UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I - NEW ENGLAND
OFFICE OF ECOSYSTEM PROTECTION
ONE CONGRESS STREET
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET ADDENDUM

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

DATE OF PUBLIC NOTICE: March 28, 2005

NPDES PERMIT NO.: MA0000272

NAME AND ADDRESS OF APPLICANT:

Boston and Maine Corporation
Iron Horse Park
North Billerica, MA 01862

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Boston and Maine East Deerfield Rail Yard
39 Railroad Yard Road
East Deerfield, MA 01342

RECEIVING WATERS: Connecticut River Basin (Segment MA34-04)

CLASSIFICATION: Class B, Warm Water Fishery

I. Proposed Action

The Boston and Maine Corporation (B&M) has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MA DEP) for the re-issuance of their National Pollutant Discharge System (NPDES) permit. On December 28, 2004, EPA released the Fact Sheet and Draft Permit for a 30-day public comment period. Four of five commenters requested a Public Hearing/Meeting. After discussions with people requesting a Public Hearing/Meeting, these parties agreed with EPA to have an interactive Public Meeting to discuss how EPA developed the Draft Permit. Additionally, the parties requested another opportunity to submit comments after the Public Meeting. EPA agreed to reopen the Public Comment Period for an additional 30 days at the conclusion of the Public Meeting. The EPA will hold the Public Meeting on Wednesday, April 13, 2005 at 7 p.m. at the Deerfield Municipal Office Building located at 8 Conway Street in South Deerfield, Massachusetts. The reopening of the Public Comment Period will begin at the closing of the Public Meeting and will end on May 13, 2005.

Based on recently released or about to be released draft permits at EPA Region I for NPDES facilities in Massachusetts, EPA is proposing one modification to the draft permit at the B&M East Deerfield Rail Yard. EPA is adding an effluent limit of 51 micrograms/liter (ug/l) for benzene at Outfall 004 to the Draft Permit. This modification is being presented in this addendum to the Fact Sheet for public comment along with the revised chart in the Draft Permit (Outfall 004 Table, Section I.A, page 2 of 14), which is included with this Fact Sheet. All the information released for public comment on December 28, 2004 and the information being released today for this modification can be found at http://www.epa.gov/region1/npdes/mass.html#poi on the internet. Details for the basis of this modification are presented below.

Additionally, EPA has received sampling results from B&M for the five storm water discharges (Outfalls 001, 002, 003, 005, and 006) from a storm event on October 19, 2004. B&M sampled each storm water outfall for Conventional Pollutants such as biological oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), pH (acid/alkalinity), and oil & grease (O&G). B&M also sampled for Non-Conventional Pollutants such as, ammonia nitrogen (AN), total Kjeldahl nitrogen (TKN), total organic nitrogen(TON), and total phosphorus (TP). Finally, B&M sampled for other pollutants by analyzing for total metals (TM), volatile organics (VO), polychlorinated biphenyls (PCBs), hydrocarbon scan (HS), volatile petroleum hydrocarbons (VPH), and extractable petroleum hydrocarbons (EPH). Summary tables of the sampling results for each outfall are attached to this Fact Sheet. Parameter are reported in units of milligrams per liter (mg/l) unless otherwise noted. Only parameters with detected quantities are reported in these tables.

II. Basis of Discharge Limit for Benzene at Outfall 004

B&M uses diesel fuel to power its locomotives at B&M East Deerfield Rail Yard. A pollutant stream is generated at the Fuel & Sand Facility during the fueling of the locomotives. An underground pad captures any spilled diesel fuel during fueling. The fuel mixes with precipitation during a storm event. This process waste water is conveyed and treated by a series of oil/water separators before being treated at the waste water treatment plant that uses chemically-assisted dissolved-air floatation (DAF) technology.

Fuel refined petroleum products contain numerous types of hydrocarbons. Diesel fuel contains benzene, toluene, ethylbenzene and xylene among other hydrocarbons (mixture of volatile organic compounds and polynuclear aromatic 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 waste 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 relatively high concentrations in light distillate products, such as diesel fuel. Since many petroleum spills involve diesel fuel, a traditional approach for such spills has been to place limits on the individual BTEX components and/or the sum of total BTEX compounds. Of these four compounds, benzene has one of the highest solubilities, is one of the most toxic constituents, and is found at relatively high concentrations in diesel fuel (290 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. 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. 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 B 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).

The revised draft permit requires the sampling frequency for benzene to be once per month by grab sample. A grab sample shall be taken once per month at the point of discharge during normal operating conditions. On a monthly basis B&M shall report on DMRs the maximum daily value of the benzene testing results.

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[1] See "Composition of Petroleum Mixtures," Total Petroleum Hydrocarbon Criteria Working Group Series, T.L. Potter and K.E. Simmons, Vol. 2, p. 52 (May 1998).

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge storm water and process waste water treated by a Dissolved Air Flotation system from outfall serial number **004** to an unnamed brook that flows to the Connecticut River. Such discharge shall be limited, monitored and reported by the permittee as specified below.

Effluent Characteristic	Discharge Limitations		Monitoring Requirement	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Outfall 004				
Flow Rate from Engine House (gpd) [1]	Report	Report	Continuous	Recorder
Flow Rate from Sand & Fuel Facility (gpd) [1]	Report	Report	Continuous	Recorder
Flow Rate from Outfall 004 (gpd) [1]	15,000	45,000	Continuous	Recorder
Temperature, Maximum (ºF) [2, 3]	Report	83	Continuous	Recorder
Oil & Grease (mg/l) [2, 4]	*****	3.0	1 / Month	Grab
Surfactants (mg/l) [4]	*****	0.3	1 / Month	Grab
pH (SU) [2, 5]	*****	6.5 to 8.3	Continuous	Recorder
Benzene (ug/l) [4]	*****	51.0	1 / Month	Grab
Total Suspended Solids (mg/l) [2, 4]	*****	50.0	1 / Month	Grab
Whole Effluent Toxicity Testing [6]	*****	Report	1 / Year	Grab
Priority Pollutants (ug/l) [7]	*****	Report	1 / Year	Grab

(See next page for Footnotes)

Stormwater Outfall 001 Sampling Results

Type of Analysis/Sample Type	Parameter	Result
Field	Temperature (ºC)	10.4
Field	pH (Standard Units)	6.93
Composite	TKN (mg/l)	0.35
Composite	TON (mg/l)	0.32
Composite	TP (mg/l)	0.01
Grab First Flush	TON (mg/l)	0.20
Grab First Flush	TP (mg/l)	0.03

Stormwater Outfall 002 Sampling Results

Type of Analysis/Sample Type	Parameter	Result
Field	Temperature (ºC)	10.2
Field	pH (Standard Units)	6.71
Composite	TSS (mg/l)	6.2
Composite	TP (mg/l)	0.01
Composite	BOD, 5 day (mg/l)	2.0
Composite/Total Metals	Total Zinc (mg/l)	0.07
Composite/Hydrocarbon Scan	Unknown Hydrocarbon (mg/l)	0.16
Grab First Flush	TSS (mg/l)	11.0
Grab First Flush	TKN (mg/l)	0.40
Grab First Flush	TON (mg/l)	0.39
Grab First Flush	TP (mg/l)	0.02
Grab First Flush/Total Metals	Total Zinc (mg/l)	0.06

Stormwater Outfall 003 Sampling Results

Type of Analysis/Sample Type	Parameter	Result
Field	Temperature (ºC)	10.9
Field	pH (Standard Units)	7.13
Composite	AN (mg/l)	0.101
Composite/Total Metals	Total Zinc (mg/l)	0.10
Composite/Hydrocarbon Scan	Unknown Hydrocarbon (mg/l)	0.31
Grab First Flush	AN (mg/l)	0.105
Grab First Flush	COD (mg/l)	27.0
Grab First Flush/Total Metals	Total Zinc (mg/l)	0.13
Grab First Flush/Hydrocarbon Scan	Unknown Hydrocarbon (mg/l)	0.36
Grab First Flush/Extractable Petroleum Hydrocarbons	C19-C36 (mg/l)	0.257

Stormwater Outfall 005 Sampling Results

Type of Analysis/Sample Type	Parameter	Result
Field	Temperature (ºC)	10.4
Field	pH (Standard Units)	6.19
Composite	TSS (mg/l)	34
Composite	AN (mg/l)	0.188
Composite	TKN (mg/l)	0.98
Composite	TON (mg/l)	0.79
Composite	TP (mg/l)	0.17
Composite	COD (mg/l)	39.0
Composite	BOD (mg/l)	5.0
Composite/Total Metals	Total Copper (mg/l)	0.01
Composite/Total Metals	Total Lead (mg/l)	0.026
Composite/Total Metals	Total Zinc (mg/l)	0.07
Composite/Hydrocarbon Scan	Unknown Hydrocarbon (mg/l)	0.32
Composite/Extractable Petroleum Hydrocarbons	C19-C36 (mg/l)	0.253
Grab First Flush	TSS (mg/l)	35.0
Grab First Flush	AN (mg/l)	0.259
Grab First Flush	TKN (mg/l)	0.81
Grab First Flush	TON (mg/l)	0.55
Grab First Flush	TP (mg.l)	0.16
Grab First Flush	BOD (mg/l)	3.5
Grab First Flush/Total Metals	Total Copper (mg/l)	0.01
Grab First Flush/Total Metals	Total Lead (mg/l)	0.024
Grab First Flush/Total Metals	Total Zinc (mg/l)	0.07
Grab First Flush/Extractable Petroleum Hydrocarbons	C19-C36 (mg/l)	0.273

Stormwater Outfall 006 Sampling Results

Type of Analysis/Sample Type	Parameter	Result
Field	Temperature (ºC)	11.1
Field	pH (Standard Units)	6.92
Composite	TP (mg/l)	0.01
Composite/Total Metals	Total Zinc (mg/l)	0.07
Grab First Flush	TSS (mg/l)	24.0
Grab First Flush	AN (mg/l)	0.076
Grab First Flush/Total Metals	Total Zinc (mg/l)	0.07