/99                            |                               |                                      | 7.5                                |                                                | 0                     |
| 03/31/99                            |                               |                                      | 7.2                                |                                                | 0                     |
| 04/30/99                            |                               |                                      | 7.3                                |                                                | 0                     |
| 05/31/99                            |                               |                                      | 7.6                                |                                                | 0                     |
| 06/30/99                            | C                             |                                      |                                    |                                                |                       |
| 07/31/99                            | C                             |                                      |                                    |                                                |                       |
| 08/31/99                            |                               |                                      | 7.5                                |                                                | 0                     |
| 09/30/99                            |                               |                                      | 8.9                                |                                                | 0                     |
| 10/31/99                            |                               |                                      | 8.1                                |                                                | 0                     |
| 11/30/99                            |                               |                                      | 7.8                                |                                                | 0                     |
| 12/31/99                            |                               |                                      | 7.6                                |                                                | 0                     |
| 01/31/00                            |                               |                                      | 7.9                                |                                                | 0                     |
| 02/29/00                            |                               |                                      | 7.9                                |                                                | 0                     |
| 03/31/00                            |                               |                                      | 7.9                                |                                                | 0                     |
| 04/30/00                            |                               |                                      | 7.8                                |                                                | 0                     |
| 05/31/00                            |                               |                                      | 7.2                                |                                                | 0                     |
| 06/30/00                            |                               |                                      | 6.5                                |                                                | 0                     |
| 07/31/00                            |                               |                                      | 7.1                                |                                                | 0                     |
| 08/31/00                            |                               |                                      | 6.3                                |                                                | 0                     |
| 09/30/00                            |                               |                                      | 7.4                                |                                                | 0                     |
| 10/31/00                            |                               |                                      | 7.9                                |                                                | 0                     |
| 11/30/00                            |                               |                                      | 7.9                                |                                                | 0                     |
| 12/31/00                            | C                             |                                      |                                    |                                                |                       |
| 01/31/01                            | C                             |                                      |                                    |                                                |                       |
| 02/28/01                            |                               |                                      | 7.6                                |                                                | 0                     |
| 03/31/01                            |                               |                                      | 7.6                                |                                                | 0                     |
| 04/30/01                            |                               |                                      | 8.4                                |                                                | 0                     |

|          |   |     |   |
|----------|---|-----|---|
| 05/31/01 | C |     |   |
| 06/30/01 |   | 8.0 | 0 |
| 07/31/01 |   | 7.9 | 0 |
| 08/31/01 |   | 8.8 | 0 |
| 09/30/01 |   | 8.5 | 0 |
| 10/31/01 |   | 8.8 | 0 |
| 12/31/01 |   | 7.9 | 0 |
| 01/31/02 |   | 8.0 | 0 |
| 02/28/02 |   | 8.1 | 0 |
| 03/31/02 |   | 8.7 | 0 |
| 04/30/02 |   | 7.9 | 0 |
| 05/31/02 |   | 8.4 | 0 |
| 06/30/02 |   | 7.7 | 0 |
| 08/31/02 | C |     |   |
| 09/30/02 |   | 8.5 | 0 |
| 10/31/02 |   | 7.3 | 0 |
| 11/30/02 |   | 7.8 | 0 |
| 12/31/02 |   | 3.0 | 0 |
| 01/31/03 | C |     |   |
| 02/28/03 | C |     |   |
| 03/31/03 |   | 7.7 | 0 |
| 04/30/03 |   | 7.7 | 0 |
| 05/31/03 |   | 8.2 | 0 |
| 06/30/03 |   | 8.1 | 0 |
| 07/31/03 |   | 8.1 | 0 |
| 08/31/03 |   | 7.7 | 0 |
| 09/30/03 |   | 7.6 | 0 |
| 10/31/03 |   | 8.1 | 0 |
| 11/30/03 |   | 7.6 | 0 |
| 12/31/03 |   | 7.5 | 0 |

# 001 - OIL/WATER SEPARATOR

Monitoring Parameter: Total Suspended Solids (mg/L)

Permit Limit: Monthly Avg. 30 mg/L; Daily Max. 100 mg/L

Monitoring Frequency: Twice/Month

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 01/31/98                    |                      | 26.5                        | 41.0                      | 0                                     | 0             |
| 02/28/98                    |                      | 10.35                       | 10.7                      | 0                                     | 0             |
| 04/30/98                    |                      | 11                          | 12                        | 0                                     | 0             |
| 05/31/98                    |                      | 38                          | 46                        | 27                                    | 0             |
| 06/30/98                    |                      | 17.8                        | 28.0                      | 0                                     | 0             |
| 07/31/98                    |                      | 71                          | 103                       | 137                                   | 3             |
| 08/31/98                    |                      | 53.5                        | 90.5                      | 78                                    | 0             |
| 09/30/98                    |                      | 23.0                        | 23.0                      | 0                                     | 0             |
| 10/31/98                    |                      | 12                          | 15                        | 0                                     | 0             |
| 11/30/98                    |                      | 28.5                        | 31                        | 0                                     | 0             |
| 12/31/98                    |                      | 29.5                        | 35                        | 0                                     | 0             |
| 01/31/99                    |                      | 18.16                       | 54.0                      | 0                                     | 0             |
| 02/28/99                    |                      | 29                          | 33                        | 0                                     | 0             |
| 03/31/99                    |                      | 23.0                        | 40.0                      | 0                                     | 0             |
| 04/30/99                    |                      | 22.5                        | 31                        | 0                                     | 0             |
| 05/31/99                    |                      | 15.5                        | 17.0                      | 0                                     | 0             |
| 06/30/99                    | C                    |                             |                           |                                       |               |
| 07/31/99                    | C                    |                             |                           |                                       |               |
| 08/31/99                    |                      | 16.0                        | 16.0                      | 0                                     | 0             |
| 09/30/99                    |                      | 5.50                        | 7.00                      | 0                                     | 0             |
| 10/31/99                    |                      | 11.25                       | 22.5                      | 0                                     | 0             |
| 11/30/99                    |                      | 24.5                        | 26.5                      | 0                                     | 0             |
| 12/31/99                    |                      | 8.0                         | 9.0                       | 0                                     | 0             |
| 01/31/00                    |                      | 15                          | 15                        | 0                                     | 0             |
| 02/29/00                    |                      | 15.2                        | 18.0                      | 0                                     | 0             |
| 03/31/00                    |                      | 9.0                         | 10.0                      | 0                                     | 0             |
| 04/30/00                    |                      | 10.0                        | 15.0                      | 0                                     | 0             |

|          |   |       |      |     |   |
|----------|---|-------|------|-----|---|
| 05/31/00 |   | 17.0  | 27.0 | 0   | 0 |
| 06/30/00 |   | 8.50  | 11.0 | 0   | 0 |
| 07/31/00 |   | 4.0   | 8.0  | 0   | 0 |
| 08/31/00 |   | 12.25 | 17.5 | 0   | 0 |
| 09/30/00 |   | 26.5  | 35   | 0   | 0 |
| 10/31/00 |   | 12.5  | 18.0 | 0   | 0 |
| 11/30/00 |   | 16.5  | 19   | 0   | 0 |
| 12/31/00 | C |       |      |     |   |
| 01/31/01 | C |       |      |     |   |
| 02/28/01 |   | 14.5  | 22.0 | 0   | 0 |
| 03/31/01 |   | 9.0   | 18.0 | 0   | 0 |
| 04/30/01 |   | 10.0  | 10.0 | 0   | 0 |
| 05/31/01 | C |       |      |     |   |
| 06/30/01 |   | 7.2   | 30.0 | 0   | 0 |
| 07/31/01 |   | 29.5  | 32   | 0   | 0 |
| 08/31/01 |   | 20.15 | 22.0 | 0   | 0 |
| 09/30/01 |   | 9.00  | 30   | 0   | 0 |
| 10/31/01 |   | 7.0   | 30   | 0   | 0 |
| 12/31/01 |   | 15.0  | 15.0 | 0   | 0 |
| 01/31/02 |   | 9.0   | 9.0  | 0   | 0 |
| 02/28/02 |   | 6.0   | 6.0  | 0   | 0 |
| 03/31/02 |   | 12    | 16   | 0   | 0 |
| 04/30/02 |   | 12.5  | 14.0 | 0   | 0 |
| 05/31/02 |   | 3.0   | 6.0  | 0   | 0 |
| 06/30/02 |   | 12    | 18.0 | 0   | 0 |
| 07/31/02 | C |       |      |     |   |
| 08/31/02 | C |       |      |     |   |
| 09/30/02 |   | 15    | 15   | 0   | 0 |
| 10/31/02 |   | 9.0   | 12.0 | 0   | 0 |
| 11/30/02 |   | 23.0  | 23.0 | 0   | 0 |
| 12/31/02 |   | 0.0   | 0.0  | 0   | 0 |
| 01/31/03 | C |       |      |     |   |
| 02/28/03 | C |       |      |     |   |
| 03/31/03 |   |       | 16   |     | 0 |
| 04/30/03 |   | 14    | 14   | 0   | 0 |
| 05/31/03 |   | 11.0  | 11.0 | 0   | 0 |
| 06/30/03 |   | 7.5   | 11.0 | 0   | 0 |
| 07/31/03 |   | 11.0  | 11.0 | 0   | 0 |
| 08/31/03 |   | 84.0  | 84.0 | 180 | 0 |
| 09/30/03 |   | 4.0   | 4.0  | 0   | 0 |
| 10/31/03 |   | 8.0   | 8.0  | 0   | 0 |
| 11/30/03 |   | 4.0   | 4.0  | 0   | 0 |
| 12/31/03 |   | 16.0  | 34.0 | 0   | 0 |

# 001 - OIL/WATER SEPARATOR

Monitoring Parameter: Oil & Grease (mg/L)

Permit Limit: Daily Max. 15 mg/L

Monitoring Frequency: Twice/Month

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 01/31/98                    |                      |                             | 3.79                      |                                       | 0             |
| 02/28/98                    |                      |                             | 3.72                      |                                       | 0             |
| 04/30/98                    |                      |                             | 1.63                      |                                       | 0             |
| 05/31/98                    |                      |                             | 4.35                      |                                       | 0             |
| 06/30/98                    |                      |                             | 2.28                      |                                       | 0             |
| 07/31/98                    |                      |                             | 3.33                      |                                       | 0             |
| 08/31/98                    |                      |                             | 1.60                      |                                       | 0             |
| 09/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 10/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 11/30/98                    |                      |                             | 2.90                      |                                       | 0             |
| 12/31/98                    |                      |                             | 5.50                      |                                       | 0             |
| 01/31/99                    |                      |                             | 2.9                       |                                       | 0             |
| 02/28/99                    |                      |                             | 1.42                      |                                       | 0             |
| 03/31/99                    |                      |                             | 5.43                      |                                       | 0             |

|          |   |      |   |
|----------|---|------|---|
| 04/30/99 |   | 4.28 | 0 |
| 05/31/99 |   | 4.20 | 0 |
| 06/30/99 | C |      |   |
| 07/31/99 | C |      |   |
| 08/31/99 |   | 7.50 | 0 |
| 09/30/99 |   | 10.9 | 0 |
| 10/31/99 |   | 7.08 | 0 |
| 11/30/99 |   | 8.44 | 0 |
| 12/31/99 |   | 6.96 | 0 |
| 01/31/00 |   | 6.70 | 0 |
| 02/29/00 |   | 15.3 | 2 |
| 03/31/00 |   | 0.0  | 0 |
| 04/30/00 |   | 5.26 | 0 |
| 05/31/00 |   | 7.04 | 0 |
| 06/30/00 |   | 5.16 | 0 |
| 07/31/00 |   | 7.40 | 0 |
| 08/31/00 |   | 11.4 | 0 |
| 09/30/00 |   | 0.0  | 0 |
| 10/31/00 |   | 0.0  | 0 |
| 11/30/00 |   | 0.0  | 0 |
| 12/31/00 | C |      |   |
| 01/31/01 | C |      |   |
| 02/28/01 |   | 0.0  | 0 |
| 03/31/01 |   | 0.0  | 0 |
| 04/30/01 |   | 0.0  | 0 |
| 05/31/01 | C |      |   |
| 06/30/01 |   | 0.0  | 0 |
| 07/31/01 |   | 0.0  | 0 |
| 08/31/01 |   | 0.0  | 0 |
| 09/30/01 |   | 0.0  | 0 |
| 10/31/01 |   | 0.0  | 0 |
| 12/31/01 |   | 0.0  | 0 |
| 01/31/02 |   | 0.0  | 0 |
| 02/28/02 |   | 0.0  | 0 |
| 03/31/02 |   | 0.0  | 0 |
| 04/30/02 |   | 6.40 | 0 |
| 05/31/02 |   | 0.0  | 0 |
| 06/30/02 |   | 3.64 | 0 |
| 08/31/02 | C |      |   |
| 09/30/02 |   | 6.35 | 0 |
| 10/31/02 |   | 0.0  | 0 |
| 12/31/02 |   | 0.0  | 0 |
| 01/31/03 | C |      |   |
| 02/28/03 | C |      |   |
| 03/31/03 |   | 0.0  | 0 |
| 04/30/03 |   | 0.0  | 0 |
| 05/31/03 |   | 0.0  | 0 |
| 06/30/03 |   | 0.0  | 0 |
| 07/31/03 |   | 0.0  | 0 |
| 08/31/03 |   | 0.0  | 0 |
| 09/30/03 |   | 7.39 | 0 |
| 10/31/03 |   | 0.0  | 0 |
| 11/30/03 |   | 7.39 | 0 |
| 12/31/03 |   | 0.0  | 0 |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Total Flow (Mgal/month)

Permit Limit: Report Only

Monitoring Frequency: Once/Rain Event

Sample Type: Estimate

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 01/31/98                    |                      | 450                         |                           | 0                                     |               |
| 02/28/98                    |                      | 1.75                        |                           | 0                                     |               |
| 04/30/98                    |                      | 1.13                        |                           | 0                                     |               |

|          |      |      |   |
|----------|------|------|---|
| 05/31/98 |      | 2.16 | 0 |
| 06/30/98 |      | 3.65 | 0 |
| 07/31/98 |      | 0.78 | 0 |
| 08/31/98 |      | 1.06 | 0 |
| 09/30/98 |      | 0.96 | 0 |
| 10/31/98 |      | 1.70 | 0 |
| 11/30/98 |      | 0.43 | 0 |
| 12/31/98 |      | 0.50 | 0 |
| 01/31/99 |      | 1.79 | 0 |
| 02/28/99 |      | 1.11 | 0 |
| 03/31/99 |      | 0.79 | 0 |
| 04/30/99 |      | 0.26 | 0 |
| 05/31/99 |      | 2.71 | 0 |
| 06/30/99 | C    |      |   |
| 07/31/99 | C    |      |   |
| 08/31/99 |      | 0.42 | 0 |
| 09/30/99 |      | 9.86 | 0 |
| 10/31/99 |      | 1.36 | 0 |
| 11/30/99 |      | 0.67 | 0 |
| 12/31/99 |      | 0.48 | 0 |
| 01/31/00 |      | 0.87 | 0 |
| 02/29/00 |      | 0.80 | 0 |
| 03/31/00 |      | 1.13 | 0 |
| 04/30/00 |      | 1.59 | 0 |
| 05/31/00 |      | 0.91 | 0 |
| 06/30/00 |      | 2.08 | 0 |
| 07/31/00 |      | 1.64 | 0 |
| 08/31/00 |      | 0.70 | 0 |
| 09/30/00 |      | 0.90 | 0 |
| 10/31/00 |      | 0.90 | 0 |
| 11/30/00 |      | 1.42 | 0 |
| 12/31/00 | C    |      |   |
| 01/31/01 | C    |      |   |
| 02/28/01 |      | 0.44 | 0 |
| 03/31/01 |      | 2.57 | 0 |
| 04/30/01 |      | 0.28 | 0 |
| 05/31/01 |      | 0.39 | 0 |
| 06/30/01 |      | 1.57 | 0 |
| 07/31/01 |      | 0.67 | 0 |
| 08/31/01 |      | 1.30 | 0 |
| 09/30/01 |      | 0.72 | 0 |
| 10/31/01 |      | 0.37 | 0 |
| 11/30/01 |      | 0.23 | 0 |
| 12/31/01 |      | 0.89 | 0 |
| 01/31/02 |      | 0.99 | 0 |
| 02/28/02 |      | 1.81 | 0 |
| 03/31/02 |      | 1.11 | 0 |
| 04/30/02 |      | 0.83 | 0 |
| 05/31/02 |      | 1.60 | 0 |
| 06/30/02 |      | 1.51 | 0 |
| 07/31/02 |      | 0.45 | 0 |
| 08/31/02 |      | 0.67 | 0 |
| 09/30/02 |      | 1.02 | 0 |
| 10/31/02 |      | 1.10 | 0 |
| 11/30/02 |      | 1.59 | 0 |
| 01/31/03 | C    |      |   |
| 02/28/03 | C    |      |   |
| 03/31/03 | NDR* |      |   |
| 04/30/03 | NDR* |      |   |
| 05/31/03 | NDR* |      |   |
| 06/30/03 | NDR* |      |   |
| 07/31/03 | NDR* |      |   |
| 08/31/03 | NDR* |      |   |
| 09/30/03 | NDR* |      |   |
| 10/31/03 | NDR* |      |   |
| 11/30/03 | NDR* |      |   |
| 12/31/03 | NDR* |      |   |

NDR\* - No Data Reported for this parameter

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Methyl Tertiary-Butyl Ether (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 295                       |                                       | 0             |
| 09/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/98                    |                      |                             | 21.9                      |                                       | 0             |
| 03/31/99                    |                      |                             | 33.4                      |                                       | 0             |
| 06/30/99                    |                      |                             | 280                       |                                       | 0             |
| 09/30/99                    |                      |                             | 7.68                      |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 164                       |                                       | 0             |
| 09/30/00                    |                      |                             | 24.9                      |                                       | 0             |
| 12/31/00                    |                      |                             | 8.94                      |                                       | 0             |
| 03/31/01                    |                      |                             | 36.8                      |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 91.7                      |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 219                       |                                       | 0             |
| 06/30/02                    |                      |                             | 25.0                      |                                       | 0             |
| 09/30/02                    |                      |                             | 12.4                      |                                       | 0             |
| 12/31/02                    |                      |                             | 12.6                      |                                       | 0             |
| 03/31/03                    |                      |                             | 218                       |                                       | 0             |
| 06/30/03                    |                      |                             | 27.7                      |                                       | 0             |
| 09/30/03                    |                      |                             | 29.2                      |                                       | 0             |
| 12/31/03                    |                      |                             | 49.0                      |                                       | 0             |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Toluene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 41.6                      |                                       | 0             |
| 09/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 11.5                      |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/02                    |                      |                             | 14.4                      |                                       | 0             |
| 03/31/03                    |                      |                             | 10.4                      |                                       | 0             |
| 06/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/03                    |                      |                             | 9.86                      |                                       | 0             |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Benzene (ug/L)

Permit Limit: 500 ug/L

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 46.0                      |                                       | 0             |
| 09/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 8.99                      |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 22.5                      |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/02                    |                      |                             | 13.0                      |                                       | 0             |
| 03/31/03                    |                      |                             | 14.8                      |                                       | 0             |
| 06/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/03                    |                      |                             | 0.0                       |                                       | 0             |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Benzo(b)fluoranthene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 1.24                      |                                       | 0             |
| 09/30/98                    |                      |                             | 1.03                      |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 2.14                      |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 1.69                      |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/03                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/03                    |                      |                             | 0.0                       |                                       | 0             |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Benzo(k)fluoranthene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    | NDR*                 |                             |                           |                                       |               |
| 09/30/98                    |                      |                             | 1.01                      |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 2.42                      |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/03                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/03                    |                      |                             | 0.0                       |                                       | 0             |

NDR\* - No Data Reported for this parameter

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Benzo(a)pyrene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 0.620                     |                                       | 0             |
| 09/30/98                    |                      |                             | 0.521                     |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 1.42                      |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 0.25                      |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/03                    |                      |                             | 0.0                       |                                       | 0             |

|          |     |   |
|----------|-----|---|
| 06/30/03 | 0.0 | 0 |
| 09/30/03 | 0.0 | 0 |
| 12/31/03 | 0.0 | 0 |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Chrysene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 1.51                      |                                       | 0             |
| 09/30/98                    |                      |                             | 1.45                      |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 3.48                      |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 1.69                      |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/03                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/03                    |                      |                             | 0.0                       |                                       | 0             |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Ethylbenzene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 6.50                      |                                       | 0             |
| 09/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 17.7                      |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/02                    |                      |                             | 0.0                       |                                       | 0             |

|          |      |   |
|----------|------|---|
| 12/31/02 | 0.0  | 0 |
| 03/31/03 | 0.0  | 0 |
| 06/30/03 | 0.0  | 0 |
| 09/30/03 | 0.0  | 0 |
| 12/31/03 | 7.04 | 0 |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Indeno (1,2,3-cd)pyrene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 0.610                     |                                       | 0             |
| 09/30/98                    |                      |                             | 0.521                     |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 1.27                      |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/03                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/03                    |                      |                             | 0.0                       |                                       | 0             |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Benzo(a)anthracene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 2.09                      |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 0.0                       |                                       | 0             |

|          |     |   |
|----------|-----|---|
| 06/30/02 | 0.0 | 0 |
| 09/30/02 | 0.0 | 0 |
| 12/31/02 | 0.0 | 0 |
| 03/31/03 | 0.0 | 0 |
| 06/30/03 | 0.0 | 0 |
| 09/30/03 | 0.0 | 0 |
| 12/31/03 | 0.0 | 0 |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Dibenzo(a,h)anthracene (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/98                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/02                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/02                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/03                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/03                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/03                    |                      |                             | 0.0                       |                                       | 0             |

001 - OIL/WATER SEPARATOR

Monitoring Parameter: Total Xylenes (ug/L)

Permit Limit: Report Only

Monitoring Frequency: Quarterly

Sample Type: Grab

| Monitoring<br>Period Ending | No<br>Disch.<br>Code | Reported<br>Monthly<br>Avg. | Reported<br>Daily<br>Max. | Percent Violations<br>Monthly<br>Avg. | Daily<br>Max. |
|-----------------------------|----------------------|-----------------------------|---------------------------|---------------------------------------|---------------|
| 06/30/98                    |                      |                             | 94.5                      |                                       | 0             |
| 09/30/98                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/98                    |                      |                             | 5.36                      |                                       | 0             |
| 03/31/99                    |                      |                             | 144                       |                                       | 0             |
| 06/30/99                    |                      |                             | 43.9                      |                                       | 0             |
| 09/30/99                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/99                    |                      |                             | 24.3                      |                                       | 0             |
| 03/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/00                    |                      |                             | 5.29                      |                                       | 0             |
| 09/30/00                    |                      |                             | 0.0                       |                                       | 0             |
| 12/31/00                    |                      |                             | 0.0                       |                                       | 0             |
| 03/31/01                    |                      |                             | 0.0                       |                                       | 0             |
| 06/30/01                    |                      |                             | 0.0                       |                                       | 0             |
| 09/30/01                    |                      |                             | 0.0                       |                                       | 0             |

|          |      |   |
|----------|------|---|
| 12/31/01 | 0.0  | 0 |
| 03/31/02 | 24.0 | 0 |
| 06/30/02 | 0.0  | 0 |
| 09/30/02 | 0.0  | 0 |
| 12/31/02 | 31.6 | 0 |
| 03/31/03 | 10.0 | 0 |
| 06/30/03 | 0.0  | 0 |
| 09/30/03 | 11.8 | 0 |
| 12/31/03 | 0.0  | 0 |

| NODI | 490 NO DISCHARGE INDICATOR CODES<br>DESCRIPTION |
|------|-------------------------------------------------|
| A    | GENERAL PERMIT EXEMPTION                        |
| B    | BELOW DETECT LIMIT/NO DETECT                    |
| C    | NO DISCHARGE                                    |
| D    | LOST SAMPLE                                     |
| E    | ANALYSIS NOT CONDUCTED                          |
| F    | INSUFFICIENT FLOW FOR SAMPLING                  |
| G    | SAMPLING EQUIPMENT FAILURE                      |
| H    | INVALID TEST                                    |
| I    | LAND APPLIED WASTE WATER                        |
| J    | RECYCLED, WATER-CLOSED SYSTEM                   |
| K    | FLOOD DISASTER                                  |
| L    | DMR RECEIVED BUT NOT ENTERED                    |
| M    | NOT APPLIC DURING SLUDGE MONITOR PERIOD         |
| N    | NOT TRACKED IN PCS FOR THIS PERIOD              |
| Q    | NOT QUANTIFIABLE                                |
| 1    | WRONG FLOW                                      |
| 2    | OPERATIONS SHUTDOWN                             |
| 3    | LOW LEVEL PRODUCTION                            |
| 4    | LAGOON PROCESSING                               |
| 5    | FROZEN CONDITIONS                               |
| 6    | PRODUCTION BASED LIMITS DONT APPLY TO MP        |
| 7    | DMR RECEIVED, PRODUCTION OR FLOW RELATED        |
| 8    | OTHER                                           |
| 9    | MONITORING IS CONDITIONAL/NOT REQ THIS MP       |

**ATTACHMENT B**

**SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS**

**(1998 TO 2003)**

**FOR POLYNUCLEAR AROMATIC COMPOUNDS**

**IRVING OIL**

**NPDES PERMIT NO. MA0001929**

Irving Oil Terminal (Permit No. MA0001929) 1998-2000 Quarterly Storm Water Monitoring Results for PAHs <sup>(1)</sup> / Outfall 001

| PAH Compounds             | 1 <sup>st</sup> Quarter<br>1998<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>1998<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>1998<br>(ug/L) | 4 <sup>th</sup> Quarter<br>1998<br>(ug/L) | 1 <sup>st</sup> Quarter<br>1999<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>1999<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>1999<br>(ug/L) | 4 <sup>th</sup> Quarter<br>1999<br>(ug/L) | 1 <sup>st</sup> Quarter<br>2000<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>2000<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>2000<br>(ug/L) | 4 <sup>th</sup> Quarter<br>2000<br>(ug/L) |
|---------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Benzo(a)anthracene        | NDR*                                      | <0.75                                     | <0.75                                     | <0.75                                     | <0.75                                     | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Benzo(a)pyrene            | NDR*                                      | 0.62                                      | 0.521                                     | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      |
| Benzo(b)fluoranthene      | NDR*                                      | 1.24                                      | 1.03                                      | <1.0                                      | <1.0                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Benzo(k)fluoranthene      | NDR*                                      | NDR*                                      | 1.01                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      |
| Chrysene                  | NDR*                                      | 1.51                                      | 1.45                                      | <1.0                                      | <1.0                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Dibenzo(a,h)anthracene    | NDR*                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Indeno(1,2,3-cd)pyrene    | NDR*                                      | 0.61                                      | 0.521                                     | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Total PAHs <sup>(2)</sup> | NDR*                                      | 3.98                                      | 4.53                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      |

NDR\* - No Data Reported by Facility for this Analyte

(1) PAHs or Polynuclear Aromatic Hydrocarbons

(2) Total PAHs include the detected values only

Irving Oil Terminal (Permit No. MA0001929) 2001-2003 Quarterly Storm Water Monitoring Results for PAHs <sup>(1)</sup> / Outfall 001

| PAH Compounds             | 1 <sup>st</sup> Quarter<br>2001<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>2001<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>2001<br>(ug/L) | 4 <sup>th</sup> Quarter<br>2001<br>(ug/L) | 1 <sup>st</sup> Quarter<br>2002<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>2002<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>2002<br>(ug/L) | 4 <sup>th</sup> Quarter<br>2002<br>(ug/L) | 1 <sup>st</sup> Quarter<br>2003<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>2003<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>2003<br>(ug/L) | 4 <sup>th</sup> Quarter<br>2003<br>(ug/L) |
|---------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Benzo(a)anthracene        | 2.09                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Benzo(a)pyrene            | 1.42                                      | <0.2                                      | <0.2                                      | <0.2                                      | 0.25                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      | <0.2                                      |
| Benzo(b)fluoranthene      | 2.14                                      | <0.5                                      | <0.5                                      | <0.5                                      | 1.69                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Benzo(k)fluoranthene      | 2.42                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      |
| Chrysene                  | 3.48                                      | <0.5                                      | <0.5                                      | <0.5                                      | 1.69                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Dibenzo(a,h)anthracene    | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Indeno(1,2,3-cd)pyrene    | 1.27                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      | <0.5                                      |
| Total PAHs <sup>(2)</sup> | 12.82                                     | <1.0                                      | <1.0                                      | <1.0                                      | 3.63                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      | <1.0                                      |

(1) PAHs or Polynuclear Aromatic Hydrocarbons

(2) Total PAHs include the detected values only

**ATTACHMENT C**

**SUMMARY OF DISCHARGE MONITORING REPORT (DMR) RESULTS**

**(2001 TO 2003)**

**FOR VOLATILE ORGANIC COMPOUNDS**

**IRVING OIL**

**NPDES PERMIT NO. MA0001929**

**Irving Oil Terminal (Permit No. MA0001929) 2001-2003 Quarterly Storm Water Monitoring Results for VOCs <sup>(1)</sup> / Outfall 001**

| VOC Compounds               | 1 <sup>st</sup> Quarter<br>2001<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>2001<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>2001<br>(ug/L) | 4 <sup>th</sup> Quarter<br>2001<br>(ug/L) | 1 <sup>st</sup> Quarter<br>2002<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>2002<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>2002<br>(ug/L) | 4 <sup>th</sup> Quarter<br>2002<br>(ug/L) | 1 <sup>st</sup> Quarter<br>2003<br>(ug/L) | 2 <sup>nd</sup> Quarter<br>2003<br>(ug/L) | 3 <sup>rd</sup> Quarter<br>2003<br>(ug/L) | 4 <sup>th</sup> Quarter<br>2003<br>(ug/L) |
|-----------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Benzene                     | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | 22.5                                      | <5.0                                      | <5.0                                      | 13                                        | 14.8                                      | <5.0                                      | <5.0                                      | <5.0                                      |
| Toluene                     | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | 11.5                                      | <5.0                                      | <5.0                                      | 14.4                                      | 10.4                                      | <5.0                                      | <5.0                                      | 9.86                                      |
| Ethylbenzene                | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | 7.04                                      |
| Total Xylenes               | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | 24                                        | <5.0                                      | <5.0                                      | 31.6                                      | 10                                        | <5.0                                      | 11.8                                      | <5.0                                      |
| Methyl tertiary-butyl ether | 36.8                                      | <5.0                                      | 91.7                                      | <5.0                                      | 219                                       | 25                                        | 12.4                                      | 12.6                                      | 218                                       | 27.7                                      | 29.2                                      | 49                                        |
| BTEX <sup>(2)</sup>         | <5.0                                      | <5.0                                      | <5.0                                      | <5.0                                      | 58                                        | <5.0                                      | <5.0                                      | 59                                        | 35.2                                      | <5.0                                      | 11.8                                      | 16.9                                      |

(1) VOCs or Volatile Organic Compounds

(2) BTEX - summation of results for benzene, toluene, ethylbenzene, and total xylenes (non-detects are not included in summation)

**ATTACHMENT D**  
**ENDANGERED SPECIES LIST**



**Protected Resources**  
NOAA Fisheries      National Marine Fisheries Service  
*"conserving protected marine resources and maintaining marine biodiversity"*

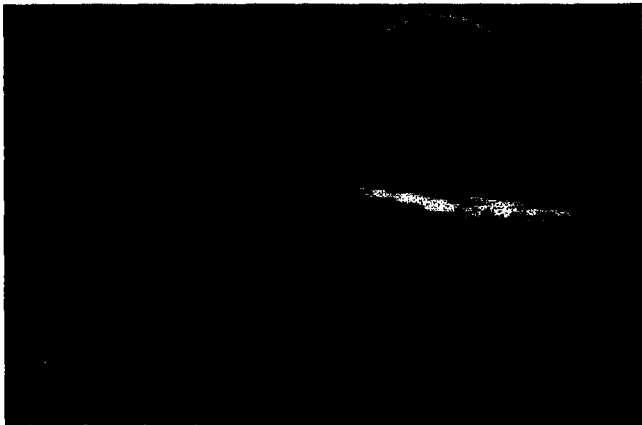


[Home](#)[Endangered Species](#)[Marine Mammal Conservation](#)[Permit Information](#)[Coral Reefs and Biodiversity](#)[International Activities](#)[Reports and Publications](#)

Species Listed under the Endangered Species Act of 1973

The authority to list species as threatened or endangered is shared by the National Marine Fisheries Service (NMFS), which is responsible for listing most marine species, and the Fish and Wildlife Service (FWS), which administers the listing of all other plants and animals. There are two classifications under which a species may be listed.

- Species determined to be in imminent danger of extinction throughout all of a significant portion of their range are listed as "endangered."
- Species determined likely to become endangered in the foreseeable future are listed as "threatened."



Further, distinct populations may be listed even if a species is abundant in other portions of its range. The criteria for endangerment must be based solely on biological evidence and the best scientific and/or commercial data available. Moreover, additions or deletions may be proposed by anyone who presents adequate evidence of the endangered status of a

species.

| Domestic Endangered Species |                          |                         |                    |
|-----------------------------|--------------------------|-------------------------|--------------------|
| Atlantic salmon             | Green sea turtle         | Leatherback sea turtle  | Sperm whale        |
| Blue whale                  | Hawaiian monk seal       | Northern right whale    | Steelhead          |
| Bowhead whale               | Hawksbill sea turtle     | Olive ridley sea turtle | White abalone      |
| Caribbean monk seal         | Humpback whale           | Sei whale               | Smalltooth sawfish |
| Fin whale                   | Kemp's ridley sea turtle | Shortnose sturgeon      |                    |

| Domestic Threatened Species |                  |                     |                |
|-----------------------------|------------------|---------------------|----------------|
| Chinook salmon              | Green sea turtle | Johnson's sea grass | Sockeye salmon |

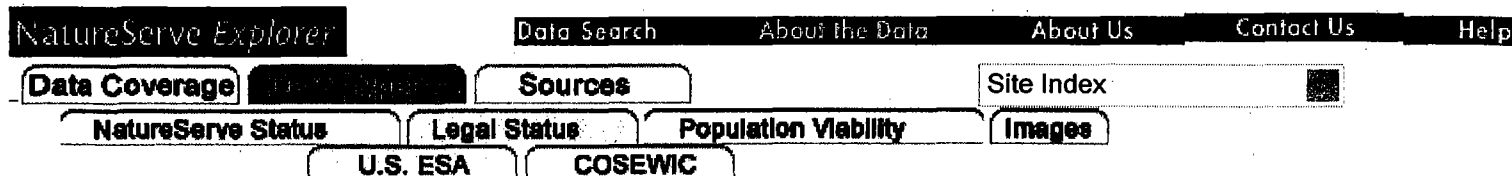
|             |                    |                         |                  |
|-------------|--------------------|-------------------------|------------------|
| Coho salmon | Guadalupe fur seal | Loggerhead sea turtle   | Steelhead        |
| Chum salmon | Gulf sturgeon      | Olive ridley sea turtle | Steller sea lion |

***Domestic Species Proposed for Listing***

| <b><i>International Species Listed as Endangered or Threatened Under the ESA</i></b> |                                              |                           |                      |
|--------------------------------------------------------------------------------------|----------------------------------------------|---------------------------|----------------------|
| Chinese River dolphin                                                                | Gulf of California harbor porpoise (vaquita) | Mediterranean monk seal   | Southern right whale |
| Gray whale - Western North Pacific population                                        | Indus River dolphin                          | Ringed seal (Siamma seal) | Totoaba              |

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NOAA Fisheries, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910  
Fax:301-713-0376 Phone:301-713-2332



## U.S. Endangered Species Act

- [Listings under the U.S. Endangered Species Act](#)
- [ESA Status Definitions in \*NatureServe Explorer\*](#)
- [Status Due to Taxonomic Relationship \("Implied USESA Status"\)](#)
- [Status of Geopolitically or Administratively Defined Populations](#)

### Listings under the U.S. Endangered Species Act

The U.S. Endangered Species Act (U.S. ESA) is the primary legislation that affords federal legal protections to threatened and endangered species in the United States, and is administered by the U.S. Fish and Wildlife Service (USFWS) (<http://endangered.fws.gov/>) and U.S. National Marine Fisheries Service (NMFS) ([http://www.nmfs.noaa.gov/prot\\_res/overview/es.html](http://www.nmfs.noaa.gov/prot_res/overview/es.html)). As defined by the Act, endangered refers to species that are "in danger of extinction within the foreseeable future throughout all or a significant portion of its range," while threatened refers to "those animals and plants likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges." Plant species and varieties (including fungi and lichens), animal species and subspecies, and vertebrate animal populations are eligible for listing under the Act.

Status under the U.S. Endangered Species Act provided by *NatureServe Explorer* is based on formal notices published by USFWS or NMFS in the Federal Register. The date shown alongside the status (in parentheses) refers to the formal Federal Register publication date regarding the status designation. Dates appear only for taxa and populations that are specifically named in a Federal Register Notice of Review Table or in the section of a Federal Register Proposed or Final Rule that proposes or declares an amendment to 50 Code of Federal Regulations Part 17 Section 11 or 12 (i.e., changes to the Lists of Endangered and Threatened Wildlife and Plants).

Specifically, dates represent:

For listed endangered and threatened taxa and populations: the date of publication of the Federal Register "Final Rule" for the taxon or population.

For proposed taxa and populations: the date of publication of the most recent Federal Register "Proposed Rule" for the taxon or population.

For candidate taxa and populations: the date of publication of the most recent "Notice of Reclassification" or "Notice of Review" in which the candidate appears.

NatureServe staff update the central databases with changes in status due to proposals and determinations to add taxa to the Lists of Endangered and Threatened Wildlife and Plants within two weeks of publication in the Federal Register. Addition and removal of candidates in Notices of Review or Notices of Reclassification are entered within four weeks of their publication. *NatureServe Explorer* is updated periodically from the NatureServe Central Databases and reflects the federal status current at the time of update.

### ESA Status Definitions in *NatureServe Explorer*

*NatureServe Explorer* generally uses the same scientific name as USFWS for species with status under the Endangered Species Act. For listed population segments of vertebrate animals, *NatureServe Explorer* information can typically be found in the species record associated with the subspecies or population. Where names used by the USFWS differ from those used by NatureServe, *NatureServe Explorer* records are cross-referenced and can be

found using either name. The following table provides abbreviations and definitions for various listing statuses under the U.S. Endangered Species Act.

| <b>U.S. Endangered Species Act Abbreviations</b> |                                                                                                                                                                                                                                                                              |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NatureServe Explorer Abbreviation</b>         | <b>Status Under the U.S. Endangered Species Act</b>                                                                                                                                                                                                                          |
| LE                                               | Listed endangered                                                                                                                                                                                                                                                            |
| LT                                               | Listed threatened                                                                                                                                                                                                                                                            |
| PE                                               | Proposed endangered                                                                                                                                                                                                                                                          |
| PT                                               | Proposed threatened                                                                                                                                                                                                                                                          |
| C                                                | Candidate                                                                                                                                                                                                                                                                    |
| PDL                                              | Proposed for delisting                                                                                                                                                                                                                                                       |
| SAE or SAT                                       | Listed endangered or threatened because of similarity of appearance                                                                                                                                                                                                          |
| PSAE or PSAT                                     | Proposed endangered or threatened because of similarity of appearance                                                                                                                                                                                                        |
| XE                                               | Essential experimental population                                                                                                                                                                                                                                            |
| XN                                               | Nonessential experimental population                                                                                                                                                                                                                                         |
| Null value                                       | Usually indicates that the taxon does not have any federal status. However, because of potential lag time between publication in the Federal Register and entry in the central databases and refresh of this website, some taxa may have a status which does not yet appear. |

#### **Status Due to Taxonomic Relationship ("Implied USESA Status")**

In some cases species or infraspecific taxa may not be named in a federal register notice, but may still have federal protection due to their taxonomic relationship with formally listed taxa. Section 17.11(g) of the Endangered Species Act states, "the listing of a particular taxon includes all lower taxonomic units." Also, if an infraspecific taxon or population has federal status, then by default, some part of the species has federal protection. NatureServe Explorer notes where federal protection of a taxon is "implied" through such taxonomic relationships. Where federal status is implied due to a taxonomic relationship alone, the status abbreviation appears with a flag (†) and no date of listing is given.

#### **Status of Geopolitically or Administratively Defined Populations**

Distinct population segments of vertebrate animals may be listed as threatened or endangered under the Endangered Species Act. Listed populations may be defined by geopolitical boundaries (i.e., the status applies to the species or subspecies only within those boundaries, even though the taxon may range more broadly), or populations may be defined administratively (e.g., experimental populations). Because such populations do not typically have individual records in NatureServe Explorer, the U.S. ESA status is recorded for the species or subspecies to which that

population belongs. In these cases, the status abbreviation appears with a flag (¶), after the abbreviation "PS" for "partial status" - indicating that the status applies only to a portion of the species' range.

| Implied ESA Status Notations (Status Due to Taxonomic Relationship) |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Example                                                             | Explanation                | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>value,value</i>                                                  | Combination values         | The taxon has one status currently, but a more recent proposal has been made to change that status with no final action yet published. For example, "LE, PDL" indicates that the species is currently listed as endangered, but has been proposed for delisting. Or, the taxon has two different statuses throughout its range. More specifically, it has a status in one portion of its range and a different status in the remainder of its range.                                                                                                                                                                                                                                                                                          |
| ( <i>Value</i> )                                                    | Flagged Values             | The taxon itself is not named in the Federal Register as having U.S. ESA status; however, it does have U.S. ESA status as a result of its taxonomic relationship to a named entity. For example, if a species is federally listed as endangered, then by default, all of its recognized subspecies also have endangered status. The subspecies in this example would have the value "LE (¶)" under U.S. ESA Status. Likewise, if all of a species' infraspecific taxa (rangewide) have the same U.S. ESA status, then that status appears in the record for the "full" species as well. In this case, if the taxon at the species level is not mentioned in the Federal Register, the status appears in NatureServe Explorer with a flag (¶). |
| ( <i>value,value</i> )                                              | Combination flagged values | The taxon itself is not named in the Federal Register as having U.S. ESA status; however, all of its infraspecific taxa (rangewide) have official status but two or more of the taxa do not have the same status. In this case, a combination of the statuses shown with a flag (¶) indicates the statuses that apply to infraspecific taxa or populations within this taxon.                                                                                                                                                                                                                                                                                                                                                                 |
| (PS)                                                                | partial status             | Indicates "partial status"—status in only a portion of the species' range. Typically indicated in a "full" species record where at least one but not all of a species' infraspecific taxa or populations has U.S. ESA status.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (PS: <i>value</i> )                                                 | partial status             | Indicates "partial status"—status in only a portion of the species' range. The value of that status appears because the listed entity (usually a population defined by geopolitical boundaries or defined administratively, such as experimental populations) does not have an individual entry in NatureServe Explorer. Information about the listed entity can be found in reports for the associated species.                                                                                                                                                                                                                                                                                                                              |



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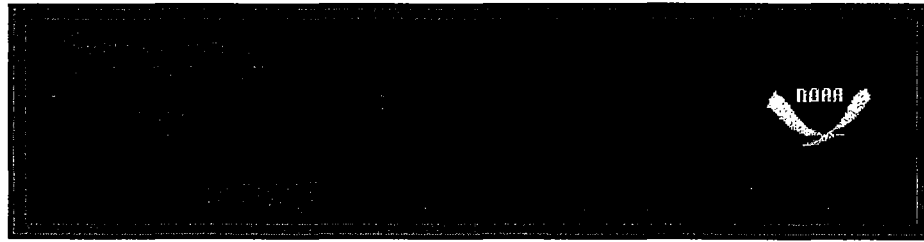
Version 4.1 (11 November 2004)  
Data last updated: October 2004

Site Index



**ATTACHMENT E**

**ESSENTIAL FISH HABITAT DESIGNATION**



# Guide to Essential Fish Habitat Designations in the Northeastern United States

---

## Important Note To Users

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

To skip the introduction, [click here](#).

To view EFH Designations for Skate Species, which are not in the map below, [click here](#).

---

## Background

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

The Act also establishes measures to protect EFH. NMFS must coordinate with other federal agencies to conserve and enhance EFH, and federal agencies must consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH. In turn NMFS must provide recommendations to federal and state agencies on such activities to conserve EFH. These recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or

undertaken by that agency.

## Description of the Guide

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

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

## Definitions

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

### 10 Minute Square Tables

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

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

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

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

### Estuaries Tables

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

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

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

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

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

#### Disclaimer

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

To use the Guide, [click here](#).

If you have comments on the Guide, send an e-mail message to [tojill.ortiz@noaa.gov](mailto:tojill.ortiz@noaa.gov).

**Summary of Essential Fish Habitat (EFH) Designations****Name of Estuary/ Bay/ River: Boston Harbor, Massachusetts****10' x 10' latitude and longitude squares included in this bay or estuary or river (southeast corner boundaries):**

4220/7100; 4210/7050; 4210/7100

| Species                                                  | Eggs | Larvae | Juveniles | Adults | Spawning Adults |
|----------------------------------------------------------|------|--------|-----------|--------|-----------------|
| Atlantic salmon ( <i>Salmo salar</i> )                   |      |        |           |        |                 |
| Atlantic cod ( <i>Gadus morhua</i> )                     | S    | S      | M,S       | M,S    | S               |
| haddock ( <i>Melanogrammus aeglefinus</i> )              | S    | S      |           |        |                 |
| pollock ( <i>Pollachius virens</i> )                     | S    | S      | M,S       |        |                 |
| whiting ( <i>Merluccius bilinearis</i> )                 | S    | S      | M,S       | M,S    |                 |
| offshore hake ( <i>Merluccius albidus</i> )              |      |        |           |        |                 |
| red hake ( <i>Urophycis chuss</i> )                      |      | S      | S         | S      |                 |
| white hake ( <i>Urophycis tenuis</i> )                   | S    | S      | S         | S      |                 |
| redfish ( <i>Sebastes fasciatus</i> )                    | n/a  |        |           |        |                 |
| witch flounder ( <i>Glyptocephalus cynoglossus</i> )     |      |        |           |        |                 |
| winter flounder ( <i>Pleuronectes americanus</i> )       | M,S  | M,S    | M,S       | M,S    | M,S             |
| yellowtail flounder ( <i>Pleuronectes ferruginea</i> )   | S    | S      | S         | S      | S               |
| windowpane flounder ( <i>Scopthalmus aquosus</i> )       | M,S  | M,S    | M,S       | M,S    | M,S             |
| American plaice ( <i>Hippoglossoides platessoides</i> )  | S    | S      | S         | S      | S               |
| ocean pout ( <i>Macrozoarces americanus</i> )            |      |        | S         | S      |                 |
| Atlantic halibut ( <i>Hippoglossus hippoglossus</i> )    | S    | S      | S         | S      | S               |
| Atlantic sea scallop ( <i>Placopecten magellanicus</i> ) |      |        |           |        |                 |
| Atlantic sea herring ( <i>Clupea harengus</i> )          |      | S      | M,S       | M,S    |                 |
| monkfish ( <i>Lophius americanus</i> )                   |      |        |           |        |                 |

|                                                     |     |     |     |     |  |
|-----------------------------------------------------|-----|-----|-----|-----|--|
| bluefish ( <i>Pomatomus saltatrix</i> )             |     |     | M,S | M,S |  |
| long finned squid ( <i>Loligo pealei</i> )          | n/a | n/a |     |     |  |
| short finned squid ( <i>Illex illecebrosus</i> )    | n/a | n/a |     |     |  |
| Atlantic butterfish ( <i>Peprilus triacanthus</i> ) | S   | S   |     |     |  |
| Atlantic mackerel ( <i>Scomber scombrus</i> )       | M,S | M,S | M,S | M,S |  |
| summer flounder ( <i>Paralichthys dentatus</i> )    |     |     |     |     |  |
| scup ( <i>Stenotomus chrysops</i> )                 |     |     |     |     |  |
| black sea bass ( <i>Centropristus striata</i> )     |     |     |     |     |  |
| surf clam ( <i>Spisula solidissima</i> )            | n/a | n/a |     |     |  |
| 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> )   |     |     |     |     |  |

# MASSACHUSETTS DIVISION OF MARINE FISHERIES - DESIGNATED SHELLFISH GROWING AREA

Division of  
Marine Fisheries  
SHELLFISH GROWING CODES



Produced: December 06, 1999

## STATION TYPE

- CLASSIFICATION
- POLLUTION SOURCE
- AD-HOC
- PRIMARY PSP

- SECONDARY PSP
- TERTIARY PSP
- CHEMICAL
- MARINA

## BOUNDARY LINES CLASS AREA TYPE, AS OF 07/01/1999

- GROWING AREA
- CLASSIFICATION AREA
- TOWN
- APPROVED
- CONDITIONALLY APPROVED
- CONDITIONALLY RESTRICTED
- RESTRICTED
- MANAGEMENT CLOSE
- PROHIBITED

GROWING AREA CODE: GBH4

AREA NAME: BOSTON INNER HARBOR

AREA TOWN(S): BOSTON/CAMBRIDGE/CHELSEA/EVERETT/REVERE/SOMERVILLE

This product is for planning and educational purposes only. It is not to be used by itself for legal boundary definition or regulatory interpretation.

