

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

FACT SHEET

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

NPDES PERMIT NO.: **MA0000787**

NAME AND ADDRESS OF APPLICANT:

**MASSACHUSETTS PORT AUTHORITY
ENVIRONMENTAL MANAGEMENT UNIT
ONE HARBORSIDE DRIVE, SUITE 200S
EAST BOSTON, MASSACHUSETTS 02128-2909**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**MASSACHUSETTS PORT AUTHORITY
LOGAN INTERNATIONAL AIRPORT
EAST BOSTON, MASSACHUSETTS 02128-2909**

RECEIVING WATERS: **Boston Harbor, Boston Inner Harbor** (Charles River Basin), and
Winthrop Bay USGS Hydrologic code : 0100970001 ; State Basin Code : 70

CLASSIFICATION: **Class SB**

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I. Proposed Action

The Massachusetts Port Authority (Massport) and airport tenants (Co-Permittees) subject to EPA's Storm Water Regulations (40 C.F.R. Part 122) have applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for the re-issuance of the National Pollutant Discharge System (NPDES) permit. With limitations, the permit allows Massport and the Co-Permittees to discharge storm water to Boston Inner Harbor, Boston Harbor and Winthrop Bay (see Figure 1 - Locus Map). The current permit was issued on March 6, 1978 and became effective on April 14, 1978. The permit expired on April 14, 1983. As a result, the permit was administratively continued as allowed according to 40 C.F.R. § 122.6. Massport submitted a complete and timely NPDES application on October 1, 1992. By letter, EPA directed Massport to update the permit application on March 1, 2006. Massport submitted the updated permit application information to EPA on March 20, 2006. This permit, once finalized, will expire five years from the effective date of issuance.

II. Type of Facility and Discharge Description

Currently, Massport owns and operates Logan International Airport (Logan) and leases facilities to airlines and other companies that support the operation of the airport. Some of the activities that have the potential to release pollutants to Massport's storm water sewer system include aircraft deicing, fueling, sanitary waste handling, and vehicle and aircraft maintenance. Additionally, certain activities related to runway deicing and rubber removal have the potential to release pollutants. Another potential source of pollutants include activities related to truck and automotive maintenance, which can include washing the vehicles. A fueling distribution system and the disposal of waste foods from the food services companies have the potential to release pollutants to the separate storm sewer system. Massport has a road system through many portions of the facility. Some of these roads allow the public to travel to and from the airport. Additionally, the airport has onsite parking for travelers and employees. Other roads allow vehicular traffic to travel within the restricted access portion of the airport. The vehicles on these road ways and parking lots are another potential source of pollutants that could be released to the storm water sewer system.

This proposed Draft Permit covers four main outfalls (Outfall 001, 002, 003 and 004), the Northwest Outfall (Outfall 005) and 44 smaller outfalls that drain the runways and the perimeter area of the airport (Outfalls A-1 through Outfall A-44). See Figure 1 of this Fact Sheet - Locus Map. See also Figure 2 - Existing Drainage. After ongoing construction of Runway 14/32 is complete the drainage will change slightly as noted by Figure 3 - Drainage after Construction. Below is a detailed description of the main outfalls, the Northwest Outfall and a summary of the 44 runway storm water discharges.

A. Main Outfalls

The four main outfalls were originally included in the permit issued in 1978. These four outfalls drain the majority of Logan where industrial activities occur that have the potential to release pollutants to the storm water.

1. Outfall 001 - North Outfall

Approximately 165 acres of the northern side of the terminal buildings drain to the Winthrop Bay through a 84-inch circular pipe at Outfall 001. Outfall 001 is located on the north side of Logan property and discharges near tidal flats adjacent to the Orient Heights neighborhood. The drainage area includes Terminal E, the apron and taxiway between Terminal D and E, a portion of the outer taxiway, the north taxiway area that includes the American, Delta and Northwest hangers, and the north cargo building. The main activities that take place in the drainage area include vehicle and aircraft maintenance, fuel storage and distribution, aircraft fueling and sanitary waste handling at the gates, runway rubber removal, and runway and aircraft deicing (see Figure 1). In 1989, Massport installed new storm water treatment equipment to remove debris and separate oil from the discharge stream. The new equipment includes an oil skimmer, grinding pump, sedimentation tanks, and a final separator chamber with a waste oil collection area.

Swissport operates a centralized tank farm and fueling operation, as well as the fuel loading rack for vehicle fueling. The centralized tank farm includes four 43,000 barrel above-ground storage tanks (AST). During a storm event, water accumulates around the aboveground storage tanks. Currently, any accumulated storm water is discharged to the storm water sewer system after it is observed by Swissport to ensure there is no oil sheen. For the fuel rack loading area a 12,000-gallon underground storage tank (UST) stores diesel fuel used by on-site trucks and two 12,000-gallon UST stores gasoline for fueling on-site vehicles. The storm water from the fuel loading rack area needs to be discharged. The water is sent through an oil/water separator and discharges into the North Outfall sewer system. Storm water that accumulates in the hydrant vaults and fueling pits are pumped out and stored in the 15,000-gallon set-up tank at the centralized tank farm. In the past this storm water was shipped offsite as petroleum containing waste.

Over the past 5 years, Massport has sampled the North Outfall (001) for oil and grease (O&G), pH and settleable solids as required by the permit. The effluent daily maximum limits are 15 mg/l for O&G, 0.3 ml/l for settleable solids and 6.0 to 8.5 standard units (SU) for pH. Out of 165 samples taken over the 5 years, O&G exceeded the limit 6 times with a maximum reading of 21 mg/l, pH never exceeded the permit range and settleable solids exceeded the limit 7 times with a maximum

reading of 4.00 ml/l (see attached Tables 1, 2 and 3).

2. Outfall 002 - West Outfall

Approximately 535 acres on the south side of the terminal buildings drain to the Boston Inner Harbor through a 114-inch circular pipe at Outfall 002. Outfall 002 is along the southwest perimeter of Logan property. The drainage area includes Terminal A and B and parts of Terminals C and D, the apron and taxiways between Terminals B and C, a portion of the outer taxiway and cargo areas. The main activities that take place in the drainage area include fueling aircraft, aircraft maintenance at gates, fueling distribution, handling of sanitary wastes from aircraft, runway rubber removal, runway deicing, and aircraft deicing. In 1989 Massport installed new storm water treatment equipment to remove debris and separate out oil from the discharge stream. The new equipment was the same as the equipment installed at Outfall 001 and included an oil skimmer, grinding pump, sedimentation tanks, and final separator chambers with a waste oil collection areas.

Over the past 5 years, Massport has sampled the West Outfall (002) for oil and grease (O&G), pH and settleable solids as required by the permit. The effluent daily maximum limits are 15 mg/l for O&G, 0.3 ml/l for settleable solids and 6.0 to 8.5 standard units (SU) for pH. Out of 165 samples taken over the 5 years, O&G exceeded the limit 3 times with a maximum reading of 31.6 mg/l, pH never exceed the permit range and settleable solids exceeded the limit 8 times with a maximum reading of 1.00 ml/l (see attached Tables 1, 2 and 3).

3. Outfall 003 - Porter Street Outfall

Approximately 78 acres on the northwest side of the terminal buildings drain into a combined sewer drainage system from East Boston. The combined flow discharges into the Boston Inner Harbor at Outfall 003. Outfall 003 discharges next to the West Outfall. The drainage area includes the jet fuel storage facility, rental car agencies, the US Airways hangar, and vehicle access roads. The main activities that occur on airport property in this drainage area include vehicle and aircraft maintenance, generally inside a hangar or an indoor garage with no known discharges to the storm water sewer system. No washing, fueling, or other maintenance activities occur outside at the automotive rental facilities.

Over the past 5 years, Massport has sampled the Porter Street Outfall (003) for oil and grease (O&G) and pH as required by the permit. The effluent limits are 15 mg/l for O&G and 6.0 to 8.5 standard units (SU) for pH. Out of 165 samples taken over the 5 years, O&G exceeded the limit 4 times with a maximum reading of 21 mg/l and pH never exceed the permit range (see attached Tables 1 and 2).

4. Outfall 004 - Maverick Street Outfall

Approximately 42 acres on the western-side of the drainage area of the Porter Street Outfall (Outfall 003) drain into a storm water drainage system that discharges into the Boston Inner Harbor from Outfall 004. Outfall 004 discharges from a point located at the southwest corner of Logan property adjacent to the Jefferies Point neighborhood. The drainage area includes automotive rental agencies and vehicle access roads. The main activities that occur on airport property in this drainage area include light vehicle maintenance and washing, which normally occurs under a canopy or inside a garage. The outfall pipe discharges next to a City of Boston combined sewer overflow discharge pipe.

Over the past 5 years, Massport has sampled the Maverick Street Outfall (004) for oil and grease (O&G) and pH as required by the permit. The effluent limits are 15 mg/l for O&G and 6.0 to 8.5 standard units (SU) for pH. Out of 165 samples taken over the 5 years, O&G exceeded the limit 3 times with a maximum reading of 36 mg/l and pH never exceeded the permit range (see attached Tables 1 and 2).

B. Small and Runway/Perimeter Storm Water Outfalls

The following outfalls were not included in the original Permit issued in 1978. The NPDES permitting system did not include all point source storm water discharges. This permit now includes these outfalls at point source discharges.

1. Outfall 005 - Northwest Outfall

Approximately 19.8 acres located in the northwest corner of Logan drains to Outfall 005. Approximately half of the area is undeveloped and consists of a dirt or gravel surface. The other half has two buildings and the associated parking areas for the buildings. One building is unoccupied and the other is leased by a food servicing company. The undeveloped portion of the site is currently used for storing precast concrete structures for ongoing Logan construction projects. Additionally, Massport stores construction equipment on part of the undeveloped portion. This outfall is considered a small storm water outfall since it consists of a small area with very little industrial activity. No effluent limits exist for this outfall and this outfall has not been consistently monitored in the past.

2. Outfalls A-1 through A-44

Outfalls A-1 through A-44 drain the runways and the perimeter access road. The outfalls are all located along the perimeter of Logan property and drain into Boston Inner Harbor, Boston Harbor and Winthrop Bay watersheds. These outfalls have not been monitored in the past. These outfalls shall be referred to as "runway/perimeter storm water outfalls." The areas are designated and numbered on Figure 1 - Locus Map and Figure 2 - Existing Drainage. Additionally, the drainage areas somewhat change at A-41, A-42, A-43 and A-44 due to the construction of Logan Runway 14/32. The new areas being drained after construction are designated as PA-41, PA-42, PA-43 and PA-44 on Figure 3 - Drainage After Construction. No effluent limits exist for these outfalls and these outfalls have not been consistently monitored in the past.

III. Applicability and Co-Permittees

A. Massport as Permittee

The Massachusetts Port Authority, (Massport), is a Massachusetts public entity created by state law that owns and operates Logan International Airport (Logan). Massport owns Logan's storm water sewer system within the property boundary of Logan as designated in Figure 1 of this Fact Sheet. Storm Water Sewer System means conveyance or system of conveyances including storm sewers, roads, runways or other impervious surfaces with drainage systems, catch basins, culverts, curbs, gutters, ditches, constructed channels or storm drains.

B. Co-Permittees

Many tenants and contractors (often referred to as "fixed-base operators") operating at Logan have been named as "Co-Permittees" due to the storm water discharges associated with their industrial activities at a transportation facility (such as Logan), in accordance with 40 C.F.R. § 122.26(b)(14)(viii). "Co-Permittee means a permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator," as defined at 40 C.F.R. § 122.26(b)(1). A company meets the definition of a Co-Permittee if the company performs industrial activities at an air transportation facility such as Logan International Airport (Logan), classified under Standard Industrial Classifications (SIC) 45, and has vehicle maintenance shops, equipment cleaning operations, or airport deicing operations (see 40 C.F.R. § 122.26(b)(14)(viii)). Furthermore, a Co-Permittee includes a company that performs industrial activities at an air transportation facility as defined in the NPDES Storm Water Multi-Sector General Permit for Industrial Activities (see 65 FR 64745, Oct. 30, 2000 and 70 FR 72116, Dec. 1, 2005). For air transportation companies the industrial activities include "servicing, repairing, or maintaining aircraft and ground vehicles; equipment cleaning and

maintenance (including vehicle and equipment rehabilitation mechanical repairs, painting, fueling, and lubrication); and deicing/anti-icing operations" (Proposed 2006 MSGP, Part 4, Subsection S at p. 134, referenced by 70 FR 72116, see also <http://www.epa.gov/npdes/stormwater>). A Co-Permittee includes a company that performs an activity at Logan that EPA has determined can contribute to a violation of a water quality standard (see 40 C.F.R. § 122.26(a)(v)). EPA has made such a determination for companies handling aircraft lavatory waste or any other sanitary waste device not directly piped to a Publicly Owned Treatment Works.

On April 27, 2006, EPA sent an information request letter to 32 potential Co-Permittees under the authority of Section 308(a) of the Clean Water Act (CWA), 33 U.S.C. § 1318(a). The potential Co-Permittees were required to either fill out a Logan Storm Water Co-Permittee Application (SWPCA) if the company performed the industrial activities designated above or certify the company was not performing those activities. Companies that did not return either form risk future enforcement actions by EPA for not responding. Additionally, any company at Logan that performs these designated industrial activities that did not complete a SWPCA risk enforcement actions for failure to obtain a permit under the CWA.

Each Co-Permittee filled out a SWCPA (See Attachment B of the Draft Permit for a blank copy of the SWCPA and Attachment C for the companies that completed the forms). The SWCPA requires the Co-Permittee to supply the name and address of the company, and the name, title, phone number and e-mail of the person in charge of environmental compliance for the Co-Permittee. The Co-Permittee shall designate the industrial activities it performs at its leased property at Logan and all other industrial activities it performs elsewhere on Logan property. A responsible official for the Co-Permittee signed the SWCPA. Massport, as the owner and operator of the airport facility and the storm water sewer system, is ultimately responsible for the discharges from their storm water sewer system to waters of the United States (60 FR 51103, Sept. 29, 1995).

Tenants and contractors change with time at airports. Therefore, a working list of Co-Permittees shall be maintained as Attachment C to the Permit. The information in Attachment C shall be the SWCPAs filled out by the Co-Permittees. When a new Co-Permittee begins to operate at Logan or a Co-Permittee ceases to operate at Logan, Massport shall notify in writing the EPA Region I, Director of the Office of Ecosystem Protection and follow the change in ownership or operational control requirements of 40 C.F.R. § 122.63(d).

The Massport notification to EPA shall be submitted at least 30 days prior to the date the new Co-Permittee plans to operate or an existing Co-Permittee plans to cease operating at Logan. The signed notification shall be included in Attachment C. Furthermore, a new Co-Permittee agrees to submit to Massport for approval the Co-Permittee's Best Management Practices Plan for the industrial activities it performs. Below is a list of the

23 current tenants and contractors that perform industrial activities that have the potential to discharge pollutants to the storm water sewer system at Logan:

Aero Snow Removal Corp, AirTran Airways, American Airlines, American Eagle, British Airways, Cape Air, Continental Airlines, Delta Airlines, East Coast Airport Services, Federal Express, Gate Gourmet Inc., Globe Ground, JetBlue, LSG/Skychefs, Northwest Airlines, Signature Flight Support & Fueling, South Terminal Corp., Swiss International Airlines, Swissport Fueling, Trangle Aviation Services, Inc., United Airlines, United Parcel Service (UPS), and US Airways.

IV. Limitations and Conditions

The effluent limitations and the monitoring requirements may be found in the NPDES Draft Permit. Section V, below, explains the authorization of Massport and the Co-Permittees to discharge storm water and certain non-storm water discharges. Non-storm water discharges include dry weather deicing and runway rubber removal, and stored storm water from the above-ground storage tank areas and the fuel loading rack. The development of effluent limitations for the four major outfalls (001, 002, 003, and 004) are explained in Section VI, below. The Draft Permit also requires Massport to monitor (sample, analyze and report) a representative portion of the storm water outfalls (A-1 through A-44) and the Northwest Outfall (005) for some conventional pollutants and specific toxic pollutants related to deicing of the runways. Additionally, this Draft Permit requires Massport and the Co-Permittees to implement a comprehensive Best Management Practices Plan (BMP Plan) as detailed in Section I.B of the proposed Draft Permit and explained in Section VI.G of this Fact Sheet, below.

V. Discharges Authorized By This Permit

A. Storm Water

This permit authorizes all storm water point source discharges to waters of the United States from Logan Airport's Storm Water Sewer System. For the purposes of this permit, storm water includes storm water runoff, snow melt runoff, and surface runoff and drainage. There is no limit on the time between the snowfall and snow melt for the purpose of including a snow melt discharge in the definition of storm water. All other discharges not included in the definition of storm water constitute non-storm water discharges.

The conditions in this permit apply to all airport terminals, airline carriers, and establishments engaged in servicing, repairing, or maintaining aircraft and ground vehicles, equipment cleaning and maintenance (including vehicle and equipment rehabilitation mechanical repairs, painting, fueling, lubrication) or deicing/anti-icing operations (facilities generally classified as SIC code 45). The term "deicing" is defined as the process to remove frost, snow, or ice from aircraft or the roads and runways and "anti-icing" is the process which prevents the accumulation of frost, snow, or ice on

aircraft. For the purposes of this permit, both of these activities are referred to generally as "deicing" and are covered under this permit.

B. Non-Storm Water Discharges

Non-storm water discharges that include dry weather discharges from airport deicing/anti-icing operations, storm water that accumulates at the above-ground storage tank bunkers, storm water that accumulates at the fuel loading rack, and dry weather discharges resulting from runway maintenance are authorized under this permit. Dry weather discharges are generated from processes other than those described in the definition of storm water. As discussed below in the BMP Plan section (Section VI.G), these discharges shall be greatly reduced or eliminated wherever practicable.

Periodically, Logan needs to discharge process water from the fire training facility. These discharges are authorized under a separate individual NPDES Permit, MA0032751, which expires August 31, 2006. The waste water is typically treated by an oil-water separator, a filtration unit and a carbon adsorbtion unit before the water is reused. Occasionally, the treated waste water needs to be discharged to Boston Harbor. A reissued draft permit authorizing these discharges will be released soon for public comment.

VI. 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 National Pollutant Discharge Elimination System (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. The draft NPDES permit was developed in accordance with various statutory and regulatory requirements pursuant to the CWA and applicable State regulations. The regulations governing the EPA NPDES permit program are generally found at 40 C.F.R. Parts 122, 124, 125, and 136. In this permit EPA considered (a) technology-based requirements, (b) water quality-based requirements, and (c) all limitations and requirements in the current/existing permit, when developing the permit limits.

B. Water Quality-Based Requirements

Under Section 301(b)(1)(C) of the CWA and EPA regulations, NPDES permits must contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water quality standards.

Water quality standards consist of three 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); and (3) anti-degradation requirements to ensure that once the use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards, found at 314 CMR 4.00, include these elements. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained 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, shall be used unless a site specific criteria is established.

The Draft Permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that causes or has the "reasonable potential" to cause or contribute to an excursion above any water quality standard (40 C.F.R. §122.44(d)). An excursion occurs if the projected or actual in-stream concentration exceeds an applicable water quality criterion. In determining "reasonable potential," EPA considers: (1) existing controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from the permit's re-issuance application, monthly discharge monitoring reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the indicator species used in toxicity testing; (4) known water quality impacts of processes on waste waters; and (5) where appropriate, dilution of the effluent in the receiving water.

C. Water Quality Standards and Designated Uses

Boston Harbor, Boston Inner Harbor and Winthrop Bay at the points of discharge are classified by the Massachusetts Surface Water Quality Standards as Class SB waters as a Coastal and Marine Class in the Massachusetts Surface Water Quality Standards. Class SB waters are designated as "habitat for fish, other aquatic life and wildlife and for primary and secondary contact recreation. In approved areas they shall be suitable for shellfish harvesting with depuration (Restricted Shellfish Areas). These waters shall have consistently good aesthetic value." See 314 CMR 4.05(4)(b).

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those water-bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such require the development of

total maximum daily loads (TMDL). Massachusetts divides each body of water into segments to manage the assessment process. Logan abuts three segments of the Boston Harbor (Boston Harbor - Segment MA70-01, Boston Inner Harbor - Segment MA70-02, and Winthrop Bay - Segment MA70-10). The Boston Inner Harbor Segment (MA70-02) extends along Logan's property from Jefferies Point to Governors Island, the Boston Harbor Segment (MA-07-10) extends along Logan's property from Governors Island to Apple Island, and the Winthrop Bay Segment (MA07-10) extends along Logan property from Apple Island to the tidal flats by Wood Island Park in East Boston. The 2002, 303(d) report (impaired waters list) designates that the segments are not attaining water quality standards for Priority Organics and Pathogens. Specifically, the Boston Inner Harbor and Boston Harbor are not attaining water quality standards for Priority Organics and Pathogens while the Winthrop Bay Segment for Pathogens only.

The Priority Organics listing is related to the ingestion of fish because of health concerns related to Polychlorinated Biphenyls (PCBS) and pesticides. The pathogen listing for the three segments is from bacteria monitoring (fecal coliform bacteria). The pathogen levels in the Boston Inner Harbor Segment did not support shellfishing, the Boston Harbor Segment only partially supported shellfishing, and the Winthrop Bay Segment only partially supported shellfishing, recreational primary contact (significant risk of ingestion such as swimming) and recreational secondary contact (incidental contact such as boating).

The permit writer reviewed the benchmark levels established in the Storm Water Multi-Sector General Permit. In developing the Storm Water Multi-Sector General Permit, EPA established benchmark levels to compare each industry averages to determine which industries would be required to monitor its storm water. The general permit states, "The benchmarks are the pollutant concentrations above which EPA determined represents a level of concern. The level of concern is a concentration at which a storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmarks are also viewed by EPA as a level that, if below, a facility presents little potential for water quality concerns." These water quality based levels represent the maximum concentration to be discharged.

Pollutant/Parameter	Benchmark levels
Oil & Grease	15 mg/l
pH	6.0 - 9.0 SU
TSS	100 mg/l
B.O.D. (5days)	30 mg/l
C.O.D.	120 mg/l
Benzene	10 ug/l

D. Technology-Based Requirements

Technology-based requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (see 40 C.F.R. §125 Subpart A). For existing sources, technology-based requirements according to best practicable control technology currently available (BPT) are applied for conventional, non-conventional, and toxic pollutants. Sections 301 (b)(2)(A) and (E) of the CWA require industrial dischargers to meet limitations based on Best Available Technology Economically Achievable (BAT) for toxic pollutants and Best Conventional Pollutant Control Technology (BCT) for Conventional Pollutants by July 1, 1984. The authority for BPJ is contained in Section 402(a)(1) of the CWA, which authorizes the EPA Administrator to issue a permit containing “such conditions as the Administrator determines are necessary to carry out the provisions of the Act.” The NPDES regulations in 40 C.F.R. §125.3 state that permits developed on a case-by-case basis under Section 402(a)(1) of the CWA must consider:

- (1) The appropriate technology for the category class of point sources of which the applicant is a member, based on available information; and
- (2) any unique factors relating to the applicant.

For certain industrial sectors, Effluent Guidelines have been promulgated by EPA. An Airport Effluent Guideline for controlling the discharge of deicing chemicals is currently being developed but is not final. As in this case, when guidelines have not been promulgated for a specific sector, the permit writer is authorized to use his/her best professional judgement (BPJ) in developing technology based limitations. The permit writer can use many resources to develop limitations based on BPJ. For this permit the permit writer developed limitations by:

- (1) reviewing Effluent Guidelines for sectors with similar pollutants, and
- (2) reviewing limitations developed at similar facilities.

1. Existing Effluent Guideline

For Logan, the permit writer reviewed the effluent guideline for Petroleum Refining Point Source Category, 40 C.F.R. Part 419. This guideline focuses on facilities that produce petroleum products at refining plants. The permit writer reviewed this guideline because it has similar pollutants and sets standards for oil and grease and pH, which are Conventional Pollutants discharged at Logan. The effluent limitations are expressed in total mass per waste water flow rate. However, the standard does not require treatment of the waste water if it does not exceed the following levels:

Pollutant	Never Exceeds
Oil & Grease	15 mg/l
Total Organic Carbon (TOC)	110 mg/l

2. Other Transportation Facilities

The permit writer reviewed recently issued permits from two railroad transportation facilities that use diesel to fuel their vehicles. Generally, aviation fuel is similar to diesel fuel used by trains, only it is more filtered. Therefore, storm water being treated at rail facilities that fuel trains should have comparable technology based effluent limits. The CSX Transportation Rail facility in Allston, MA was issued on July 1, 2005. The B&M East Deerfield Rail Yard was issued on September 23, 2005. The technology based limits that treat storm water with diesel contamination are listed below:

Pollutant/Parameter	Maximum Daily	Average Monthly
Oil & Grease	15 mg/l	-
TSS	100	-

3. Oil Terminals

The permit writer reviewed recently issued permits from three oil terminals that store diesel fuel along the Boston Inner Harbor. The Global Company Chelsea Sandwich, LLC (stores aviation fuel), the Coastal Oil of New England, Inc, and the Gulf Oil Limited Partnership permits were issued on June 30, 2005. The permit establishes technology based effluent limits to treat storm water contaminated with diesel fuel. The effluent limits are listed below:

Pollutant/Parameter	Maximum Daily	Average Monthly
Oil & Grease	15 mg/l	-
TSS	100	30

4. T.F. Green State Airport

The permit writer reviewed a permit for a major New England airport that was recently issued. The facility has limits for the potential discharge of pollutants from industrial activities at an airport and for the discharge of storm water from an above ground storage tank farm that stores and dispenses fuel. The T.F. Green Airport permit was issued on January 1, 2005 by the RI DEM. The permit establishes technology-based effluent limits for the discharge of storm water treated by an oil/water separator with the potential of aviation fuel contamination. Additionally, the permit establishes technology-based effluent limits for the discharge of storm water treated by an activated carbon filter system with the potential of aviation fuel and gasoline contamination. The effluent limits are listed below:

a. Storm Water Effluent Limits for Industrial Activities at an Airport

The T.F. Green permit establishes technology-based effluent limit for the discharge of aviation fuel contamination in storm water treated by an oil/water separator.

Pollutant/Parameter	Maximum Daily	Average Monthly
Oil & Grease	15 mg/l	-

b. Storm Water Effluent Limits for an Above Ground Storage Tank Farm

The T.F. Green permit establishes technology based effluent limits for storm water contaminated with diesel fuel. Storm water from the above-ground storage tank farm is treated by an activated-carbon filter system.

Pollutant/Parameter	Maximum Daily	Average Monthly
Benzene	5 ug/l	-
Total BETX	100ug/l	-
Total Petroleum Hydrocarbons	1.0 mg/l	-

5. General Mitchell International Airport, Milwaukee, Wisconsin

General Mitchell International Airport has three outfalls that discharge storm water that has the potential to contain aviation fuel contaminants. The storm water discharged is from the aviation and ground service equipment fueling area, an aviation fuel tank storage area, and a fuel tank farm area. The State of Wisconsin Department of Natural Resources established technology-based effluent limits based on storm water treatment by an oil/water separator. The effluent limits for the three outfalls are listed below:

Pollutant/Parameter	Maximum Daily	Average Monthly
Oil & Grease	15 mg/l	-
TSS	40 mg/l	-

E. Effluent Limitations, Restrictions and Monitoring Requirements for the Major Outfalls 001, 002, 003, and 004

EPA has established effluent limitations for three of the four major outfalls (001, 002 and 004) that discharge storm water with the potential for pollutants from industrial activities at Logan. The fourth major Outfall 003 will be monitored for the same pollutants that effluent limits and monitoring requirements are established for the other three major outfalls. For reporting purposes, an outfall number with an "A" (example Outfall 001A) represents sampling during wet weather, a "B" represents sampling during deicing episode during wet weather and a "C" represents sampling during dry weather. Additionally, letters were designated for the sampling of accumulated storm water before being discharged to the Outfall 003 storm water sewer system from the above-ground storage tanks (D) and the fuel loading rack (E). This proposed Draft Permit either restricts or establishes effluent limitations for pH, oil and grease, total suspended solids, and benzene during wet and dry weather. Additionally, Massport is required to monitor for surfactants and fecal coliform and enterococcus once a month for both wet and dry weather. Massport shall also monitor for eight specific polynuclear aromatic hydrocarbons (PAHs). Finally, Massport is required to monitor the storm water discharges twice a year during deicing events for BOD, COD, ethylene glycol, propylene glycol, ammonia.

Additionally, Logan is required to monitor a representative quantity of the 44 storm water discharge outfalls twice a year during a deicing event. The minimum number of outfalls is 15% of 44, or 7 outfalls. The sampling of a minimum of seven outfalls was chosen based on one runway open during a storm event, the likelihood that a pollutant will be present, the safety for the flights and the personnel conducting the sampling, and the ability to get a sample from the outfall pipe. Outfall 005 and a representative quantity of the 44

perimeter/runway storm water discharges shall be sampled quarterly during a storm event. Finally, Massport and the Co-Permittees are required to develop a detailed Best Management Practices Plan that includes a general section for the control of all sources of water pollutants and additional sections for each major source of pollutants: 1) deicing and anti-icing chemical sources, 2) potential bacteria sources, and 3) fuel and oil sources.

1. Effluent Limits for Outfalls 001, 002 and 004

a. Flow

The previous permit required that the flow rate of the discharge was to be measured. This permit requires the flow rate to be measured and recorded on a continuous basis at each Outfall 001, 002 and 004. Massport shall continuously monitor the flow rate at a representative location before it discharges to Boston Harbor waters. Massport shall report the average monthly and maximum daily flow rates measured at the discharge.

b. pH

Massport shall continuously monitor and record the pH in standard units at each of the major outfalls, 001, 002, and 004. Massport is required to maintain the pH between 6.5 and 8.5 to meet water quality standards for Massachusetts in accordance with the Massachusetts Surface Water Quality Standards for Class SB waters in accordance with 314 CMR 4.05(4)(b)3. This pH limitation is required for State certification. Massport shall report both the maximum and minimum pH results on DMRs on a monthly basis.

c. Oil and Grease

The Oil and Grease (O&G) maximum daily limit of 15 mg/l was incorporated in the previous 1978 permit. This Draft Permit maintains the O&G maximum daily limit of 15 mg/l using a technology-based effluent limit for an oil/water separator and requires the three major outfalls to meet the technology-based effluent limit for oil/water separator. This limit is based on the permit writer's best professional judgement (BPJ) from information in an effluent guideline with similar pollutants, other transportation facilities and other airports. Additionally, the permit writer considered the bench mark level established in the Storm Water Multi-Sector General Permit.

EPA and the MassDEP have determined that a technology-based effluent limit of 15.0 mg/l is sufficient to meet the water quality standard established for Oil and Grease by Massachusetts Surface Water Quality

Standard at 314 CMR § 4.05(4)(b)7. The narrative water quality standard for Oil and Grease (O&G) in a Class SB Coastal and Marine Inland Water in Massachusetts states, "(t)hese waters shall be free from oil, grease and petrochemical that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life." Although no specific numerical water quality standard exists for Oil and Grease in the Massachusetts regulations at 314 CMR § 4.00, the MassDEP is expected to approve this permit and certify that the maximum daily limit of 15 mg/l is protective of the water quality standards.

The original permit established a sampling frequency of once per month for O&G. This Draft Permit requires a sampling frequency of once per month for dry weather conditions and once per month for wet weather conditions. A grab sample shall be taken once per month at the point of discharge for wet and dry weather conditions. This assumes that at least one calendar day per month meets the definition for each condition. On a monthly basis Logan shall report both wet and dry weather testing results for the maximum daily value for O&G testing results at each outfall on DMRs or report that no discharge occurred.

d. Total Suspended Solids

The original permit issued in 1978 required Massport to meet an effluent limit for settleable solids of 0.1 milliliters per liter (ml/l) for a daily average and 0.3 ml/l for a daily maximum. This permit limits total suspended solids (not settleable solids) at a maximum daily value of 100 mg/l. Using BPJ the permit writer has chosen a technology-based effluent limit for total suspended solids (TSS) using an oil/water separator and has changed the type of limit related to solids. Since settleable solids are a subset of total suspended solids (TSS), this permit is still restricting settleable solids. Additionally, settleable solids are the easiest types of solids to remove from storm water and will be removed by a properly maintained oil/water separator.

An oil/water separator removes particles of oils and grease and solid particles by slowing the flow of the storm water. The slower flow allows lighter oils and greases to float and solids to sink. The oils are skimmed off the surface and the settleable solids are periodically removed from the bottom during scheduled maintenance. TSS is a more reliable indicator than settleable solids that the oil/water separator is being properly maintained. A properly maintained oil/water separator is capable of removing TSS to at least a maximum daily level of 100 mg/l according to

recently issued permits for oil terminals and other transportation facilities. Additionally, the benchmark level in the MSGP of 100 mg/l for TSS represents a point at or below a level that has little potential for water quality concerns.

The effluent limit for TSS shall be 100 mg/l based on BPJ which uses a technology-based effluent limit for an oil/water separator and requires all major outfalls to meet the technology-based effluent limit for oil/water separators. Massachusetts has a narrative water quality standard for solids that states, "[t]hese waters shall be free from floating, suspended and settleable solids in concentrations and combinations that would impair any use assigned to this Class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom." EPA expects the MassDEP to approve this Draft Permit and certify that the maximum daily limit of 100 mg/l is protective of water quality standards.

This Draft Permit requires sampling of the outfalls for TSS during wet and dry weather. A grab sample shall be taken each month during both wet and dry weather conditions. This assumes that at least one calendar day per month meets the definition for each condition. On a monthly basis Logan shall report both wet and dry weather results of the maximum daily value from TSS testing for each outfall on DMRs.

e. Benzene, Toluene, Ethylbenzene and Total Xylenes (BETX)

Aircraft at Logan use aviation fuel for power which is similar to diesel fuel. Many Co-Permittees fuel aircraft at the terminals from an underground pipe. Additionally, fueling contractors (some Co-Permittees) fuel aircraft by tanker trucks at remote locations. Spills from fueling can cause pollutants to enter the separate storm water sewer. Aviation fuel contains benzene, toluene, ethylbenzene and xylene among other hydrocarbons (mixture of volatile organic compounds and polynuclear aromatic hydrocarbons).

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 non-storm water or storm water containing diesel fuel, limits are typically established for the compounds that would be the most difficult to remove or 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 high concentrations in light distillate products. However, these compounds are also found in substantial quantities in crude oil and some of the heavier petroleum derivatives and residuals, such as aviation fuel. Since many petroleum spills involve aviation fuel at airports, 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, is one of the most toxic constituents, and is found at relatively high concentrations in aviation fuels (between 200 and 9000 mg/l)¹. Because of the reasons mentioned above, benzene can be considered one of the most important limiting pollutant parameters found in diesel fuel and aviation fuel. Building on this premise, benzene can be used as an indicator-parameter for regulatory and characterization purposes for waste water and storm water, which contains some diesel fuel and/or aviation fuel. The primary advantage of using an indicator-parameter is that it can monitor the effectiveness of a treatment process and evaluate the potential impact on the environment.

EPA is proposing a maximum daily effluent limit for benzene of 51 µg/L in the Draft Permit. This number represents the current recommended Federal Water Quality Criteria for benzene adopted by the State of Massachusetts (See 314 CMR 4.05(5)(e)) for Class SB receiving waters. The benzene limit of 51 µg/L is based on the human health criteria associated with the consumption of aquatic organisms (USEPA, 2002). Both fish and shellfish are located immediately at and near Logan discharges and can be captured and consumed.

This Draft Permit requires a sampling frequency for benzene of once per month by grab sample during both wet weather and dry weather conditions. This assumes that at least one calendar day per month meets the definition for each condition. For each month, Massport shall report on DMRs the maximum daily limit from the benzene testing results for both wet weather and dry weather. On a monthly basis Massport shall report both wet and dry weather results of maximum daily value for the benzene testing at each outfall on DMRs.

¹ See Agency for Toxic Substances and Disease Registry (ATSDR). 1995. [Toxicological profile for jet fuels JP-4 and JP-7](#). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service; Agency for Toxic Substances and Disease Registry (ATSDR). 1998. [Toxicological profile for jet fuels JP-5 and JP-8](#). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service; and Sinclair Oil Corporation, [Sinclair Material Safety Data Sheet, Sinclair JP-8, Jet A, Turbine Fuel, Aviation Fuel, MSDS No. 62](#), Salt Lake City, Utah, July 2004.

2. Monitoring of Outfalls 001, 002 and 004

EPA requires Massport to monitor the major Outfalls 001, 002, and 004 for surfactants, fecal coliform, enterococcus and polynuclear aromatic hydrocarbons. Massport shall conduct monitoring for surfactants, fecal coliform, an enterococcus once per month during both wet weather and dry weather conditions and quarterly for PAHs during wet weather at Logan. Below are the details of the monitoring requirements for the outfalls.

a. Surfactant

Currently, Massport does not monitor for surfactants that are used for cleaning purposes. The use of common cleaning compounds either consciously or accidentally that find their way to the storm water can cause the improper operation of an O/W separator by not allowing oils to properly separate into a lighter oil phase (see Section 3, Oil and Grease, above). This could cause Massport to exceed the O&G effluent limit. Therefore, Massport is being required to monitor for surfactants once a month during both wet and dry weather at the major outfalls. Massport shall report monthly the results of the monitoring on DMRs.

b. Fecal Coliform and Enterococcus

Currently, Massport is not required to monitor for bacteria by sampling for fecal coliform or enterococcus. However, Massport has performed monitoring for fecal coliform at each of the major outfalls and detected median levels at Outfall 001 of 20 cfu/100ml, Outfall 002 of 400 cfu/100ml and Outfall 004 of 27 cfu/100 ml. Previously, Massport has attempted to identify illegal septic connections in its storm water sewer system. This Draft Permit requires Massport to sample for fecal coliform and enterococcus to identify whether illegal connections still exist. Both analyses help to identify whether the bacteria is being reduced.

Additionally, Massport is required to perform a study of the storm water sewer system. The study should identify illegal sewage connections to the storm water sewer system (see Section I.B.9 of the Draft Permit).

This Draft Permit requires the sampling frequency for fecal coliform and enterococcus to be once per month by grab sample during both wet weather and dry weather conditions. For each month, Massport shall report on DMRs the maximum daily limit from the fecal coliform and enterococcus testing results for both wet weather and dry weather. On a

monthly basis Massport shall report on DMRs the testing results at each outfall.

c. Polynuclear Aromatic Hydrocarbons (PAHs)

PAHs are a group of organic compounds that are found throughout the environment. PAHs are primarily introduced into the environment through the incomplete combustion of organic compounds. However, PAHs are also present in crude oil and some of the heavier petroleum derivatives and residuals (e.g., aviation fuel, fuel oil and asphalt). Spillage or discharge of these products can serve to introduce PAHs into the environment. PAHs will strongly adsorb to suspended particles and biota and can also bio-accumulate in fish and shellfish.

Massport has experienced violations of its oil and grease limit of 15 mg/l in the past 5 years (see Table 1). However, the limitation of this test is that it does not differentiate between a variety of hydrocarbons or food based oils which it could detect. Therefore, Massport shall monitor for PAHs, that will identify specific hydrocarbon fractions of oil & grease in the discharge. This should allow the permittee to better address how to control these constituents and to possibly identify their source. It would also allow the EPA and MassDEP to consider the potential impacts of such discharges.

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.

PAHs are present in some of the heavier petroleum distillate and residual products like aviation fuel. Aviation fuel is stored and widely distributed throughout the major outfall areas at Logan. A similar requirement to monitor for PAHs was put in place for the petroleum bulk storage stations and terminals nearby in East Boston.

The petroleum bulk storage terminals have a reasonable potential to discharge PAHs into Boston Harbor and are required to monitor for PAHs. Eight PAH compounds were specifically identified for monitoring purposes. The following compounds were selected primarily based on their toxicity and presence in petroleum products.

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

EPA is requiring the permittee to monitor for PAHs that have the potential to be present in the storm water. Given the potential health concerns related to PAHs and the type of petroleum products stored and distributed at Logan, EPA is requiring the facility to monitor for the eight PAHs identified above on a quarterly basis at the four major storm water outfall(s) at Logan during wet weather.

This Draft Permit requires the sampling frequency for PAHs to be once a quarter by grab sample during wet weather. For each quarter, Massport shall report on DMRs the testing results for each outfall as Outfall 001B, 002B, 003B, and 004B) during the following month after a quarter ends.

3. Monitoring of Porter Street Drainage Area and Outfall 003

The Porter Street Outfall, Outfall 003, is considered a major outfall but has unique circumstances to be considered. Storm water from Logan mixes with a combined sewer overflow (CSO) owned by the Boston Water and Sewer Commission (BWSC). Due to the complicated layout of the storm water sewer in the Porter Street Drainage Area, EPA is unable to set interim effluent limits from where the storm water enters the BWSC system. For example, drainage from the Porter Street area tie into the BWSC system at multiple locations. Additionally, upstream storm water from East Boston mix with the storm water from the Porter Street drainage area before entering the BWSC system. Therefore, EPA and MassDEP require Massport to establish sampling location(s) that best represent the water quality of the storm water coming from the Porter Street drainage area at Logan. Massport shall have 90 days from the effective date of the Final Permit to establish sampling locations in the Porter Street Monitoring Plan as required by

the Best Management Practice Plan (see Section I.B.12 of the Draft Permit). The plan requires Massport to meet with the BWSC to review the drawings of the sewer system and establish at least three sampling locations within the Porter Street drainage area.

Massport shall sample at each of the established sampling locations at the Porter Street drainage area for flow rate, pH, Oil & Grease, TSS, Benzene, surfactant, fecal coliform, and enterococcus on a monthly basis during wet and dry weather conditions. Additionally, Massport shall monitor quarterly for PAHs during wet weather conditions to establish whether aviation fuel and other oil based pollutants are being discharged during a storm event.

4. Special Monitoring during Deicing Episodes

This Draft Permit requires Massport to perform monitoring during wet weather deicing episodes at the four major outfalls (001, 002, 003, and 004) to establish the impact of the release from deicing chemicals at the storm water discharges. Airlines at Logan conduct deicing and anti-icing of aircraft to ensure the safety of passengers as required by Federal Aviation Administration (FAA) regulations. Massport also applies deicing agents to keep runways and adjacent surfaces clear of snow and ice. When performed without adequate discharge controls in place, airport deicing operations can result in adverse environmental impacts.

Based on the rationale presented below, Massport shall monitor the four major outfalls twice a year during the icing season, for the following pollutants: ethylene glycol, propylene glycol, BOD5, COD, total ammonia nitrogen, nonylphenol, and tolyltriazole. Massport shall report the results on DMRs after the icing season.

a. Ethylene glycol and propylene glycol

Deicing fluids are mainly comprised of a mixture of propylene glycol and ethylene glycol. The biodegradation of these chemicals in surface waters can greatly affect water quality, including a significant reduction in dissolved oxygen (DO) levels. Reduced DO levels can ultimately lead to fish kills. Deicing fluids also contain additives, such as corrosion inhibitors, surfactants, flame retardants, pH buffers and dyes. Some of these additives are known to have potential aquatic life and human health impacts due to their toxicity. Runway deicing products used by the industry include glycols, urea, potassium acetate and sodium formate, and calcium magnesium acetate. Massport and the Co-Permittees use mainly propylene and ethylene glycol-based deicing agents. Additionally, Massport sometimes uses urea as a runway deicing products. Urea degrades to ammonia, which is toxic to aquatic organisms at low

concentrations.

In the early 1990s, Massport performed storm water sampling at Outfalls 001 and 002 during deicing operations. The following data summarizes the results:

North Outfall - 001 (mg/l)

Date	Propylene Glycol	Ethylene Glycol	BOD ₅	Ammonia
3/15/91	120	110	8,320	2.3
1/23/92	ND	1,100	592	5.3
3/19/92	<141	<641	N/A	N/A
Average	<87.3	<617	4,456	3.8

West Outfall - 002 (mg/l)

Date	Propylene Glycol	Ethylene Glycol	BOD ₅	Ammonia
3/15/91	240	95	5,500	2.9
1/23/92	130	280	531	3.8
3/19/92	<218	481	N/A	N/A
Average	<196	285	3,016	3.35

Based on the chemical used for deicing by Massport and the Co-Permittees, Massport shall monitor for propylene glycol, ethylene glycol, BOD, COD, and Ammonia (measured as Total Ammonia Nitrogen) twice a year (two separate days) during wet weather deicing episodes at the four major outfalls. Massport shall sample the major outfalls during the icing season for Boston from November through April. A wet weather deicing episode is defined as a time when deicing agents are used on passenger planes owned by the major airlines during a storm event that produces greater than 0.1 inches of precipitation in magnitude (or the equivalent in snow fall on a mass basis) and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rain fall) storm event. Massport shall sample the outfalls during wet weather when deicing agents are used. In summary, Massport shall sample the major outfalls for

propylene glycol, ethylene glycol, BOD, COD, ammonia twice (two separate days) during wet weather deicing episodes from November through April and report the results in May after the icing season.

b. Nonylphenol and Tolyltriazole

Tolyltriazole is a common corrosion inhibitor and flame retardant added to deicing chemicals. Corrosion inhibitors act to prevent aircraft components that have been covered by deicing fluids from corroding, and flame retardants act to reduce the flammability hazard created when fluids are applied to metal aircraft surfaces that can carry an electronic charge. Corrosion inhibitors may comprise as much as 0.5% by volume of deicing fluids. Tolyltriazole (TTZ) is a commonly used inhibitor and flame retardant. TTZ's aquatic toxicity data indicate that it is significantly more toxic than glycols.

Nonylphenol is often added to deicing fluids to reduce surface tension and is called a nonionic surfactant. Nonylphenol is also a known endocrine disrupter². On February 16, 2005, EPA issued the Final Aquatic Life Ambient Water Quality Criteria for Nonylphenol. The document states, "[i]n a study of airport runoff, nonylphenol was measured at 0.98 and 7.76 ug/l in the runoff as a result of aircraft deicer and antiicer fluid use."³

Massport has no data on the discharging of TTZ or nonylphenol. Because of the potential toxic properties of TTZ and the endocrine disrupter properties of nonylphenol, EPA is requiring Massport to sample the major outfalls twice (two separate days) during wet weather deicing episodes. Massport shall report the results in May after the icing season.

² U.S. EPA, Preliminary Data Summary, Airport Deicing Operations, Office of Water, Washington, DC, EPA-821-R-00-016, August 2000, p.9-12.

³ Corsi, S.R., D.H. Zitomer, J.A. Field and D.A. Cancilla, 2003, Nonylphenol ethoxylates and other additives in aircraft deicers, antiicers, and waters receiving airport runoff, Environ. Sci. Technol., 37:4031-4037.

5. Whole Effluent Toxicity Sampling at Outfall 001

Outfall 001 discharges into the tidal flats by Wood Island Park in East Boston where shellfishing is partially supported. "Partially supported" means that shellfishing is periodically allowed with depuration. Under Section 301(b)(1) of the CWA, discharges are subject to effluent limitations based on water quality standards. Section 304(a)(1) of the CWA requires EPA to establish criteria in accordance with state surface water quality standards. Therefore, EPA must use the following Massachusetts narrative statement as guidance for establishing discharge criteria, "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." 314 CMR 4.05(5)(e).

At this time there are no known specific pollutants in the storm water discharge at Outfall 001 in concentrations or combinations that may have a toxic effect on humans, aquatic life or wildlife. However, no toxicity testing has been performed on the discharge from Outlet 001. Therefore, EPA is requiring Massport to monitor the discharge for toxic effects by performing Whole Effluent Toxicity (WET) testing twice during the life of the permit. The WET sampling shall occur during the second and fourth years from the effective date of the permit during a wet weather deicing episode. Massport shall conduct acceptable chronic and modified acute toxicity tests of the effluent. Acute and chronic endpoints are to be determined as required by the "Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters," February 23, 1990. Massport shall conduct the tests in accordance with testing protocol included in the Draft Permit as Attachment A. The tests are performed to determine the no observed effect concentration (NOEC) and to calculate the concentration that is lethal to 50% of the test organisms (LC₅₀).

Once during a wet deicing episode in the second year and again during the fourth year, Massport shall collect samples as required by Attachment A to the Draft Permit at the point of discharge for Outfall 001. Massport shall report the NOEC and the LC₅₀ from the results of WET testing using The Toxicity Test Summary Sheet (Attachment F of the EPA-Region I NPDES Permit Program Instructions for the Discharge Monitoring Report Forms). The report and summary sheet shall be submitted with the other DMRs submitted in May.

6. Effluent Limit for Storm Water Being Discharged from the Above-ground Storage Tank Area, Fuel Loading Rack, and the Set-up Tank

The water that accumulates around the above ground storage tanks inside the spill containment berms shall be tested before being discharged into the storm water sewer system. Currently, the operator of the centralized tank farm and fueling operation, Swissport, visually observes whether an oil sheen exists. If a sheen

does not exist, then Swissport pumps the storm water through an oil/water separator that discharges into the North Outfall 001 storm water sewer system. To assure the water from the tank farm is not negatively impacting the discharge at Outfall 001, Swissport or any other party that performs this task shall take a representative sample of storm water that accumulates in the bermed area. If the results show that this water meets the effluent limits for pH, TSS, O&G and benzene (the same effluent limits established for pH, TSS, O&G and benzene at the major Outfalls above), then the water can be pumped through the oil/water separator into the storm water drainage system. The final test results shall be reported on DMRs as Outfall 001D for storm water from the aboveground storage tanks (see Part I.A.4, page 9 of the Draft Permit).

Additionally, storm water accumulates during a storm event at the fuel loading rack and vehicle fueling areas. Periodically, the storm water needs to be removed. Currently, the storm water is pumped to an oil/water separator before being discharged into the North Outfall storm water sewer system. drains to a 15,000 gallon UST, referred as the set-up tank. This permit allows the collected water to be tested and/or treated before being discharged to the North Outfall storm water sewer system after effluent limits are met. The final test results shall be reported on DMRs as Outfall 001D for storm water from the aboveground storage tanks (see Part I.A.4, page 9 of the Draft Permit).

Storm water accumulates in the 32 vaults and 320 fueling pits of the centralized fueling system that distributes fuel to each terminal gate to fuel the aircraft. Swissport pumps the storm water that accumulates in the vaults and pits and transports it to the set-up tank at the centralized fuel farm. Water from the set-up tank can be discharged to the storm water sewer system if it meets the effluent limits for pH, TSS, O&G, and benzene. A representative storm water sample shall be taken and analyzed to confirm the levels are met before the water can be discharged. Because fuel can be spilled at the fueling pits during fueling of aircraft, the storm water in the set-up tank may need treatment and effluent limits shall be met by sampling before being discharged to the storm water sewer system. The results of the tests shall be reported as Outfall 001E (see Part I.A.4, page 9 of the Draft Permit).

F. Effluent Monitoring Requirements for the Northwest Outfalls (005) and Storm Water Discharges A-1 through A-44 (006)

EPA requires monitoring of a representative portion of the storm water discharges. Currently, Massport has not monitored the runway and perimeter storm water discharges at Logan. Very little analytical data exists. EPA has chosen a phased approach for permitting the storm water discharges. Since not enough data has been collected to

determine whether numeric effluent limits are necessary, EPA requires monitoring at the storm water discharges to evaluate the impact to the receiving waters and the need for numeric effluent limitations. In the interim, EPA requires Massport to develop and implement a comprehensive Best Management Practices Plan that is considered a non-numerical effluent limitation for the storm water discharges. If any of the monitoring data suggests that there is a negative impact occurring on the receiving waters, EPA or the MassDEP can modify the Permit to add numeric effluent limits.

On a quarterly basis Massport shall sample the Northwest Outfall and at least 15% of the 44 (or a minimum of seven) storm water discharge locations that drain the runways and the access roads along the perimeter of the airport. This Draft Permit requires Massport to monitor for flow rate at the time of sampling, pH, oil & grease, TSS and benzene during a wet weather storm event. Additionally, Massport is required to perform biennial sampling of the storm water outfalls during a wet weather deicing episode. The sampling during a wet weather deicing episode shall include flow rate, pH, propylene glycol, ethylene glycol, BOD, COD, and ammonia.

The Draft Permit requires Massport to develop a Runway/Perimeter Storm Water Outfalls Sampling Plan, which includes quarterly sampling during wet weather events and biennial sampling during wet weather deicing episodes. In developing the plan Massport shall use the following criteria for choosing sampling locations:

- a. The runway used during the sampling event,
- b. The planned pattern of runway and taxiway deicing,
- c. The amount of deicer expected to be applied during the monitored event,
- d. Likelihood that a pollutant will be present where monitoring,
- e. Safety for the flights and the personnel conducting the sampling, and
- f. Ability to obtain a sample from the outfall pipe.

Massport should consider the criteria above and be flexible from one storm event to another since the criteria could change depending on the runway being used. Massport has **90 days from the effective date** of the Final Permit to develop and implement the Runway/Perimeter Storm Water Outfall Sampling Plan.

1. Quarterly Monitoring (005, 006)

a. Flow Rate

Massport shall estimate the flow rate each quarter at the representative discharge locations of the runway/perimeter storm water outfalls. The flow rate is being measured to determine the rate of loading or how the flow rate might otherwise affect the water quality of the receiving waters. Estimates of the flow rates at the outfalls shall be taken at the point of discharge during wet weather conditions at the time of the quarterly sampling. All estimates shall be taken using standard engineering techniques to measure flow.

b. pH

Massport currently uses sodium hydroxide in a several step process to periodically remove rubber deposits from the runways. Massport shall monitor the pH in standard units at the runway/perimeter storm water outfalls during the quarterly monitoring. Rubber removal is performed during dry weather. The sodium hydroxide is not expected to reach the storm water sewer system in any quantity while performing the rubber removal during dry weather. However, the sodium hydroxide and rubber material removed is expected to wash into the system during a wet weather event. Therefore, Massport is required to sample pH during the wet weather quarterly sampling being performed at the runway/perimeter storm water outfalls. Additionally, the BMP Plan shall outline measures to minimize the cleaning compounds and rubber material from discharging into Boston Harbor. However, if the data suggests that pH is negatively impacting the receiving waters, EPA or the MassDEP could modify the Permit to require an effluent limit (range) for pH. Massport shall report both the maximum and minimum pH results on DMRs on a quarterly basis during a wet weather event.

c. Oil and Grease

Massport shall monitor for oil and grease to measure whether the aviation fuel and other oil product used at Logan are properly managed and are not discharged at the runway/perimeter storm water outfalls. Currently, no information exists to determine that a numeric limit is necessary. However, no maintenance or fueling of aircraft is performed along the runway/perimeter storm water drainage areas. Therefore, this Draft Permit only requires monitoring for oil & grease on a quarterly basis during a wet weather event.

d. Total Suspended Solids

During the maintenance of the runway discussed in b, above, rubber material is mechanically removed from the runway. The rubber particles could impact the total suspended solids at the runway/perimeter storm water discharges. Currently, no data exists at the runway/perimeter storm water discharges. Therefore, Massport shall monitor for total suspended solids on a quarterly basis during a wet weather storm event.

e. Benzene

Aircraft at Logan use aviation fuel that is occasionally spilled in the normal course of fueling. Besides oil and grease, benzene is a good indicator parameter as discussed in Section B.5, above. Monitoring of benzene should assure that the aviation fuel at Logan is properly managed and any spilled fuel that finds its way to the runway/perimeter storm water discharges is protective of water quality standards. Therefore, Massport shall monitor for benzene on a quarterly basis during a wet weather storm event.

2. Biennial Monitoring During Deicing Episodes (006B)

Deicing on the runways and around the perimeter of the airport is performed by Massport. During weather that forms ice on the runways, Massport must maintain a certain measured coefficient of friction on the runways according to FAA regulations. Massport applies deicing agents to the surface of the runways to obtain the coefficient of friction before ice develops. Massport uses mainly propylene and ethylene glycol and urea as the runway deicing products. Urea degrades to ammonia, which is toxic to aquatic organisms at low concentrations. Propylene and ethylene glycol biodegrades in surface water by reducing the dissolved oxygen in the receiving waters. Reduced dissolved oxygen can kill fish. Therefore, the discharge of deicing agents in surface water can impact water quality.

On a biennial basis during the icing season, Massport shall sample at least 15% of the 44 (or 7) storm water discharge locations that drain the runways and the access roads along the perimeter of the airport (referred to as representative "runway/perimeter storm water outfalls"). For the Boston area, the icing season is from November through April.

This Draft Permit requires Massport to monitor for flow rate, pH, propylene

glycol, ethylene glycol, BOD, COD, ammonia, tolyltriazole and nonylphenol during a wet weather deicing episode. Although a dry weather deicing episode could have a higher concentration of pollutants, such events are infrequent and more common for plane deicing areas than runway deicing. Therefore, only wet weather deicing episodes will be monitored at the runway/perimeter storm water outfalls. Logan shall report on DMRs the results of the two monitoring events on or before May 15 after the icing season.

a. Flow Rate

Massport shall estimate the flow rate during the biennial monitoring performed at the representative discharge locations of the runway/perimeter storm water outfalls. In order to gather more information for the runway/perimeter storm water discharges EPA is requiring Massport to estimate the flow rate during the biennial monitoring during wet weather deicing episodes. Estimating the flow rate will help to determine the rate of loading and how the flow rate might affect the water quality of the receiving waters. Estimates of the flow rates shall be taken at the point of discharge using standard engineering techniques to measure flow.

b. pH

Massport shall monitor the pH in standard units at the runway/perimeter storm water outfalls during the biennial monitoring. The monitoring shall occur during a wet weather deicing episode. Currently, no information exists on pH to base an effluent limit at these discharges. However, Massport shall be developing and implementing a BMP Plan that is considered a non-numeric effluent limit. Massport shall report both the maximum and minimum pH results on DMRs for both monitoring events.

c. Propylene and Ethylene Glycol

The concentration of propylene glycol and ethylene glycol in a discharge of storm water directly affects the water quality of the receiving water. Propylene glycol and ethylene glycol reduce the dissolved oxygen in the receiving water. Therefore, Massport shall monitor for propylene glycol and ethylene glycol at the representative discharge locations.

d. Biochemical Oxygen Demand and Chemical Oxygen Demand

The biodegradation of propylene glycol and ethylene glycol in surface waters can greatly impact water quality, including a significant reduction in dissolved oxygen levels. Reduced dissolved oxygen levels can ultimately lead to fish kills.⁴ Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) measure the effects of a discharge to the resultant oxygen levels in the receiving waters. Therefore, Massport shall monitor for BOD and COD during a wet weather deicing episode.

e. Ammonia

As stated previously, Massport uses urea as a deicing agent on the runways. Urea biodegrades to ammonia, which is toxic to aquatic organisms at low concentrations. Therefore, Massport shall monitor for ammonia measured as total ammonia nitrogen during a wet weather deicing episode to measure the potential toxic effect of ammonia from urea.

f. Nonylphenol and Tolyltriazole

As previously described in Section E.7.b, above, Tolyltriazole and Nonylphenol are commonly found as additives in deicing fluids. Furthermore, because of their toxic properties, Massport shall monitor for these compounds when performing the other monitoring at the runway/perimeter storm water outfalls. Massport shall monitor for nonylphenol and tolyltriazole during a wet weather deicing episode.

G. Best Management Practices Plan

Massport and the Co-Permittees shall develop a very detailed Best Management Practices Plan (BMP Plan) to address all sources of water pollutants generated at Logan International Airport and discharged to the Boston Inner Harbor, Boston Harbor and Winthrop Bay. The BMP Plan shall focus on two major objectives: (1) to identify sources of pollution potentially affecting the quality of the water discharged at the airport's outfalls including, but not limited to, storm water, process water, and waste water associated with activities performed throughout the airport; and (2) ensure implementation of measures to minimize and control pollutants in storm water, waste water and process water discharges associated with activities performed throughout the airport.

⁴ U.S. EPA, Preliminary Data Summary, Airport Deicing Operations, Office of Water, Washington, DC, EPA-821-R-00-016, August 2000, p.1-1.

The BMP Plan for Massport and the Co-Permittees should address all sources of pollutants at or near their locations of operation that have the potential to drain to storm water sewer system including, but not limited to, where (1) chemicals or fuels are stored, (2) deicing and anti-icing chemicals are applied to airplanes, (3) planes are fueled, (4) solid wastes and raw materials with the potential to leak are stored, (5) solid wastes and raw materials stored inside that have a potential to spill and flow to the storm water system, (6) automotive maintenance and cleaning activities occur, (7) airplane maintenance activities occur, (8) deicing chemicals are spread on the tarmac, (9) maintenance of the runways occur to remove rubber particles to improve the surface friction levels, (10) sewer connections to the storm water drainage system are identified, (11) planes lavatory wastes are removed and transported, (12) food or food wastes are stored that potentially attract birds and animals, and (13) birds flock.

Massport shall complete the BMP Plan and distribute the BMP Plan to the Co-Permittees within 60 days from the effective date of the Final Permit. Each Co-Permittee shall develop a BMP Plan that is consistent with the Massport BMP Plan within 120 days from the effective date of the Final Permit. The BMP Plan for a Co-Permittee shall include a general section referred to as BMP Plan and discrete sections for each potential source of pollutants as generated by a Co-Permittee according to the three major sources of pollutants in the stormwater: (1) deicing and anti-icing chemical sources, (2) potential bacteria sources, and (3) fuel and oil sources.

1. Outline of the Best Management Practices (BMP) Plan

The BMP Plan for Logan was developed based on the requirements for the Storm Water Pollution Prevention Plan (SWPPP) under the Storm Water Multi Sector General Permit for Industrial Activities (see 65 FR 64745, Oct. 30, 2000 and 70 FR 72116, Dec. 1, 2005). Additionally, the permit writer reviewed the information developed by EPA for the pending Effluent Guidelines for the airport sector including Preliminary Data Summary for Airport Deicing Operations (EPA-821-R-00-016, August 2000) and the Analytic Blueprint for Development of Effluent Guidelines for Airport Deicing (EPA Office of Water, July 15, 2005). Furthermore, the permit writer reviewed permits from other airports including T.F. Green State Airport, the Austin-Bergstrom International Airport, San Francisco International Airport, Scottsdale Airport, the San Diego County Regional Airport, and General Mitchell International Airport. Below is an outline of the BMP Plan developed for Logan based on these references and other information

- a. Details of the BMP Plan
 - i. Pollution Prevention Team
 - ii. Description of the Facility and Potential Pollution Sources
 - iii. Description of the Facility Site and Receiving Waters/Wetlands
 - iv. Description of Potential Pollutant Sources

- v. Storm Water Management Controls
- vi. Site Inspection
- vii. Consistency with Other Plans
- viii. Amending the BMP Plan
- b. BMP Plan for Identifying and Eliminating Deicing and Anti-Icing Sources
- c. Development of a Pollution Prevention Plan (PPP) for Deicing Chemicals
- d. BMP for Identifying and Eliminating Potential Bacteria Sources
- e. BMP for Identifying and Eliminating Fuel and Oil Sources
- f. BMP for Minimizing and Eliminating Rubber Removal Sources
- g. Porter Street Monitoring Plan
- h. Runway/Perimeter Storm Water Outfalls Sampling Plan

2. Details of the BMP Plan

The details of the BMP Plan define how Massport and Co-Permittees (Permittees) shall be organized and develop the plan. It requires a Pollution Prevention Team made up of environmental staff from Permittees to meet and facilitate the development and the implementation of the BMP. First, the team develops a description of the facility and identifies the potential source of pollutants that could enter the storm water sewer system. Maps need to be developed that identify the location of these potential sources of pollutants and the water resources that could be impacted by these potential sources including Boston Harbor and adjacent wetlands.

Next, the team needs to develop storm water controls to minimize the potential release of pollutants to storm water. This section needs to develop an inventory of materials at the airport and the risks associated with those materials. Permittees must develop a preventative maintenance program that involves inspecting and maintaining the storm water management devices (i.e. oil/water separators, catch basins, track mats). Permittees are also required to maintain a clean orderly facility and develop spill prevention and response procedures for areas where potential spills can occur and their accompanying drainage points. The Permittees must identify areas that have a potential for soil erosion and identify measures to limit erosion. The Permittees must train employees at least annually on spill response, good housekeeping and material management practices. The Permittees inspect designated storm water equipment and material handling areas at least quarterly and maintain records of the inspections.

The Pollution Prevention Team (Team) must perform a facility-wide inspection to verify that the description of potential pollutant sources is accurate and the drainage map is up to date. The Team must verify that the controls to reduce pollutants in storm water and process water discharges identified in the BMP Plan are being implemented and are adequate. Records documenting significant

observations must be maintained. Finally, the BMP Plan must be immediately amended whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to Boston Harbor.

3. Identifying and Eliminating Deicing and Anti-icing Sources

The BMP Plan shall include a section that identifies deicing and anti-icing sources at Logan and another section that includes implementing pollution prevention techniques to minimize the release of deicing chemicals. The Permittees are required to develop and start implementing a Pollution Prevention Plan for deicing chemicals within six months from the effective date of the Final Permit.

4. Identifying and Eliminating Potential Sources of Bacteria

The Permittees are required to develop a plan to identify and eliminate potential sources of bacteria. Massport, with the cooperation of the Co-Permittees, will develop and implement a comprehensive plan to identify and eliminate dry and wet weather illicit discharges to its separate storm water sewer system. The plan will focus on the sanitary sewer system as the primary source of contamination. This best management plan will rely primarily on visual observations of the storm water sewer and sanitary sewer systems including television inspection of the sanitary sewer system and dye testing of the sewer pipes and building plumbing.

5. Identifying and Eliminating Fuel and Oil Sources

a. Above Ground Storage Tanks (ASTs)

Rain water from the large AST bunkers are observed for any floating layer of oil. The accumulated storm water shall be sampled and discharged only after the results confirm the effluent limits are met (see Part I.A.4, page 9).

b. Spill Prevention, Control, and Countermeasure Plan (SPCC)

The BMP Plan must be consistent with the Spill Prevention Control and Countermeasures (SPCC) Plan for ASTs. The SPCC Plan requires an owner or operator of certain ASTs to prepare and comply with written, sit-specific, spill prevention plans (see 40 C.F.R. Part 112). Any more stringent requirement in the BMP Plan must be incorporated into the SPCC Plan.

c. Minimum Requirements for ASTs

The BMP Plan shall state at a minimum that all spilled or leaked AV-1 from the ASTs shall be removed from the secondary containment system as quickly as practical and in all cases within 24 hours. The secondary containment system (the bermed area around the ASTs) must be thoroughly cleaned to remove any residual contamination. Additionally, Massport and the operator of the tank farm must set a protocol for sampling and confirming the accumulated storm water meets the effluent standards established in the Draft Permit (see Part I.A.4, page 9) before discharging into the storm water sewer system.

d. Minimum Requirements for USTs and Loading Rack Area

USTs at Logan's fuel farm includes two 12,000-gallon tanks for gasoline, a 12,000-gallon tank for diesel fuel and a 1,000 gallon tank of diesel fuel for an on-site electrical generator. Massport and the operator of the tank farm must establish minimum management practices that include:

- i. complying with all local, state and federal requirements for USTs,
- ii. Diverting storm water away from fueling areas,
- iii. Using proper fuel dispensing equipment,
- iv. Using automatic shutoff valves on fuel tankers, and
- v. Developing standard operating procedures (SOP) for fueling and responding to any spills.

When storm water needs to be discharged from the fuel loading rack area, effluent limits need to be met. Massport and the operator of the tank farm must set a protocol for sampling and confirming the accumulated storm water meets the effluent standards established in the Draft Permit as Outfall 001D (see Part I.A.4, page 9) before discharging into the storm water sewer system. Additionally, the storm water stored in the 15,000-gallon UST set-up tank shall meet effluent limits established as Outfall 001E (see Part I.A.4, page 9) .

e. Fueling Aircraft

Each Co-Permittee at the facility shall develop a SOP for each type of equipment that fuels aircraft including fueling from the centralized fuel line or remote fueling by tanker truck. The SOP shall include procedures for responding to minor spills (less than Reportable Quantities (RQs) as defined by 40 C.F.R. § 300.4) or major spill (greater than or equal to RQs). SOPs shall include documenting any quantity of AV-1 spilled including the time and location and stipulate the spill control equipment that will be available. SOPs from Co-Permittees that fuel aircraft shall be reviewed and approved by the Environmental Manager of Massport to assure consistency between each Co-Permittee. Massport and the Co-Permittees that conduct fueling of aircraft shall develop best management practices for fueling. The practices should include having spill response equipment available, collecting and properly disposing any spilled fuel, recording all maintenance activities and inspections relating to fueling equipment, and posting "Do Not Dump. Leads to Boston Harbor" at catch basins and other inlets within 100 yards of any aircraft fueling location.

f. Aircraft Maintenance Activities

Minor maintenance activities are permitted at the terminals and the terminal aprons. Minor maintenance activities include adding fluids, changing tires, batteries and hoses, and performing other maintenance activities that do not produce the potential of a release of pollutants. No fluid changes are permitted outside. Major maintenance is permitted inside hangers and other buildings designed for maintenance of aircraft. Major maintenance includes fluid changes, engine repairs or engine disassembly.

The following best management practices for maintenance activities on aircraft are designed to prevent storm water from contacting pollutants. Co-Permittees must implement the BMPs applicable to their facility and specific operations. The best management practices should include conducting major maintenance activities indoors, using "dry" cleaning and surface preparation techniques, using water-based cleaning agents or non-chlorinated solvents to clean equipment parts, avoiding maintenance activities or stage equipment near storm water catch basins, using proper collection equipment for oil, and regular cleaning of any catch basins.

g. **Automotive and Ground Service Equipment Maintenance Activities**

Automotive and ground service equipment (GSE) maintenance activities performed on airport property shall be performed indoors in maintenance garages or maintenance facilities. No maintenance activities shall be performed on terminal aprons at any time, except in case of an emergency.

Massport and the Co-Permittees that conduct automotive and ground service equipment maintenance activities shall develop best management practices for maintenance activities such as fluid changes, engine repairs or engine disassembly of automotive vehicles or ground service equipment. These practices are designed to prevent storm water from contacting pollutants associated with these activities. Massport and the Co-Permittees must develop best management practices that include conducting maintenance activities indoors, maintaining equipment in a clean condition, using "dry" cleaning and surface preparation techniques, using water-based cleaning agents or non-chlorinated solvents to clean equipment parts, eliminating excessive buildup of oil and grease on vehicles, performing maintenance activities or stage equipment away from storm water catch basins, using proper oil collection equipment, following proper storage and disposal practices for used oil filters and waste oil, regular cleaning of any catch basins, and posting "Do Not Dump. Leads to Boston Harbor" by catch basins within 100 yards of any automotive or ground service equipment maintenance.

6. Minimizing and Eliminating Rubber Removal Sources

Runway Maintenance - Over time, materials such as tire rubber, oil and grease, paint chips, and jet fuel can build up on the surface of a runway causing a reduction in the friction of the pavement surface. When the friction level of a runway falls below a specific level, maintenance must be performed. The Federal Aviation Administration (FAA) recommends several methods for removing rubber deposits and other contaminants from a runway surface including high pressure water, chemical solvents, high velocity particle impact, and mechanical grinding. If not properly managed, the materials removed from the runway surface could be discharged into nearby surface waters. Similarly, if chemical solvents are used in the maintenance operation, improper management practices could result in discharges of the chemical solvents in the storm water runoff from runway areas.

Massport currently uses sodium hydroxide in a several step process to periodically remove rubber deposits from the runways. The airport BMP Plan shall outline measures to minimize flows of these cleaning compounds and rubber materials

into the drainage system. Massport shall notify the EPA and DEP of any changes to this procedure. There are no tenants which conduct such activities.

7. Porter Street Monitoring Plan

Massport shall establish a sampling program to characterize storm water quality related to airport activities in the Porter Street drainage area. The sampling program will consist of a minimum of three (3) sampling locations. Sampling points will be split between the northern and southern portions of the drainage area. Sampling locations will be chosen to obtain samples that are representative of airport activities within the Porter Street drainage area and minimize contributions from the adjacent storm water system operated by the Boston Water and Sewer Commission. Massport shall prepare and maintain a sampling plan for performing monitoring within the Porter Street drainage area.

Massport shall meet with the Boston Water and Sewer Commission to confirm that the available maps of the storm water sewer system in the drainage area for Porter Street storm water outfall are accurate. Additional information may be available from the maps and the work being performed to correct infrastructure problems with the storm water sewer system and the sanitary sewer system. Based on this information, Massport shall develop a Porter Street Monitoring Plan which summarizes the information from the maps and establishes representative locations that shall be sampled for the pollutant monitoring requirements at the Porter Street Outfall - 003A, 003B and 003C, as required in Tables I.A.2 (page 5), I.A.3 (page 7) and I.A.8 (page 17) of the Draft Permit, respectively. Massport has 90 days from the effective date of this permit to develop and implement the Porter Street Monitoring Plan.

8. Runway/Perimeter Storm Water Outfalls Sampling Plan

Massport shall develop a Runway/Perimeter Storm Water Outfalls Sampling Plan to conduct quarterly sampling at outfalls A-1 through A-44 (Reporting as Outfall 006) during wet weather events and biennial sampling during deicing episodes. Massport shall sample at least 15 percent of the 44 (or 7) runway/perimeter storm water outfalls. Massport shall use the following criteria when developing the sampling locations:

- a. The runway being used during wet weather or a deicing episode, the planned pattern of runway and taxiway deicing, and the amount of deicer expected to be applied during the monitored event,
- b. Likelihood that a pollutant will be present where monitoring,

- c. Safety for the flights and the personnel conducting the sampling, and
- d. Ability to obtain a sample from the outfall pipe.

The plan should consider all of the criteria above and be flexible from one storm event to another since the criteria could change such as runway being used. Massport has 90 days from the effective date of this permit to develop and implement the Runway/Perimeter Storm Water Outfall Sampling Plan.

VII. 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) typically administer Section 7 consultations for bird, terrestrial, and freshwater aquatic species. The National Marine Fisheries Service (NMFS) typically administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, and plants to see if any such listed species might potentially be impacted by the re-issuance of this NPDES permit (see Attachment 1 to this Fact Sheet). The review has focused primarily on marine mammals, sea turtles and anadromous fish since the discharge is into Winthrop Bay and Boston Inner Harbor. Based on the normal distribution of these species, it is highly unlikely that they would be present in the vicinity of this discharge. In addition, this discharge is intermittent, not continuous. 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 Winthrop Bay and/or Boston Inner Harbor.

USFWS has informed EPA that no species of concern are present at Logan airport or in Boston Harbor. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to both NMFS and USFWS.

VIII. 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 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.

Proposed Action and Resources: As described in Section I of this Fact Sheet, Massport and Co-Permittees have applied for re-issuance of the NPDES Permit for Logan. With limitations, the permit allows Massport and the Co-Permittees to discharge storm water to the Boston Inner Harbor, Boston Harbor and Winthrop Bay. Massport submitted an updated permit application to EPA on March 20, 2006 for reissuance of their current permit. EPA intends to reissue the facility's NPDES permit for the discharge of storm water. Thus, Massport, as well as the Co-Permittees, will continue to discharge storm water to Winthrop Bay and Boston Inner Harbor through a number of discharge outfalls. The outfalls, operations, and potential sources of pollution are described previously in this Fact Sheet.

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 16 managed species within the NMFS boundaries encompassing the outfall locations. The area supports 12 of the 16 listed species during three or more of the life stage categories (i.e. eggs, larvae, juveniles, adults, and spawning adults). A copy of the managed species within the EFH is included in Attachment 2 to this Fact Sheet. It is possible that a number of these species utilize these receiving waters for spawning, while others are present seasonally.

Based on discussions with NMFS, managed species of particular concern in these receiving waters are Atlantic cod (*Gadus morhua*) and winter flounder (*Pseudopleuronectes americanus*). Winter flounder eggs are negatively buoyant and adhesive. Except for their presence on the major offshore banks, the eggs are generally deposited in very shallow coastal embayments. Winter flounder larvae are initially pelagic, but become more bottom oriented as metamorphosis approaches. Overall, winter flounder and Atlantic cod are largely demersal species.

Analysis of Effects: The discharge of storm water from the facility may impact essential fish habitat directly or indirectly. A potential direct impact is the toxic effect of individual pollutants or a combination of pollutants in the discharged storm water. A potential indirect effect is the depletion of dissolved oxygen in the receiving water below threshold levels necessary to support aquatic life. As described in Section VI.E.4.a. of this Fact Sheet, the facility uses deicing chemicals that can exert an elevated oxygen demand in receiving waters.

Several factors are expected to minimize any adverse impacts on EFH due to the facility's storm water discharges. Several of these factors relate to the nature of storm water discharges, locations of the outfalls, and mixing in receiving waters. For example, the discharges from the facility flow intermittently and are directly related to storm events. The outfalls discharge to Winthrop Bay and Boston Inner Harbor and become further diluted as they mix within the tidal currents of Boston Harbor. It is therefore unlikely that EFH are subject to immediate undiluted contact with any of the outfalls from the facility.

For this EFH assessment EPA reviewed ambient surface water monitoring data from the Massachusetts Water Resource Authority (MWRA). MWRA has collected this data regularly both before and after the operation of the Deer Island Sewage Treatment Plant and its new ocean outfall. Water quality levels in Boston Harbor have improved greatly and DO concentration levels have been stable in the harbor's waters over the past 10 years. The Massachusetts water quality standard for dissolved oxygen (DO) in marine waters is 5 mg/L for class SB water bodies. MWRA sampling points surrounding Logan Airport in Boston Inner Harbor and Boston Harbor recorded average dissolved oxygen levels of greater than 7 mg/L.⁵ Specifically, for MWRA sampling from 2003-2005, sampling in Winthrop Bay recorded average dissolved oxygen levels of 8.76 mg/L and sampling in Boston Inner Harbor recorded levels of 8.63 mg/L.⁶ The dissolved oxygen level in the harbor is not expected to decrease as a result of more stringent permit limits for the discharges from Logan.

Regarding airport operational factors, the most effective operational measures are pollution prevention measures to prevent pollutants from entering storm water. In this regard the draft permit requires the development, certification, and implementation of a Best Management Plan to prevent pollution in storm water. These requirements are mandated in Section I.B. of the draft permit and described in Section VI.G. of this Fact Sheet. Of particular relevance to the protection of essential fish habitat is the best management practices (BMPs) required in the Best Management Practices Plan to address the potential impacts on EFH by controlling the discharge of oxygen depleting compounds, notably deicing agents, to a degree that meets water quality

⁵ MWRA. 2002. *The State of Boston Harbor: Mapping the Harbor's Recovery*. Technical Report No. 2002-9, December 2002

⁶ MWRA. 2003-2005. *Boston Harbor and Tributary Rivers: Physical Measurements*. June 6, 2006. <http://www.mwra.state.ma.us/harbor/graphic/bh_physical_0305.xls> .

standards. It is anticipated that the best management practices (BMPs) included in the Best Management Practices Plan, in combination with environmental factors, will address any concerns of potential impacts on EFH due to the discharge of oxygen depleting compounds.

Regarding potential toxic effects due to pollutants in the discharged storm water, EPA feels that the discharges from the outfalls, as restricted by the draft permit conditions, will not directly or indirectly cause adverse effects to EFH species. The draft permit contains effluent limits that either meet or fall below the concentration for water quality standards of the Class SB receiving water of Boston Harbor. The draft permit establishes effluent limitations for flow, pH, oil and grease, TSS, and benzene. The draft permit also requires monitoring for surfactants, fecal coliform, enterococcus, PAHs, ethylene glycol, propylene glycol, BOD₅, COD, total ammonia nitrogen, nonylphenol, and tolyltriazole. EPA believes that the effluent limitations, conditions, and monitoring requirements contained in the draft permit are protective of state water quality standards, and therefore will minimize impacts to aquatic organisms including EFH species. Regarding potential EFH impacts due to combinations of chemicals in storm water discharges, EPA is requiring for the first time in this facility's permit, testing for chronic and acute whole effluent toxicity (WET) quarterly to ensure the aggregate of known or unknown pollutants in the effluent are not toxic to aquatic organisms.

Data gathered from the required monitoring in the draft permit will provide important information regarding the potential impact of the facility discharge on the water quality of Boston Harbor. If effluent monitoring detects pollutants at concentrations which reasonably could be expected to cause or contribute to a violation of state water quality standards (such as excessive nitrogen contributing to excessive eutrophication or excessive COD causing insufficient dissolved oxygen), then EPA can modify this permit to include numeric limits for those pollutants.

EPA's Opinion of all Potential Impacts and Proposed Mitigation: With the adoption of the mitigating measures contained in the draft permit, EPA concludes that the discharge from the storm water permitted outfalls at Logan Airport will not have significant adverse effects on essential fish habitat. This is based on the following factors:

1. The discharge is intermittent.
2. The permit contains an increased number of Best Management Practices to be implemented to minimize pollutant load.
3. The permit contains substantially increased monitoring requirements, including whole effluent toxicity testing.
4. A number of sensitive marine resources, including salt marsh, soft shell clams and eelgrass, exist and thrive along the very edge of the airfield. These resources have historically been exposed to storm water runoff from the airport and have survived.

Further mitigation for unavoidable impacts associated with re-issuance of this permit is not warranted at this time because it is EPA's opinion that impacts will be negligible if permit conditions are closely followed. 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 designated to be protective of all aquatic species, including those with EFH designations.

Future Environmental Review: The draft permit reflects a much more conservative approach for the protection of water quality in the harbor than the current permit, which will continue to be in effect until this draft permit is finalized. The draft permit contains a number of monitoring provisions which will be beneficial in future environmental reviews. This NPDES permit will be up for renewal five years from its effective date. At that time, EPA will reassess the requirements necessary to meet water quality standards and protect EFH. In the meantime, once the new NPDES permit is effective, if adverse impacts to EFH do occur either as a result of non-compliance or from unanticipated effects from this activity, consultation with NMFS will be reinitiated. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to NMFS for consultation with NMFS under Section 305(b)(2) of the Magnuson-Stevens Act for EFH.

IX. Anti-backsliding

Anti-backsliding as defined at 40 C.F.R. §122.44(l)(1) requires reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation. This permit is either as stringent or more stringent than the previous permit issued in 1987 including an increase in the number of pollutants having effluent limits, an increase in the number of pollutants being monitored, a tightening of the pH range, and an increase in the number of storm water outfalls that are being monitored.

X. Anti-degradation

The Massachusetts Anti-degradation Policy is found at 314 CMR 4.04. All existing uses of the Boston Harbor must be protected. This Draft Permit is being reissued with as stringent or more stringent discharge limits than the current permit. EPA and MassDEP have determined that anti-degradation requirements for this permit are preserved because the existing water quality of the receiving water will be maintained or improved.

XI. State Certification Requirements

EPA may not issue a permit in the Commonwealth of Massachusetts unless the commissioner of MassDEP certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the MassDEP has reviewed the Draft Permit. EPA has requested state certification for this permit pursuant to 40 C.F.R. § 124.53 and expects that the Draft Permit will be certified.

XII. Comment Period, Hearing Requests, and Procedures for Final Decisions

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:

**Ms. Nicole Kowalski
U.S. EPA
One Congress Street
Suite 1100 (CIP)
Boston, Massachusetts 02114-2023**

EPA and the MassDEP have decided to hold an informal public meeting that will be followed by a public hearing to consider the Draft Permit to EPA and the State Agency. A public hearing shall be held at the East Boston High School on August 24, 2006, which provides at least a thirty days public notice. The public notice is attached to this Fact Sheet. The 45-day comment period ends on September 8, 2006. 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.

After the public hearing, and following the close of the comment period, the Regional Administrator of EPA and the Director of the MassDEP 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. Permits may be appealed to the Environmental Appeals Board in the manner described at 40 CFR § 124.19.

XIII. EPA and MassDEP Contact

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:

Ms. Nicole Kowalski
US Environmental Protection Agency
One Congress Street
Suite 1100 (CIP)
Boston, Massachusetts 02114-2023
Telephone: 617-918-1746
fax: 617-918-0744
e-mail: kowalski.nicole@epa.gov

and

Mr. Paul Hogan
Department of Environmental Protection
Division of Watershed Management
627 Main Street
Worcester, MA 01608
Telephone: 508-767-2796
Fax: 508-791-4131
E-mail: paul.hogan@state.ma.us

DATE

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