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

FACT SHEET

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

NPDES PERMIT NO: **MA0032751**

PUBLIC NOTICE DATE:

NAME AND ADDRESS OF APPLICANT:

Massachusetts Port Authority
Environmental Management Unit
One Harborside Drive, LOC, 207S
East Boston, Massachusetts 02128

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Massachusetts Port Authority
Logan International Airport
Fire Training Facility
East Boston, Massachusetts 02128

RECEIVING WATER: **Boston Harbor (USGS Hydrologic Code #01090001), (MA70)**

CLASSIFICATION: **Class SB**

I. PROPOSED ACTION

The Massachusetts Port Authority (Massport), the permittee, operates a fire training facility on its property at Logan International Airport primarily for its fire department. This system was constructed in 1989 to serve as a Federal Aviation Administration's (FAA) regional fire training center. The permittee applied on May 5, 2006 for the re-issuance of this NPDES permit to discharge treated fire training water from Outfall 001 to Boston Harbor. Refer to Attachment A to this Fact Sheet for a map of the outfall location and to Attachment B for a layout of the fire training facility.

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II. DESCRIPTION OF DISCHARGE

Massport has been reusing the treated wastewater from the fire training facility on-site for over the past two years. Since issuance of the current permit, Massport has only discharged on two occasions. One discharge occurred in December 2003 and one in June 2006. No violations of the current permit limits occurred (See Attachment C). Massport only discharges water from the facility when absolutely necessary. Possible reasons for discharge include multiple precipitation events and end of fire training facility season to prevent freezing.

Massport operates this facility from about April through November of each year and conducts fire training for its own fire department and those of regional airports and municipalities of Massachusetts. The facility is composed of a 100 foot diameter burn pit, which has a lined containment system. This burn pit contains a mock-up aircraft, control building and other support structures. This allows for a simulation of a general airplane engine fire. Jet fuel is ignited continuously in the pit until the fire is suppressed. Water from an on-site 10,000 gallon water storage tank and from fire fighting trucks, along with anti-fire fighting foam (AFFF), are used to suppress the fire. The AFFF is used sparingly and usually toward the end of some training sessions. The water foam and unburned fuel is discharged from the burn pit via an overflow weir to an oil/water separator. A high percentage of unburned fuel from the pit is collected to be reused in future sessions. There are anywhere from 35-70 testing sessions conducted per year, with roughly 8,000 to 15,000 gallons of water and 800 gallons of fuel used per test. Storm water that collects within the containment system follows the same treatment train as the fire training water.

Treated water from the separator is then sent to a series of four 6,000 gallon flow equalization/surge tanks, followed by filtration and treatment with a granulated activated carbon (GAC) unit at a flow rate of approximately 40 gallons per minute (gpm). Sampling occurs for every treatment event at the outlet of the GAC unit. Treated water is then sent to an above ground storage tank for later reuse, if possible, or discharge. This tank can typically store water from several training sessions. The first option for this water is to reuse it in future training sessions. Water that cannot be reused is eventually discharged to an existing storm drain to Boston Harbor. See Attachment D for a schematic of the treatment system. The filter system is periodically backwashed with this water being sent back through the O/W separator.

III. BASIS FOR EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The effluent limitations, monitoring requirements, and any implementation schedule, if required, may be found in Part 1 (Effluent Limitations and Monitoring Requirements) of the draft permit. The permit re-application is part of the administrative file (Permit No. MA0032751).

A. General Requirements

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent

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

1. Technology-Based Requirements

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

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (see 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. In general, technology-based effluent guidelines for non-POTW facilities must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 [See 40 CFR §125.3(a)(2)]. Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit.

EPA has not promulgated technology-based National Effluent Guidelines for discharges from airports, flying fields, and airport terminal services (Standard Industrial Code 4581) or services, not elsewhere classified (Standard Industrial Code 8999). In the absence of technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using Best Professional Judgement (BPJ).

2. Water Quality-Based Requirements

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

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

Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts. The Commonwealth of Massachusetts (State) has a similar narrative criterion in their water quality regulations that prohibits such discharges [See Massachusetts Title 314 CMR 4.05(5)(e)]. The effluent limits established in the draft permit assure that the surface water quality standards of the receiving water are protected, maintained, and/or attained.

3. Anti-Backsliding

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

4. Anti-Degradation

The Massachusetts Anti-Degradation Policy is found at Title 314 CMR 4.04. All existing uses of Boston Harbor must be protected. Boston Harbor is classified as a Class SB water body by the State of Massachusetts and as such, is designated as a habitat for fish, other aquatic life and wildlife and for primary (e.g., wading and swimming) and secondary (e.g., fishing and boating) contact recreation. A Class SB water body may also be suitable for shellfish harvesting. This draft permit is being reissued with allowable effluent limits as stringent as or more stringent than the current permit and accordingly will continue to protect the existing uses of Boston Harbor.

B. Flow

Total flow volume shall be reported monthly in gallons and the maximum flow rate limit shall be 60 gpm for each discharge event. The monitoring requirement for the average monthly flow rate is based upon the monitoring requirements established in the current permit in accordance with the anti-backsliding requirements found in 40 CFR §122.44(l). The 60 gpm maximum daily limit is based upon the maximum flow rate through the treatment train.

C. Total Suspended Solids (TSS)

Solids are considered a "conventional pollutant" (as opposed to toxic). Suspended materials in water can cause turbidity, discoloration, interruption of light passage for aquatic growth, coating of fish gills, and sedimentation on stream bottoms interfering with egg laying and feeding. They

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can also act as carriers (through adsorption) of toxic materials and cause interference with proper operation and maintenance of carbon adsorption units. Monitoring of TSS is particularly important to maintaining good operation of subsequent treatment units in the system such as carbon adsorption (e.g clogging of pores in the carbon granules) and to aid in the removal of contaminants which are adsorbed to soil particles.

Treatment technology is well understood and properly designed filtration systems can easily remove TSS to low concentrations. The Draft Permit requires TSS to be reported once per discharge event to ensure that the carbon filtration unit continues to operate properly.

D. Oil and Grease (O&G)

The Massachusetts Water Quality Standards at 314 CMR 4.00 require that Class SB waters "shall be free from oil, grease and petrochemicals 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." Both discharge events resulted in an O&G concentration of 0 mg/L. The limit of 15 mg/L, monitored once per discharge event, has been continued in the draft permit is based upon the limits established in the current permit in accordance with the anti-backsliding requirements found in 40 CFR §122.44(l).

E. BTEX Compounds

The Draft Permit establishes a technology-based effluent limit for benzene of 5.0 µg/L, as a maximum daily limit monitored once per discharge event. This is also the Maximum Contaminant Level (MCL) for benzene in drinking water. Due to the low organic carbon adsorption coefficient (K_{oc}) value of benzene, it is most likely to "break through" when using carbon treatment and appear in the effluent when the carbon's absorptive capacity is becoming exhausted and needs replacement. Since benzene is an indicator compound, benzene breakthrough would also indicate that other hydrocarbons are no longer being sorbed as well. Benzene is also one of the most toxic constituents (listed as a carcinogen in EPA's drinking water standards). Therefore, an effluent limitation for benzene is needed to insure adequate control of any other volatile constituents in the discharge.

The Draft Permit also establishes a technology-based effluent limit for total BTEX compounds of 100 µg/L as a maximum daily limit to be monitored once per discharge event. This is more stringent that the 300 µg/L maximum daily limit established in the Current Permit. The new limit is based on the typical removal efficiency for BTEX using commercially available technology.

The toluene limit from the Current Permit (average monthly limit of 5.0 mg/L and a maximum daily limit of 6.3 mg/L) is less stringent than the effluent limit for total BTEX compounds of 100 µg/L established in the Draft Permit. Therefore, the effluent limit for total BTEX established in the Draft Permit will serve to regulate the toluene to a lower level. Additionally, the concentration of toluene shall be reported once per discharge event.

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The concentrations of the remaining BTEX compounds (Ethylbenzene and Xylene) shall be reported once per discharge event. The two discharges resulted in 0 mg/L concentrations for all BTEX compounds.

F. pH

The pH limit of 6.5 to 8.5 in the draft permit, monitored once per discharge event, is the same as that in the current permit. This limit is based upon the limits established in the current permit in accordance with the anti-backsliding requirements found in 40 CFR §122.44(l). The discharge event in December 2003 resulted in a minimum pH of 6.8 SU and a maximum of 7.1 SU. The discharge event in June 2006 resulted in a minimum pH of 7.0 SU and a maximum of 7.0 SU.

G. Polynuclear Aromatic Hydrocarbons (PAHs)

The draft permit establishes a maximum daily discharge limit of 100 µg/L, which is more stringent than the 300 µg/L maximum daily limit in the current permit. The new maximum daily discharge value is to be reported once per discharge event, along with monitoring for the average monthly discharge value. The new limit is based on the maximum daily limit established in the Remediation General Permit limit, based on available technology. The two discharge events resulted in a PAH concentration of 0 mg/L.

H. Whole Effluent Toxicity (WET) Test

Under Section 301(b)(1) of the CWA, discharges are subject to effluent limitations based on water quality standards. The State Surface Water Quality Standards [314 CMR 4.05(5)(e)], include the following narrative statements and require that EPA criteria established pursuant to Section 304(a)(l) of the CWA be used as guidance for interpretation of the following narrative criteria:

> "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. Where the State determines that a specific pollutant not otherwise listed in 314 CMR 4.00 could reasonably be expected to adversely affect existing or designated uses, the State shall use the recommended limit published by EPA pursuant to 33 U.S.C. 1251 §304(a) as the allowable receiving water concentrations for the affected waters unless a site-specific limit is established. Site specific limits, human health risk levels and permit limits will be established in accordance with 314 CMR 4.05(5)(e)(1-4)."

To protect water quality, EPA recommends that WET tests be used in NPDES permits together with requirements based on chemical-specific water quality criteria. While EPA has established aquatic life criteria for a relatively small number (126) of chemical-specific pollutants, WET tests can measure toxicity caused by other compounds for which EPA does not have chemical-specific numeric criteria for the protection of aquatic life or approved parameter-specific analytical test methods. In addition, WET tests evaluate the integrated effects of all chemicals in the aqueous sample. Therefore, toxicity testing is used in connection with pollutant-specific control procedures to control the discharge of toxic pollutants. The WET monitoring results in

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the draft permit will generate data for use in assessing whether establishment of a WET limit is necessary.

In order to evaluate the potential toxicity of the intermittent discharge, one acute toxicity test is required per year. See Attachment 1 (Acute Marine Toxicity Test Procedure and Protocol) to the draft permit for a description of the testing requirements.

IV. 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 administers 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, or plants to see if any such listed species might potentially be impacted by the re-issuance of this NPDES permit. The review has focused primarily on marine species and anadromous fish since the discharge is into Boston Harbor. Given the urban nature of the Boston Harbor, EPA believes that it is unlikely that there would be any listed marine species (see Attachment E to this Fact Sheet) or critical habitat present. Furthermore, effluent limitations and other permit conditions which are in place in this draft permit should preclude any adverse effects should there be any incidental contact with listed species in Boston 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.

V. 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.

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 F to this Fact Sheet.

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.

The discharge of treated fire training water from the facility is not expected to impact essential fish habitat. Several factors are expected to minimize any adverse impacts on EFH due to the facility's treated fire training water discharges. The intermittent discharge from the facility, as well as the dilution from both the large amount of water used during the operation of the training facility and from mixing with the tidal currents of Boston Harbor, make it unlikely that EFH are subject to immediate undiluted contact with discharge from the facility. EPA concludes that the discharge from the fire training facility water permitted outfall at Logan Airport will not have significant adverse effects on EFH. 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.

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.

VI. STATE CERTIFICATION REQUIREMENTS

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

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VII. COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

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

Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider the draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston Office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within thirty (30) days following the notice of final permit decision, permits may be appealed to the Environmental Appeals Board in the manner described at 40 CFR § 124.19.

VIII. EPA 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 the EPA and MassDEP contacts below:

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_____ Linda M. Murphy, Director

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Date

Office of Ecosystem Protection
U.S. Environmental Protection Agency

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