

**AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

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

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

is authorized to discharge from a facility located at

**Boston and Maine Corporation (B&M)  
East Deerfield Rail Yard  
38 Railroad Yard Road  
East Deerfield, MA 01342**

to receiving water named

**unnamed wetlands that flow to the Connecticut River (Connecticut River Basin MA-34)**

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

This permit shall become effective on the first day of the calendar month following 60 days after signature if comments are received. If no comments are received, this permit shall become effective following signature.

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

This permit supersedes the permit issued on September 23, 2005, modified on August 11, 2006, and expired (as modified) on November 22, 2010.

This permit consists of 19 pages in Part I including effluent limitations, monitoring requirements, 7 pages in Attachment 1 – Freshwater Chronic Toxicity Test Procedure and Protocol, and 25 pages in Part II including Standard Conditions.

Signed this      day of

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Stephen S. Perkins, Director  
Office of Ecosystem Protection  
Environmental Protection Agency Program  
Boston, MA

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David Ferris, Director  
Massachusetts Wastewater Management  
Department of Environmental Protection  
Commonwealth of Massachusetts  
Boston, MA

**PART I****A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge treated process water and stormwater through **Outfall Serial Number 004** to an unnamed wetland that flows to the Connecticut River. Such discharge shall: 1) be limited and monitored by the permittee as specified below; and 2) not cause a violation of the State Surface Water Quality Standards of the receiving water.

| Effluent Characteristic                          | Units | Discharge Limitation |               | Monitoring Requirements <sup>1</sup> |             |
|--|-------|----------------------|---------------|--------------------------------------|-------------|
|  |       | Average Monthly      | Maximum Daily | Measurement Frequency <sup>2</sup>   | Sample Type |
| Flow Rate from Sand & Fuel Facility <sup>3</sup> | GPD   | Report               | Report        | Continuous                           | Recorder    |
| Flow Rate from Engine House <sup>3</sup>         | GPD   | Report               | Report        | Continuous                           | Recorder    |
| Flow Rate from Outfall 004 <sup>3</sup>          | GPD   | 15,000               | 45,000        | Continuous                           | Recorder    |
| Temperature <sup>4</sup>                         | °F    | Report               | 83            | Continuous                           | Recorder    |
| Oil and Grease (O&G)                             | mg/L  | ---                  | 3.0           | 1/Month                              | Grab        |
| Surfactants                                      | mg/L  | ---                  | 0.3           | 1/Month                              | Grab        |
| pH <sup>5, 6</sup>                               | SU    | 6.5 – 8.3            |               | Continuous                           | Recorder    |
| Benzene  | ug/L  | ---                  | 51.0          | 1/Month                              | Grab        |
| Total Suspended Solids (TSS)                     | mg/L  | ---                  | 50.0          | 1/Month                              | Grab        |

| Effluent Characteristic                     | Units    | Discharge Limitation |               | Monitoring Requirements <sup>1</sup> |                        |
|---|----------|----------------------|---------------|--------------------------------------|------------------------|
|   |          | Average Monthly      | Maximum Daily | Measurement Frequency <sup>2</sup>   | Sample Type            |
| Priority Pollutants                         |          |                      |               |                                      |                        |
| Asbestos                                    | fibers/L | ---                  | Report        | 1/Year                               | Grab                   |
| Total BTEX                                  | ug/L     | ---                  | Report        | 1/Year                               | Grab                   |
| Toluene                                     | ug/L     | ---                  | Report        | 1/Year                               | Grab                   |
| Ethylbenzene                                | ug/L     | ---                  | Report        | 1/Year                               | Grab                   |
| Xylenes                                     | ug/L     | ---                  | Report        | 1/Year                               | Grab                   |
| Whole Effluent Toxicity (WET)               |          |                      |               |                                      |                        |
| Chronic C-NOEC <sup>8, 9, 10</sup>          | %        | ≥ 100                |               | 1/Year                               | Composite <sup>7</sup> |
| Hardness <sup>11</sup>                      | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Residual Chlorine (TRC) <sup>11</sup> | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Alkalinity <sup>11</sup>                    | SU       | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| pH <sup>11</sup>                            | μmhos/cm | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Specific Conductance <sup>11</sup>          | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Solids <sup>11</sup>                  | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Dissolved Solids <sup>11</sup>        | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Ammonia <sup>11</sup>                       | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Organic Carbon <sup>11</sup>          | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Cadmium <sup>11</sup>                 | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Lead <sup>11</sup>                    | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Copper <sup>11</sup>                  | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Zinc <sup>11</sup>                    | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Nickel <sup>11</sup>                  | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |
| Total Aluminum <sup>11</sup>                | mg/L     | Report               |               | 1/Year                               | Composite <sup>7</sup> |

See pages 4–5 for explanation of footnotes.

**(Part I.A.1, Continued)****Footnotes:**

1. All samples shall be representative of the effluent that is discharged through Outfall 004, except the flow rate from the Sand & Fuel Facility. All required effluent samples (with the exception of the flow rate from the Sand & Fuel Facility) shall be collected immediately after the final treatment unit. All samples shall be taken during normal operating conditions, which are defined as normal working hours when the maintenance and fueling facilities are operating. A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report submitted to EPA. In addition, all samples shall be analyzed using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.
2. Sampling frequency of 1/month is defined as the sampling of one (1) discharge event during each calendar month, when discharge occurs. Sampling frequency of 1/year is defined as the sampling of one (1) discharge event during each calendar year, when discharge occurs, during the month of March. If no discharge occurs in March, the permittee shall report the appropriate no data indicator (NODI) code on the DMR and sample as soon thereafter as discharge occurs. The permittee shall submit the results to EPA of any additional testing done to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii). Analytical results shall be reported before the 15<sup>th</sup> of the month following the sampling event.
3. Flow rates shall be continuously monitored at three locations: 1) at a representative location to measure the flow from the Fuel & Sand Facility, 2) a representative location to measure the flow from the Engine House, and 3) after treatment in the WWTP at a location representative of the discharge through Outfall 004. On a monthly basis, the permittee shall report the average monthly flow value and maximum daily flow value from each of the two monitoring locations in gallons per day (gpd), as well as the maximum daily flow value in gallons per minute (gpm), on Discharge Monitoring Report Forms (DMRs) before the 15<sup>th</sup> of the following month.
4. The permittee shall continuously monitor and record the temperature of the discharge, after treatment in the WWTP at a representative location of the discharge through Outfall 004. On a monthly basis, the permittee shall report the maximum daily value and the average monthly value of the average daily values in degrees F before the 15<sup>th</sup> of the following month. Additionally, the rise in temperature of the receiving water shall not exceed 5 degrees F, consistent with State Water Quality Standards. The permittee shall collect concurrent samples of the receiving water, at a location representative of the ambient temperature of the receiving water to ensure this requirement is met.
5. The permittee shall continuously monitor and record the pH of the discharge, after treatment in the WWTP at a representative location of the discharge through Outfall 004. On a monthly basis, the permittee shall report the pH value in SU before the 15<sup>th</sup> of the following month.
6. Required for State Certification. See Permit Part I.A.5.

7. A composite sample shall consist of a minimum of eight (8) grab samples of equal volume collected at equal intervals during a 24-hour period and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period. In the event that the discharge does not last 24 hours, sample at hourly intervals for the length of time of the discharge, not to be less than 4 hours (i.e., no less than four samples).
8. The permittee shall conduct annual chronic toxicity tests. The permittee shall test the daphnid, Ceriodaphnia dubia, and the fathead minnow, Pimephales promelas. Samples shall be collected during the second week of March, and submit the results with the March reporting results, before the 15<sup>th</sup> of April. If no discharge event occurs during the second week of March, the permittee shall sample as soon as a discharge event through Outfall 004 occurs, and submit the results no later than the 15<sup>th</sup> of the month following the month the sample was collected. The tests must be performed in accordance with test procedures and protocols specified in Attachment 1 of this permit.
9. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing where the results exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect. The effluent C-NOEC limit is based upon effluent flow from the treatment facility. This is a maximum daily limit derived as a percentage of the inverse of the dilution factor. Based on no available dilution, the C-NOEC maximum daily limit is 100%.
10. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in Attachment 1 (Toxicity Test Procedure and Protocol) Section IV, DILUTION WATER in order to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the *Self-Implementing Alternative Dilution Water Guidance* which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of *NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA, Region I web site at <http://www.epa.gov/Region1/enforcementandassistance/dmr.html>. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in Attachment 1. Any modification or revocation to this guidance will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in Attachment 1.
11. For each Whole Effluent Toxicity (WET) test the permittee shall report on the appropriate Discharge Monitoring Report (DMR), the concentration of the hardness, total residual chlorine, alkalinity, pH, specific conductance, total solids, total dissolved solids, ammonia, total organic carbon, cadmium, lead, copper, zinc, nickel, and aluminum found in the 100 percent effluent sample. Metals shall be reported as total recoverable concentrations. The permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report. The permittee shall also document the outfall sampling locations and dilution water sampling location by providing either the USGS coordinates and/or a map of these locations.

**PART I****A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

2. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge stormwater through **Outfall Serial Numbers 001, 002, 003, 005, and 006** to unnamed wetlands that flow to the Connecticut River. Such discharge shall: 1) be limited and monitored by the permittee as specified below; and 2) not cause a violation of the State Surface Water Quality Standards of the receiving water.

| Effluent Characteristic      | Units      | Discharge Limitation |               | Monitoring Requirements <sup>1,2</sup> |                          |
|------------------------------|------------|----------------------|---------------|--|--------------------------|
|                              |            | Average Monthly      | Maximum Daily | Measurement Frequency <sup>3</sup>     | Sample Type <sup>4</sup> |
| Flow Rate <sup>5</sup>       | GPM        | ---                  | Report        | 1/Year                                 | Estimate                 |
| Oil and Grease (O&G)         | mg/L       | ---                  | Report        | 1/Year                                 | Grab                     |
| Total Suspended Solids (TSS) | mg/L       | ---                  | Report        | 1/Month                                | Grab                     |
| pH <sup>6</sup>              | SU         | Report               |               | 1/Year                                 | Grab                     |
| E. Coli                      | cfu/100 mL | ---                  | Report        | 1/Quarter                              | Grab                     |
| Asbestos                     | fibers/L   | ---                  | Report        | 1/Year                                 | Grab                     |
| Mercury                      | ug/L       | ---                  | Report        | 1/Quarter                              | Grab                     |

| Effluent Characteristic                            | Units | Discharge Limitation |               | Monitoring Requirements <sup>1,2</sup> |             |
|--|-------|----------------------|---------------|--|-------------|
|  |       | Average Monthly      | Maximum Daily | Measurement Frequency <sup>3</sup>     | Sample Type |
| Total BTEX   | mg/L  | ---                  | Report        | 1/Year                                 | Grab        |
| Benzene  | mg/L  | ---                  | Report        | 1/Year                                 | Grab        |
| Toluene  | mg/L  | ---                  | Report        | 1/Year                                 | Grab        |
| Ethylbenzene                                       | mg/L  | ---                  | Report        | 1/Year                                 | Grab        |
| Xylenes  | mg/L  | ---                  | Report        | 1/Year                                 | Grab        |
| Polynuclear Aromatic Hydrocarbons (PAHs) - Group I | ug/L  | ---                  | Report        | 1/Quarter                              | Grab        |
| Polychlorinated Biphenyls (PCBs)                   | ug/L  | ---                  | Report        | 1/Year                                 | Grab        |
| Lead   | ug/L  | ---                  | Report        | 1/Quarter                              | Grab        |
| Copper   | ug/L  | ---                  | Report        | 1/Quarter                              | Grab        |
| Cyanide  | ug/L  | Report               | Report        | 1/Quarter                              | Grab        |
| Zinc   | ug/L  | ---                  | Report        | 1/Quarter                              | Grab        |
| Silver   | ug/L  | ---                  | Report        | 1/Quarter                              | Grab        |
| Antimony   | ug/L  | ---                  | Report        | 1/Quarter                              | Grab        |

See page 8 for explanation of footnotes.

**(Part I.A.3, Continued)****Footnotes:**

1. All samples shall be representative of the entire storm water discharge through each separate storm water outfall, and reported separately for each outfall. A routine sampling program shall be developed in which samples are taken at the same location; any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report submitted to EPA. In addition, all samples shall be analyzed using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.
2. All samples shall be taken during wet weather conditions. Wet weather conditions are defined as a storm event greater than 0.1 inches in magnitude that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event.
3. Sampling frequency of 1/month is defined as the sampling of one (1) discharge event in each calendar month, when discharge occurs. Sampling frequency of 1/quarter is defined as the sampling of one (1) discharge event in each calendar quarter, when discharge occurs. Quarters are defined as the interval of time between the months of: January through March, inclusive; April through June, inclusive; July through September, inclusive; and October through December, inclusive. Sampling frequency of 1/year is defined as the sampling of one (1) discharge event during each calendar year, during the month of March. If no wet weather conditions exist during the month of March, the permittee shall report the appropriate no data indicator (NODI) code on the DMR and sample as soon thereafter as wet weather conditions exist. Quarterly and annual sampling shall be performed concurrently with the monthly monitoring event. The permittee shall submit the results to EPA of any additional testing done to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii). Analytical results shall be reported before the 15<sup>th</sup> of the month following the sampling event.
4. Grab samples shall consist of samples taken during the first 30 minutes of discharge, taken at the point of discharge of each storm water outfall during wet weather conditions. Samples for each storm water outfall shall be taken and reported separately. If collection of grab samples during the first 30 minutes is impracticable, a grab sample shall be taken during the first hour of the discharge, and the permittee shall provide a description submitted with the DMR of why a grab sample during the first 30 minutes of discharge was impracticable.
5. The permittee shall estimate the flow rate during the annual sampling of each storm water outfall. Estimates of the flow rates at the outfalls shall be taken at the point of discharge during wet weather conditions in March. If no wet weather conditions exist in March, the permittee shall report the appropriate no data indicator (NODI) code on the DMR and sample as soon thereafter as wet weather conditions exist. All estimates shall be taken using standard engineering techniques to measure flow. Estimates of the flow shall be taken during the first 30 minutes of the start of the discharge. The permittee shall report on DMRs the maximum daily value of the estimated flow rate in gpm for each of the five storm water outfalls (Outfalls 001, 002, 003, 005, and 006). Analytical results shall be reported before the 15<sup>th</sup> of the month following the sampling event.
6. Required for State Certification. See Permit Part I.A.5.



**PART I****A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

3. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge during dry weather through **Outfall Serial Numbers 001, 002, 003, 005, and 006** to unnamed wetlands that flow to the Connecticut River. Such discharge shall: 1) be limited and monitored by the permittee as specified below; and 2) not cause a violation of the State Surface Water Quality Standards of the receiving water.

| Effluent Characteristic      | Units      | Discharge Limitation |               | Monitoring Requirements <sup>1,2</sup> |             |
|------------------------------|------------|----------------------|---------------|--|-------------|
|                              |            | Average Monthly      | Maximum Daily | Measurement Frequency <sup>3</sup>     | Sample Type |
| Flow Rate <sup>4</sup>       | GPM        | ---                  | Report        | 1/Month                                | Estimate    |
| Oil and Grease (O&G)         | mg/L       | ---                  | Report        | 1/Month                                | Grab        |
| Total Suspended Solids (TSS) | mg/L       | ---                  | Report        | 1/Month                                | Grab        |
| pH <sup>5</sup>              | SU         | Report               |               | 1/Month                                | Grab        |
| E. Coli                      | cfu/100 mL | ---                  | Report        | 1/Quarter                              | Grab        |
| Asbestos                     | fibers/L   | ---                  | Report        | 1/Year                                 | Grab        |
| Mercury                      | ug/L       | ---                  | Report        | 1/Quarter                              | Grab        |

| Effluent Characteristic                            | Units | Discharge Limitation |               | Monitoring Requirements <sup>1, 2</sup> |             |
|--|-------|----------------------|---------------|---|-------------|
|  |       | Average Monthly      | Maximum Daily | Measurement Frequency <sup>3</sup>      | Sample Type |
| Total BTEX   | mg/L  | ---                  | Report        | 1/Year                                  | Grab        |
| Benzene  | mg/L  | ---                  | Report        | 1/Year                                  | Grab        |
| Toluene  | mg/L  | ---                  | Report        | 1/Year                                  | Grab        |
| Ethylbenzene                                       | mg/L  | ---                  | Report        | 1/Year                                  | Grab        |
| Xylenes  | mg/L  | ---                  | Report        | 1/Year                                  | Grab        |
| Polynuclear Aromatic Hydrocarbons (PAHs) - Group I | ug/L  | ---                  | Report        | 1/Quarter                               | Grab        |
| Polychlorinated Biphenyls (PCBs)                   | ug/L  | ---                  | Report        | 1/Year                                  | Grab        |
| Lead   | ug/L  | ---                  | Report        | 1/Quarter                               | Grab        |
| Copper   | ug/L  | ---                  | Report        | 1/Quarter                               | Grab        |
| Cyanide  | ug/L  | Report               | Report        | 1/Quarter                               | Grab        |
| Zinc   | ug/L  | ---                  | Report        | 1/Quarter                               | Grab        |
| Silver   | ug/L  | ---                  | Report        | 1/Quarter                               | Grab        |
| Antimony   | ug/L  | ---                  | Report        | 1/Quarter                               | Grab        |

See page 11 for explanation of footnotes.

**(Part I.A.3, Continued)****Footnotes:**

1. All samples shall be representative of the discharge through each separate outfall during dry weather, and reported separately for each outfall. A routine sampling program shall be developed in which samples are taken at the same location; any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report submitted to EPA. In addition, all samples shall be analyzed using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.
2. All samples shall be taken during dry weather conditions. Dry weather conditions are defined as at least 72 hours after the previously measurable (greater than 0.1 inch rain fall) storm event. The 72-hour interval is waived when the preceding measurable storm did not yield a measurable discharge, or if the permittee is able to document that less than a 72-hour interval is representative during the sampling period.
3. Sampling frequency of 1/month is defined as the sampling of one (1) discharge event in each calendar month, when discharge occurs. Sampling frequency of 1/quarter is defined as the sampling of one (1) discharge event in each calendar quarter, when discharge occurs. Quarters are defined as the interval of time between the months of: January through March, inclusive; April through June, inclusive; July through September, inclusive; and October through December, inclusive. Sampling frequency of 1/year is defined as the sampling of one (1) discharge event during each calendar year, during the month of March. If no dry weather conditions exist in March, the permittee shall report the appropriate no data indicator (NODI) code on the DMR and sample as soon thereafter as dry weather conditions exist. Quarterly and annual sampling shall be performed concurrently with the monthly monitoring event. The permittee shall submit the results to EPA of any additional testing done to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii). Analytical results shall be reported before the 15<sup>th</sup> of the month following the sampling event.
4. The permittee shall estimate the flow rate during the dry weather flow sampling of each outfall. All estimates shall be taken using standard engineering techniques to measure flow. The permittee shall report on DMRs the maximum daily value of the estimated flow rate in gpm for each of the five storm water outfalls (Outfalls 001, 002, 003, 005, and 006). Analytical results shall be reported before the 15<sup>th</sup> of the month following the sampling event.
5. Required for State Certification. See Permit Part I.A.5.

**Part I.A. (Continued)**

4. The discharge shall not cause objectionable discoloration of the receiving waters.
5. The pH of the effluent shall not be more than 0.5 units outside of the natural background range. There shall be no change from natural background conditions that would impair any use assigned to this Class.
6. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time in other than trace amounts.
7. The discharge shall not contain materials in concentrations or combinations which are hazardous or toxic to human health, aquatic life of the receiving surface waters or which would impair the uses designated by its classification.
8. EPA may modify this permit in accordance with EPA regulations in 40 Code of Federal Regulations (CFR) §122.62 and §122.63 to incorporate more stringent effluent limitations, increase the frequency of analyses, or impose additional sampling and analytical requirements.
9. All existing manufacturing, commercial, mining and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:
  - a. That any activity has occurred or will occur which would result in the discharge, on a routine basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
    - (1) One hundred micrograms per liter (100 µg/l);
    - (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
    - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or
    - (4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).
  - b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
    - (1) Five hundred micrograms per liter (500 µg/l);
    - (2) One milligram per liter (1 mg/l) for antimony;

- (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7).
- (4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).
- c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

10. Toxics Control

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

**B. REOPENER CLAUSES**

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

- a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
- b. Controls any pollutants not limited in the permit.

**C. STORM WATER POLLUTION PREVENTION PLAN**

- 1. The permittee shall develop, implement, and maintain a Stormwater Pollution Prevention Plan (SWPPP) designed to reduce, or prevent, the discharge of pollutants in stormwater to the receiving waters identified in this permit. The SWPPP shall be a written document that is consistent with the terms of this permit. Additionally, the SWPPP shall serve as a tool to document the permittee's compliance with the terms of this permit. Development guidance and a recommended format for the SWPPP are available on the EPA website for the Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activities (<http://cfpub.epa.gov/npdes/stormwater/msgp.cfm>).
- 2. The SWPPP shall be completed or updated and certified by the permittee within 90 days after the effective date of this permit. The permittee shall certify that its SWPPP has been completed or updated and shall be signed in accordance with the requirements identified in 40 CFR

§122.22. A copy of this initial certification shall be sent to EPA and MassDEP within one hundred and twenty (120) days of the effective date of this permit.

3. The SWPPP shall be prepared in accordance with good engineering practices and shall be consistent with the general provisions for SWPPPs included in the most current version of the MSGP. In the current MSGP (effective May 27, 2009), the general SWPPP provisions are included in Part 5 and Part 8.P. Specifically, the SWPPP shall document the selection, design, and installation of control measures and contain the elements listed below:
  - a. A pollution prevention team with collective and individual responsibilities for developing, implementing, maintaining, revising and ensuring compliance with the SWPPP.
  - b. A site description which includes the activities at the facility; a general location map showing the facility, receiving waters, and outfall locations; and a site map showing the extent of significant structures and impervious surfaces, directions of stormwater flows, and locations of all existing structural control measures, stormwater conveyances, pollutant sources (identified in Part 3.c. below), stormwater monitoring points, stormwater inlets and outlets, and industrial activities exposed to precipitation such as, storage, disposal, material handling.
  - c. A summary of all pollutant sources which includes a list of activities exposed to stormwater, the pollutants associated with these activities, a description of where spills have occurred or could occur, a description of non-stormwater discharges, and a summary of any existing stormwater discharge sampling data.
  - d. A description of all stormwater controls, both structural and non-structural.
  - e. A schedule and procedure for implementation and maintenance of the control measures described above and for the quarterly inspections and best management practices (BMPs) described below.
  - f. Sector specific SWPPP provisions included in Sector P – Land Transportation and Warehousing, Subsector P1 - Railroad Transportation.
4. The SWPPP shall document the appropriate best management practices (BMPs) implemented or to be implemented at the facility to minimize the discharge of pollutants in stormwater to waters of the United States and to satisfy the non-numeric technology-based effluent limitations included in this permit. At a minimum, these BMPs shall be consistent with the control measures described in the most current version of the MSGP. In the current MSGP (effective May 27, 2009), these control measures are described in Part 2.1.2 and Part 8.P. Specifically, BMPs must be selected and implemented to satisfy the following non-numeric technology-based effluent limitations:
  - a. Minimizing exposure of manufacturing, processing, and material storage areas to stormwater discharges.
  - b. Good housekeeping measures designed to maintain areas that are potential sources of pollutants.
  - c. Preventative maintenance programs to avoid leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.
  - d. Spill prevention and response procedures to ensure effective response to spills and leaks if or when they occur.

- e. Erosion and sediment controls designed to stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants.
  - f. Runoff management practices to divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff.
  - g. Proper handling procedures for salt or materials containing chlorides that are used for snow and ice control.
  - h. Sector specific BMPs included in Sector P - Land Transportation and Warehousing, Subsector P1 - Railroad Transportation.
5. All areas with industrial materials or activities exposed to stormwater and all structural control used to comply with effluent limits in this permit shall be inspected, at least once per quarter, by qualified personnel with one or more members of the stormwater pollution prevention team. Inspections shall begin during the 1<sup>st</sup> full quarter after the effective date of this permit. EPA considers quarters as follows: January to March; April to June; July to September; and October to December. Each inspection must include a visual assessment of stormwater samples (from each outfall), which shall be collected within the first 30 minutes of discharge from a storm event, stored in a clean, clear glass or plastic container, and examined in a well-lit area for the following water quality characteristics: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of pollution. The permittee shall document the following information for each inspection and maintain the records along with the SWPPP:
- a. The date and time of the inspection and at which any samples were collected;
  - b. The name(s) and signature(s) of the inspector(s)/sample collector(s);
  - c. If applicable, why it was not possible to take samples within the first 30 minutes;
  - d. Weather information and a description of any discharges occurring at the time of the inspection;
  - e. Results of observations of stormwater discharges, including any observed discharges of pollutants and the probable sources of those pollutants;
  - f. Any control measures needing maintenance, repairs or replacement; and,
  - g. Any additional control measures needed to comply with the permit requirements.
6. The permittee shall amend and update the SWPPP within 14 days of any changes at the facility that result in a significant effect on the potential for the discharge of pollutants to the waters of the United States. Such changes may include, but are not limited to: a change in design, construction, operation, or maintenance, materials storage, or activities at the facility; a release of a reportable quantity of pollutants as described in 40 CFR §302; or a determination by the permittee or EPA that the BMPs included in the SWPPP appear to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with industrial activity.
7. Any amended, modified, or new versions of the SWPPP shall be re-certified and signed by the permittee in accordance with the requirements identified in 40 CFR §122.22. The permittee shall also certify, at least annually, that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in

compliance with this permit. If the facility is not in compliance with any aspect of this permit, the annual certification shall state the non-compliance and the remedies which are being undertaken. Such annual certifications also shall be signed in accordance with the requirements identified in 40 CFR §122.22. The permittee shall maintain at the facility a copy of its current SWPPP and all SWPPP certifications (the initial certification, re-certifications, and annual certifications) signed during the effective period of this permit, and shall make these available for inspection by EPA and MassDEP. In addition, the permittee shall document in the SWPPP any violation of numerical or non-numerical stormwater effluent limits with a date and description of the corrective actions taken.

8. Additionally, the SWPPP shall address all potential sources of pollutants at the facility including, but not limited to, the chemicals stored in rail cars, fuels and oils stored in above ground storage tanks, and materials stored in the rail yard including scrap metal piles, the storage of new railroad ties, chemicals in rail cars, and all other materials stored outside that have the potential to spill or could contribute to the discharges.
9. Additionally, the following site specific BMPs shall be included in the SWPPP:
  - a. All operations and maintenance activities shall be conducted indoors.
  - b. The permittee shall operate the treatment system at Outfall 004 to ensure the flow does not exceed the design capacity of 50 gpm.
  - c. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of bacteria through the facility's storm water system. The permit requires that in the event the source(s) of bacteria cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the bacteria loading to the receiving water.
  - d. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of TSS through the facility's storm water system. The permit requires that in the event the source(s) of TSS cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the TSS loading to the receiving water.
  - e. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of copper through the facility's storm water system. The permit requires that in the event the source(s) of copper cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the copper loading to the receiving water.
  - f. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of zinc through the facility's storm water system. The permit requires that in the event the source(s) of zinc cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the zinc loading to the receiving water.



- g. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of lead through the facility's storm water system. The permit requires that in the event the source(s) of lead cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the lead loading to the receiving water.
- h. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of mercury through the facility's storm water system. The permit requires that in the event the source(s) of mercury cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the mercury loading to the receiving water.

#### **D. MONITORING AND REPORTING**

- 1. **For a period of one year from the effective date of the permit**, the permittee may either submit monitoring data and other reports to EPA in hard copy form or report electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. **Beginning no later than one year after the effective date of the permit**, the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting DMRs and reports. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

- a. Submittal of Reports Using NetDMR

NetDMR is accessed from: <http://www.epa.gov/netdmr>. **Within one year of the effective date of this permit**, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt out request").

DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA, including the MassDEP Monthly Operations and Maintenance Report, as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees shall continue to send hard copies of reports other than DMRs (including Monthly Operation and Maintenance Reports) to MassDEP until further notice from MassDEP.

- b. Submittal of NetDMR Opt Out Requests

Opt out requests must be submitted in writing to EPA for written approval at least sixty (60)

days prior to the date a facility would be required under this permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the permittee submits a renewed opt out request and such request is approved by EPA. All opt out requests should be sent to the following addresses:

**Attn: NetDMR Coordinator**  
**U.S. Environmental Protection Agency, Water Technical Unit**  
**5 Post Office Square, Suite 100 (OES04-4)**  
**Boston, MA 02109-3912**

and

**Massachusetts Department of Environmental Protection**  
**Surface Water Discharge Permit Program**  
**627 Main Street, 2<sup>nd</sup> Floor**  
**Worcester, Massachusetts 01608**

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15<sup>th</sup> day of the month following the completed reporting period. MassDEP Monthly Operation and Maintenance Reports shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

**U.S. Environmental Protection Agency**  
**Water Technical Unit (OES04-SMR)**  
**5 Post Office Square - Suite 100**  
**Boston, MA 02109-3912**

Duplicate signed copies of all reports or notifications required above shall be submitted to the State at the following addresses:

**Massachusetts Department of Environmental Protection**  
**Western Regional Office**  
**Bureau of Waste Prevention**  
**436 Dwight Street**  
**Springfield, Massachusetts 01103**

and

**Massachusetts Department of Environmental Protection**  
**Surface Water Discharge Permit Program**  
**627 Main Street, 2<sup>nd</sup> Floor**

**Worcester, Massachusetts 01608**

Duplicate signed copies of all reports or notifications required above shall also be submitted to National Marine Fisheries (NMFs) at the following address:

**Endangered Species Coordinator (ESC)  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Northeast Region  
One Blackburn Drive  
Gloucester, MA 01930-2293**

Any verbal reports, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA and to MassDEP

**E. STATE PERMIT CONDITIONS**

1. This discharge permit is issued jointly by the EPA and the MassDEP under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chap. 21, §43 and 314 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.
2. Each Agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as a NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION I  
5 POST OFFICE SQUARE, SUITE 100 (OEP06-4)  
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE  
CLEAN WATER ACT (CWA)

NPDES PERMIT # MA0000272

PUBLIC NOTICE DATES: August 10, 2012 – September 8, 2012

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 Corporation (B&M)  
East Deerfield Rail Yard  
38 Railroad Yard Road  
East Deerfield, MA 01342**

RECEIVING WATERS: **unnamed wetlands and unnamed brooks that flow to the  
Connecticut River (Connecticut River Basin MA34-04)**

CLASSIFICATION: Class B, warm water fishery

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## **I. PROPOSED ACTION**

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for the re-issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge process water and stormwater into the designated receiving water. The current permit was issued to Boston and Maine Corporation (B&M) on September 23, 2005 and was modified on August 11, 2006. The current permit (as modified) expired November 22, 2010. EPA received a permit renewal application from B&M on May 26, 2010. Since the permit renewal application was deemed timely and complete by EPA, the permit has been administratively continued.

## **II. TYPE OF FACILITY**

The East Deerfield Rail Yard (facility) is located at 38 Railroad Yard Road in East Deerfield, Massachusetts (see Attachment A – Site Locust). The facility is a railroad terminal operated by Pan Am Railways (Pan Am) where locomotives are fueled, locomotives and boxcars are serviced, repaired, maintained, and cleaned, and motor vehicles and track maintenance equipment are serviced and repaired.

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

A quantitative description of the discharges in terms of significant effluent parameters based on discharge monitoring reports (DMRs) submitted for Outfalls 001, 002, 003, 004, 005, and 006 during the time period from July 2006 through August 2011 was reviewed and used in the development of the draft National Pollutant Discharge Elimination System (NPDES) permit (Draft Permit). Upon review of analytical data accompanying the DMR reports, the data summary has been updated to account for instances where the units were incorrectly converted when transferring the data to the DMR report. In instances where the no-data indicator code is R, the analytical data was either confirmed to be below the reporting limit or this was assumed to be the case. A summary of the DMR data, which has been corrected via the analytical data provided by the permittee, is provided in Attachment B to this fact sheet.

## **IV. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMIT DERIVATIONS**

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. MA0000272).

### **A. General Requirements**

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. 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 SIC code 4011 (railroads, line haul operations). However, the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) contains requirements for SIC code 4011, in Sector P – Land Transportation and Warehousing, Subsector P1 - Railroad Transportation. 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.

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).

The Final Massachusetts Year 2010 Integrated List of Waters lists the Connecticut River (Segment MA34-04, which extends from the confluence with the Deerfield River to the Holyoke Dam) as requiring a TMDL for PCB in fish tissue and *Escherichia coli*. The Connecticut River Watershed 2003 Water Quality Assessment Report indicates that the aquatic life, primary contact, secondary contact, and aesthetics uses were assessed as support in the Connecticut River (Segment MA34-04), however, the fish consumption use was assessed as impaired due to PCB in fish tissue, with the source unknown.

### 3. Anti-Backsliding

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

### 4. Anti-Degradation

The Massachusetts Anti-Degradation Policy is found at Title 314 CMR 4.04. All existing uses of the Connecticut River must be protected. The Connecticut River is classified as a Class B water, warm water fishery, by the Commonwealth of Massachusetts (314 CMR 4.06). These waters are designated at habitat for fish, other aquatic life, and wildlife, including their reproduction, migration, growth, and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with



appropriate treatment. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.

## **B. Description of the Facility**

The facility is an active railroad classification yard that includes facilities for fueling and sanding locomotives; light maintenance on locomotives, track equipment and vehicles; and fueling of vehicles. Maintenance activities that produce process waste water include changing oil in locomotives, cleaning the locomotives, and fueling the locomotives. An onsite wastewater treatment plant (WWTP) processes discharges from drains from the Engine House, the Repair Shop, the Fuel & Sand Facility, the Fuel Truck Unloading Facility, and various storm drains around these buildings (see Attachment D - Schematic Water Flow).

Several Release Tracking Numbers (RTNs) have been assigned by the DEP for the release of oil and/or hazardous materials (OHM) at the East Deerfield Rail Yard. These RTNs track releases of #2 fuel/diesel fuel, free petroleum product, liquid asphalt, lubricating oil, hydrochloric acid vapors, and hydraulic oil, which have resulted in high concentrations of extractable petroleum hydrocarbons (EPH) and polycyclic aromatic hydrocarbons (PAHs) onsite. These releases pose a potential for storm water to carry pollutants to the receiving water, therefore the storm water outfalls are required to be monitored in the permit as described below in Part IV.E.2.

### 1. Engine House & Repair Shop

To the fullest extent possible, operations and maintenance activities are conducted indoors. Wastewater generated at the Engine House includes storm water runoff and snow melt from locomotives and boxcars, engine cleaning water (with detergent), wash water, and leaking fluids from locomotives and boxcars, and wastewater from maintenance activities.

The discharge from the Engine House is intermittent and is routed to the WWTP via a trench drain system. The trench drains are located beneath 5 maintenance bays and one wash bay, where high-pressure washing occurs with detergent. Due to the size of the trench drains and the “pit” in which they are situated, approximately 60,000 gallons of material could be contained without releasing to the WWTP, and could therefore be subsequently pumped out and properly disposed of off-site. Spills which occur in the Engine House are isolated using a spill kit, as per the Spill Prevention, Control, and Countermeasure (SPCC) plan.

Oil-based and chemical products are typically located in the Engine House and the Repair Shop. Lube oil and fuel oil for the house boiler are stored in the Engine House within a bermed containment area with no drain. The Facility’s buildings were constructed with integral foundation berms, concrete floors, and protected floor drains, so these materials are not expected to contact stormwater. Waste oil products are generally collected in 55-gallon drums situated on spill pallets in designated waste areas. Facility personnel supervise any truck loading or unloading and the truck driver must be present during the entire operation. Drip pans or oil absorbent pads are placed beneath connections while transfers are in progress. Locomotive

fueling hoses are equipped with an automatic shutoff to help prevent fuel spills.

The Repair Shop contains one trench drain which flows to the treatment system at Outfall 004. The materials in process wastewater from the Repair Shop are similar to those flows from the Engine House, only at a much smaller scale.

## 2. Fuel & Sand Facility

The Fuel & Sand Facility consists of a fueling island with three fueling stations, capable of fueling up to 6 locomotives at a time, as well as sand loading equipment (sand is loaded into locomotives for use in case of track slippage). A layer of ballast (stones), geotextile, and a rubberized membrane is located in the area of the fueling island, with strip drains directly adjacent to the fueling areas. Since there is no roof over the Fuel & Sand Facility to minimize storm water contact, storm water that comes in contact with the loading area is drained through the ballast and geotextile, via gravity, to a grit chamber and then to an o/w separator. The flow from the strip drains also flows to the grit chamber and to the o/w separator. Stormwater that comes in contact with the Fuel Truck Unloading Facility, described below, also drains to the o/w separator. The discharge from the o/w separator flows to the treatment system for subsequent discharge through Outfall 004.

## 3. Fuel Truck Unloading Facility

At the Fuel Truck Unloading Facility, trucks deliver oil-containing and chemical products to the facility. Facility personnel supervise any truck loading or unloading. Transfers are not conducted during storm events, whenever possible. Drip pails are used when disconnecting hoses. Storm water which comes in contact with the Fuel Truck Unloading Facility Area drains to the o/w separator for treatment and discharge through Outfall 004.

## **C. Description of Discharge**

The permit covers six outfalls that are numbered sequentially from the west side of the facility to the east side, as Outfalls 001, 002, 003, 004, 005, and 006 (see Attachment C – Stormwater Drainage System Plan).

### 1. Outfall 004

Outfall 004 discharges treated process wastewater and stormwater as described below. Process Water is generated at the Fuel & Sand Facility, the Engine House, the Repair Shop, and Fuel Truck Unloading Facility. Process wastewater consists of storm water runoff and snow melt from locomotives and boxcars, engine cleaning water (using detergent), wash water, and leaking fluids from locomotives and boxcars. This process water mixes with storm water runoff from the area of the Engine House, Turntable, and Repair Shop, which collects in catch basins and flows to the treatment system at Outfall 004.

Storm water from the roof drains of the Engine House and Repair Shop flow to dry wells with no

outlet. No process water is generated on the roof (no air conditioners).

An underground pad captures any minor spills of diesel fuel (not a “release”) during fueling at the Fuel & Sand Facility. During a storm event, this fuel mixes with storm water for discharge to the grit chamber. From the grit chamber, the water mixes with runoff from the fuel truck unloading facility for treatment in a 2,000-gallon oil/water separator, with a design pump rate of 100 GPM, prior to flowing to the treatment system at Outfall 004.

The treatment system at Outfall 004 consists of collection of process water and storm water in two parallel surge tanks (24,000 & 20,000 gallon capacity, for a total of 44,000 gallon storage capacity), treatment in two o/w separators in series, flow through a chemical reaction tank (ph adjustment and polymer addition), and treatment in a dissolved air floatation (DAF) system. The design capacity of the treatment facility is 50 gpm.

A valve is manually adjusted to meter the flow from the surge tanks to the two oil/water separators in series (one 3,000 gallon tank and one 2,600 gallon tank). The first o/w separator consists of an old rail car with a clay bottom and baffles. The second o/w separator is an API separator with slanted baffles. Maintenance of the o/w separators occurs every 2-3 years. The separators were last cleaned in 2010. The system is shutdown during dry weather to perform the maintenance.

The inlet flow to the chemical reaction tank from the o/w separators is regulated (o/w separator capacity is 50 gpm). Additives to the chemical reaction tank consist of sodium hydroxide (50%) and sulfuric acid (93%), a polymer used as a flocculent (Aquamark AQ314) and a polymer used as an emulsifier (Aquamark AQ119). Alum is no longer in use at the facility, and has not been used for years. The permittee stated that since the rainwater pH is consistently low (5.8 SU), normal operations require addition of sodium hydroxide.

Water from the chemical reaction tank is gravity fed to a pressure tank and then to the DAF system. Sludge from the DAF system is skimmed and transferred to the sludge tank, which is cleaned every year via vacuum truck. Approximately 15 gpm of the flow from the DAF system is recycled back to the pressure tank. The treated water enters the Clear Water Chamber of the DAF system prior to being discharged to a pipe that conveys water to Outfall 004. The outlet of the DAF system is sampled as the discharge from Outfall 004. The flow is intermittent, depending on the weather, and the batch treatment process discharges an average of 45 minutes per treatment batch. The flow for Outfall 004 is recorded once in the morning and once at night. About 5-6,000 gallons/day is processed during dry conditions, with about 2-3 times that amount during rain events.

## 2. Storm Water Outfalls (Outfalls 001, 002, & 003)

Discharges through Outfalls 001, 002, 003, 005, and 006 are listed in the current permit as consisting of storm water. Outfalls 001, 002, and 003 discharge stormwater from catch basins located along the western edge of the rail yard intermittently during wet weather. The average discharge through Outfall 001 is 28.3 gallons per minute (gal/min), through Outfall 002 is 11

gal/min, and through Outfall 003 is 35.3 gal/min.

Additionally, the permittee stated that Outfalls 005 & 006 also discharge during dry weather, therefore these outfalls are discussed below, separately from the stormwater outfalls.

### 3. Outfalls 005 & 006

Outfalls 005 and 006 discharge continuously, containing flows coming from offsite and entering the site in culverts running beneath the railroad yard. The permittee stated that the outfall piping is most likely above groundwater level. The permittee suspects drainage from East Deerfield Road and the upgradient developed and undeveloped properties are contributors to Outfall 005 and that runoff from a landfill and other upgradient properties may contribute drainage to Outfall 006. Much of this upgradient land appears to be forested.

#### a. Outfall 005

Outfall 005 discharges excess stormwater from the fire pond, at an average rate of 100 gal/min. The current sampling point for Outfall 005 is at the inlet of the fire pond; however, sampling the discharge from the pond appears possible. The permittee noted on March 7, 2011, that a recent release (within the previous two weeks) of hydraulic fluid from maintenance performed in the rail yard (not correct procedures) recently created a sheen on the pond. Observations at a site visit conducted March 7, 2011 indicated displaced booms at both the inlet and discharge of the pond. The permittee indicated the booms were displaced due to recent heavy storm water flow. The inlet to the pond appeared turbulent and created a visible plume, most likely due to the entrained air in the discharge.<sup>1</sup> The majority of the pond was ice covered and one small sheen patch of about a 2-inch diameter was observed on the pond at the time of the site visit. The outlet from the fire pond consists of two pipes discharging from vertical standpipes of different heights within the fire pond. The fire pond discharges to an un-named stream which flows to the Connecticut River.

#### b. Outfall 006

Outfall 006 discharges stormwater from the eastern side of the rail yard, at an average rate of 15 gal/min, into a wetland or stream that leads to the Connecticut River.

Outfall 006 discharges continuously at an annual average rate of 15 gpm. The drainage area of Outfall 006 contains exposed material storage areas, which at the time of the site visit contained steel and waste timber. Some drainage swales have developed on the roadway, allowing overland flow directly to the wetland area.

## **D. Discharge Locations**

Outfall 001 is located on the most northwestern section of the facility adjacent to McClelland Farm Road. This outfall discharges stormwater from catch basins located on the northern and

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<sup>1</sup> USEPA, Memorandum to NPDES File MA0000272, Trip Report, March 14, 2011.

western portions of the facility. The outfall is located on the northern side of McClelland Farm Road, approximately 15 feet down an embankment. The discharge flows into a trench which flows to a wooded deciduous swamp adjacent to a shrub swamp, which ultimately drains to the Connecticut River. Outfall 001 is approximately 200 yards south of the Connecticut River and approximately 150 yards east of the Deerfield River.

Outfall 002 is located approximately 100 yards to the east of Outfall 001 on the northern side of McClelland Farm Road, approximately 15 feet down an embankment. Outfall 002 discharges stormwater from catch basins located on the southwestern section of the facility and runoff from the western portion of River Road. The discharge from the Outfall pipe drops five feet into a trench that flows to a wooded deciduous swamp, the same as the above-referenced wooded deciduous swamp, adjacent to a shrub swamp, which ultimately drains to the Connecticut River. Outfall 002 is approximately 200 yards south of the Connecticut River and approximately 250 yards east of the Deerfield River.

Outfall 003 is located approximately 50 yards east of Outfall 002 on the northern side of McClelland Farm Road, at the intersection of Railroad Yard Road, approximately 15 feet down an embankment. Outfall 003 discharges stormwater from the western, northwestern, and southwestern portions of the facility, the Farm Bureau Association, and runoff from River Road. The discharge flows into a trench that continues approximately 50 feet before flowing into the above-referenced wooded deciduous swamp, adjacent to a shrub swamp, which ultimately drains to the Connecticut River. Outfall 003 is located approximately 200 yards south of the Connecticut River and approximately 300 yards east of the Deerfield River.

Outfall 004 is located about a quarter of a mile to the east of Outfall 003 on the northern side of Railroad Yard Road. This outfall discharges treated process water and treated stormwater from the wastewater treatment plant (WWTP). Treated effluent discharges to a shrub swamp, which ultimately drains to the Connecticut River.

Outfall 005 is located approximately 400 yards east of Outfall 004 on the northern side of Railroad Yard Road. Runoff from the central portion of the facility, extending from the northern property line to the southern property line, discharges through Outfall 005. Stormwater discharges into a fire pond, approximately 75 feet in diameter, which was constructed by B&M in the late 1980's under the direction of the local Fire Department to make water available in case of a fire emergency. Water from the fire pond is discharged through two vertical pipes as the water level in the pond rises. These pipes discharge to a "trench" (an unnamed tributary) as Outfall 005, which leads to another pipe that discharges to the Connecticut River.

Outfall 006 is located approximately a quarter of a mile to the east of Outfall 005 towards the eastern boundary of the facility. The outfall is on the northern side of Railroad Yard Road and includes runoff from the Yard Office and switching house. The outfall discharges to a wooded-deciduous swamp adjacent to the Connecticut River.

Since all discharges from the facility are to either wetlands or an un-named tributary, the dilution available to the effluents is expected to be minimal, and for the purposes of this permit, no

dilution has been granted for the discharges from any of the outfalls.

## **E. Proposed Permit Effluent Limitations and Conditions**

### **1. Outfall 004**

#### **a. Flow Rate from Sand & Fuel Facility and from Outfall 004**

The current permit limits the monthly average flow to 15,000 gpd and the maximum daily flow to 45,000 gpd. These limits were based on current operating conditions at the time and historical data, which never exceeded these limits.

Previous permit applications submitted by B&M indicated that the process wastewater flow from the Engine House and the Fuel & Sand Facility is estimated to be a consistent 7,500 gpd, and that the stormwater component which discharges through the outfall is unpredictable. Since B&M could only estimate the quantity of process wastewater from the Engine House and the Fuel & Sand Facility, the current permit required B&M to install continuous flow measuring equipment to record the amount of process waste water from the Fuel & Sand Facility.

Review of DMR data collected during the time period of July 2006 through August 2011 reveals that the daily maximum flow through Outfall 004 has ranged from approximately 8,820 - 58,500 gpd and the monthly average flow has ranged from approximately 3,860 – 21,700 gpd. Review of application data submitted by the permittee reveals a maximum daily flow rate of 52,208 gpd for Outfall 004. Therefore, the daily maximum limit of 45,000 gpd has been exceeded on four occasions and the monthly average flow limit of 15,000 gpd has been exceeded on eight occasions.

Review of DMR data also reveals that the daily maximum flow from the Sand & Fuel Facility has ranged from approximately 80 – 49,200 gpd and the monthly average flow has ranged from approximately 9 – 22,400 gpd. This is inconsistent with B&M's previous statement that the process water flow from both the Sand & Fuel Facility and the Engine House tends to be a consistent 7,500 gpd.

The Draft Permit continues the flow limits for Outfall 004 from the current permit, along with monitoring of the flow from the Sand & Fuel Facility. Additionally, the Draft Permit shall require the permittee to monitor the flow from the Engine House, and also require a site specific BMP to ensure that the treatment facility at Outfall 004 not exceed the design capacity of 50 gpm.

#### **b. Temperature, maximum**

The current permit requires the permittee to record the temperature of the discharge through Outfall 004 on a continuous basis via a recorder. The previous permit (prior to the current permit) required a daily maximum temperature limit of 83 degrees F. This requirement was based on State certification requirements and Mass Surface Water Quality Standards for Class B warm water fisheries. This temperature limit was originally implemented to assure the boiler blowdown

discharge did not negatively impact the discharge, however in the late 1970's, B&M ceased discharge of boiler blowdown. B&M uses steam to clean the locomotives in the Engine House. Between 2-4 locomotives are cleaned per week and the condensate discharges through floor drains, which combine with stormwater drainage and the process water from the Fuel & Sand Facility for treatment in the WWTP.

The current permit did not require a temperature limit for the discharge through Outfall 004 due to the orientation of the treatment system. Since the condensed steam from the cleaning of the locomotives is diluted with stormwater and combined with the process flow from the Fuel & Sand Facility prior to treatment and discharge, EPA considers it unlikely, due to the lag time in storage and treatment, that the temperature of the discharge would reach 83 degrees F. However, review of DMR data reveals that the daily maximum temperature of the discharge through Outfall 004 has ranged from approximately 47 – 89 degrees F, and has exceeded 83 degrees F on three occasions. The permittee reported on the permit reapplication a temperature in the winter of approximately 70.2 degrees F and in the summer of 77.5 degrees F.

Therefore, the Draft Permit requires a daily maximum temperature limit at Outfall 004 of 83 degrees F, consistent with Massachusetts Water Quality Standards for Class B warm water fisheries. Additionally, the Draft Permit requires that the rise in temperature of the receiving water due to the discharge shall not exceed 5 degrees F, also consistent with State Water Quality Standards for warm water fisheries (based on the minimum expected flow for the month).

#### c. Oil & Grease (O&G)

The current permit requires a performance-based daily maximum O&G limit of 3.0 mg/L, measured monthly. This limit was based on the performance data of the WWTP. An average and the standard deviation were calculated from O&G sampling data from the DMRs from 1998 through 2003. Then a 99% confidence level was applied to calculate a value of 2.878 mg/L, which rounds to 3 mg/L. The chemically assisted DAF treatment system can attain this limit according to four years of demonstrated data.

This technology-based limit is sufficient to meet the State Water Quality Standard established for O&G, which states that Class B 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.”

Review of DMR data reveals that the O&G limit has been exceeded on one occasion, with both the daily maximum and monthly average O&G levels ranging from 1 – 3.4 mg/L. The permittee reported non-detect on the permit reapplication for O&G. Therefore, the Draft Permit shall continue to require an O&G limit of 3.0 mg/L, sampled on a monthly basis.

#### d. Surfactants

Surfactants are compounds that reduce the surface tension when dissolved in water. Three

categories of surfactant compounds include detergents, wetting agents, and emulsifiers. Currently, the facility uses Trans-Tex 100 as a detergent, which has approximately 7.5% sodium hydroxide, a surfactant used in many detergents. Therefore, the current permit requires a surfactant limit of 0.3 mg/L for the discharge through Outfall 004, sampled on a monthly basis. This limit is based on past performance data from the WWTP. Although no State Water Quality Standard exists for surfactants, the technology-based limit of 0.3 mg/L is expected to be protective of water quality standards.

Review of DMR data reveals that the surfactant limit has been exceeded on two occasions, with surfactant levels ranging from approximately 0.04 – 0.7 mg/L. The permittee reported in the permit reapplication a surfactant concentration of 0.34 mg/L. Therefore, the Draft Permit shall continue to require a surfactant limit of 0.3 mg/L, sampled monthly.

e. pH

The facility currently adjusts the pH of the WWTP influent in the Chemical Reaction Tank by addition of acid or caustic. The current permit requires a pH effluent limitation range of 6.5 – 8.3 SU, consistent with State Water Quality Standards, 314 Code of Massachusetts Regulations (“CMR”), Inland Water, Class B at 4.05 (3)(b)3, which state that for Class B waters, the pH shall be in the range of 6.5 through 8.3 standard units and not more than 0.5 units outside of the natural background range. There shall be no change from natural background conditions that would impair any use assigned to this Class. The water quality criteria shall continue to be required as discharge limitations based on certification requirements under Section 401(a)(1) of the CWA, as described in 40 CFR 124.53 and 124.55.

Review of DMR data reveals that the pH of the discharge through Outfall 004 has ranged from 6.52 – 8.21 SU, and therefore has not exceeded the pH effluent limitation range. The permittee reported on the permit reapplication a pH range of 6.54 – 6.91 SU. Therefore, the Draft Permit shall continue to require a pH effluent limitation range of 6.5 – 8.3 SU, consistent with State Water Quality Standards. Additionally, the Draft Permit shall require that the pH not be more than 0.5 units outside of the natural background range of the receiving water.

f. Benzene

Diesel fuel is currently and has historically been used for fueling locomotives onsite. Benzene is a constituent found in relatively high concentrations in diesel fuel. Since benzene has a high solubility in water and demonstrates a great degree of toxicity, benzene is used as an indicator-parameter for other volatile organic compounds found in diesel fuel. The current permit requires a maximum daily effluent limit for benzene of 51 ug/L based on the recommended Federal Water Quality Criteria for benzene for fish consumption, reported monthly.

Review of DMR data reveals that benzene limit has not been exceeded on any occasion, with benzene levels ranging from 0 – 3.9 ug/L. The permittee reported on the permit reapplication a benzene concentration of 1 ug/L. Therefore, the Draft Permit shall continue to require a daily maximum benzene limit of 51.0 ug/L, sampled monthly, as well as reporting of the monthly



average benzene concentration.

g. TSS

The current permit requires a daily maximum TSS effluent limitation of 50.0 mg/L. This limit is based on treatment in the DAF system. Typical DAF treatment technology is capable of TSS removal to 50.0 mg/L, at a minimum.

Massachusetts has a narrative Water Quality Standard for TSS, which states that Class B 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 that the maximum daily limit of 50.0 mg/L will be protective of this narrative water quality standard.

Review of DMR data reveals that both the daily maximum and monthly average TSS have ranged from 1 – 28 mg/L. The permittee reported on the permit reapplication a TSS concentration of 5.5 mg/L. Therefore, the TSS limit of 50.0 mg/L shall remain in the permit, sampled monthly.

h. Whole Effluent Toxicity (WET)

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) 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.

The Region typically includes toxicity testing requirements where a combination of toxic constituents may be toxic to humans, aquatic life, or wildlife. Section 101(a)(3), 33 U.S.C. § 1251(a)(3) specifically prohibits the discharge of toxic pollutants in toxic amounts.

Due to the potential for toxicity resulting from the combination of pollutants in the facility's discharge, in accordance with EPA national and regional policy, and in accordance with MassDEP policy, the current permit includes acute and chronic toxicity monitoring requirements. (See *Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants*, 50 Fed. Reg. 30,784 (July 24, 1985); *EPA's Technical Support Document for Water Quality-Based Toxics Control* (EPA505/2-90-001, March 1991); and *MassDEP's Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 23, 1990).

The current permit requires annual chronic (CNOEC) and acute (LC<sub>50</sub>) WET tests for two species (*Ceriodaphnia dubia* and *Pimephales promelas*). However, in accordance with the current permit, the permittee requested removal of acute WET testing with supporting data of two

consecutive years of not detecting acute toxicity ( $LC50 > 100\%$ ).<sup>2</sup> EPA approved this removal of acute WET testing from the current permit requirements.<sup>3</sup>

Review of DMR data reveals 100% for Acute LC50 for both species tested. Review of Chronic WET test results for *C. dubia* indicate 25% in 2008 and 50% in 2007. Review of Chronic WET test results for *Pimephales* indicate 25% in 2008 and 2009 and 12.5% in 2010.

Given the complexity of this discharge and the toxicity issues at this facility, the Draft Permit shall require annual chronic WET tests, with a CNOEC limit of 100% effluent or greater, for two species (*Ceriodaphnia dubia* and *Pimephales promelas*). The effluent C-NOEC limit is based upon effluent flow from the treatment facility through Outfall 004. This is a maximum daily limit derived as a percentage of the inverse of the dilution factor. Based on the assumption of no dilution, since the discharge through Outfall 004 flows to a wetland, the C-NOEC maximum daily limit is 100%.

The tests must be performed in accordance with test procedures and protocols specified in Attachment 1 of the permit. The tests shall be performed annually during the second week of March. If no discharge event occurs during the second week of March, the permittee shall sample as soon as a discharge event through Outfall 004 occurs, and submit the results no later than the 15<sup>th</sup> of the month following the month the sample was collected. The tests must be performed in accordance with test procedures and protocols specified in Attachment 1 of this permit.

#### i. Priority Pollutants

The current permit requires annual monitoring of priority pollutants, as listed at 40 CFR 423, Appendix A. B&M has recently and historically released pollutants at the facility. Since 1998, six hazardous release sites (RTN 1-12219, RTN 1-12430, RTN 1-12501, RTN 1-13006, RTN 1-13894) have been identified.

Several hazardous release sites have been identified at the facility in accordance with the Massachusetts Contingency Plan (310 CMR 40) at the facility. The permittee provided a copy of the most recent release tracking numbers (RTNs) at the site. According to the permittee, there are two types of historic contamination sites: those with petroleum related contaminants and those with chlorinated solvent related contaminants. According to the permittee, some sites have been closed with a “monitor and natural attenuation” status and there are no active pump and treat systems currently onsite. For other sites the permittee is currently in the investigation stage, including a recent spill. Numerous onsite monitoring wells have revealed the presence of petroleum hydrocarbons and chlorinated solvents. Specifically, chlorinated solvents were detected in wells near the Engine House.

These releases pose potential for pollutants to migrate in stormwater. The stormwater could then carry the pollutants from the point of discharge and continue to migrate or flow to the Connecticut

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<sup>2</sup> Letter dated February 24, 2009 from Dana Banks of Pan Am Railways to USEPA.

<sup>3</sup> Letter dated April 6, 2009 from David Webster of USEPA to Dana Banks of Pan Am Railways.

River. Since stormwater is treated by the WWTP, B&M is required to sample annually for priority pollutants at Outfall 004.

The facility requested reduction in the number of priority pollutants tested in a letter to EPA dated February 24, 2009. In response to the facility's request, EPA suspended the requirement for an annual priority pollutant scan, with the exception of asbestos, total BTEX, benzene, toluene, ethylbenzene, and xylenes.

Review of data submitted by the permittee shows that for the 2007 annual sample, the concentration of toluene was reported as 5.0 ug/L and xylenes were reported as 15 ug/L. For the 2008 annual sample, the concentration of xylenes was reported as 38 ug/L. Asbestos was reported as ND for 2007 and 2008 annual samples.

Therefore, the permittee shall continue to sample these parameters on an annual basis. The monthly benzene sampling requirement (with limit) discussed above shall satisfy the annual monitoring requirement for benzene. The remaining priority pollutants identified above have been added to Table I.A.1 of the permit, for convenience in reporting.

## 2. Outfalls 001, 002, 003, 005, and 006

### a. Flow estimate

The current permit requires the permittee to estimate the flow rate through the stormwater outfalls (Outfall 001, 002, 003, 005, and 006) on an annual basis. The current permit requires estimates of the flow rates to be taken at the point of discharge during wet weather conditions in September or the first storm event in October through November, if no storm event occurs in September.

Review of DMR data reveals three flow rate measurements have been taken at each stormwater outfall. The permittee has reported flow rates ranging from 25 - 110 gpm for Outfall 001, 1 - 30 gpm for Outfall 002, 10 - 100 gpm for Outfall 003, 100 -350 gpm for Outfall 005, and 15 - 140 gpm for Outfall 006.

Review of application data submitted by the permittee reveals that an additional flow measurement was taken at each outfall. The permittee reported flows of 43,200 gpd at Outfalls 001, 002 and 003, 144,000 gpd at Outfall 005, and 21,600 gpd at Outfall 006.

The Draft Permit shall continue to require the permittee to estimate the wet weather flow through the stormwater outfalls on an annual basis. Additionally, the Draft Permit shall require the permittee to estimate the dry weather flow through the stormwater outfalls on a monthly basis.

### b. Oil & Grease (O&G)

Massachusetts Surface Water Quality Standard at 314 CMR 4.05 (3)(b)7 include a narrative O&G requirement, which states that Class B 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.”

The current permit requires the permittee to report the O&G concentration at each stormwater outfall on an annual basis. Review of DMR data shows that the permittee reported three O&G results for each stormwater discharge, ranging from <3 - 1.4 mg/L, with the exception of Outfall 006 which had two results of 1.4 mg/L and 1.5 mg/L. The permittee reported O&G levels at <1.4 mg/L on the permit re-application for each stormwater outfall.

The Draft Permit shall require quarterly O&G sampling during wet weather, in order to obtain a characterization of each stormwater outfall, especially since the permittee has indicated that some of the outfalls discharge during dry weather. Additionally, the Draft Permit shall require monthly O&G sampling during dry weather.

#### c. TSS

The current permit requires annual monitoring for TSS. Review of DMR data reveals that three samples were taken at each stormwater outfall, with the exception of Outfall 006 where only two samples were taken. The permittee reported TSS levels ranging from <2 - 13 mg/L for Outfall 001, <10 - 5.5 mg/L for Outfall 002, <10 - 5 mg/L for Outfall 003, 5 - 56 mg/L for Outfall 005, and 5 mg/L for Outfall 006.

Review of application data shows that an additional measurement was taken at each outfall. The permittee reported TSS levels of <5 mg/L for Outfall 001, <10 mg/L for Outfall 002, 15 mg/L for Outfall 003, 440 mg/L at Outfall 005, and 120 mg/L for Outfall 006.

Massachusetts has a narrative Water Quality Standard for TSS, which states that Class B 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.

Heavy metals and PAHs are readily adsorbed onto particulate matter and the release of these compounds can be controlled, to an extent, by regulating the amount of suspended solids released into the environment. Therefore, due to the high TSS levels reported at several stormwater outfalls, the Draft Permit shall require increased monitoring of the TSS concentrations at each outfall, in order to collect more information to determine if a reasonable potential exists to exceed Water Quality Standards. TSS concentrations shall be sampled and reported monthly for each stormwater outfall during wet weather. The Draft Permit shall also require monthly TSS sampling during dry weather.

Additionally, the Draft Permit shall require the permittee to develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of TSS through the facility's storm water system. The permit requires that in the event the source(s) of TSS cannot

be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the TSS loading to the receiving water.

d. pH

The current permit requires annual monitoring of the pH of the discharge through each stormwater outfall. Review of DMR data reveals three pH samples were taken at each stormwater outfall, with the exception of Outfall 006 where only two samples were taken. The permittee reported pH ranging from 5.92 - 6.2 SU at Outfall 001, 5.6 - 6.01 SU at Outfall 002, 5.7 - 6.1 SU at Outfall 003, 6 - 6.69 SU at Outfall 005, and 6.04 - 6.3 at Outfall 006.

State Water Quality Standards, 314 CMR, Inland Water, Class B at 4.05 (3)(b)3, state that for Class B waters, the pH shall be in the range of 6.5 through 8.3 standard units and not more than 0.5 units outside of the natural background range. There shall be no change from natural background conditions that would impair any use assigned to this Class. Based on the data collected, this pH range is expected to be met instream. Therefore, the Draft Permit shall continue to require annual sampling of pH at each stormwater outfall during wet weather. The Draft Permit shall also require monthly pH sampling at each stormwater outfall during dry weather.

e. Bacteria

The current permit requires annual monitoring of fecal coliform in the discharge through the stormwater outfalls.

Review of DMR data reveals three samples were taken at each stormwater outfall, with the exception of Outfall 006 where only two samples were taken. The permittee reported a fecal coliform level of 70 - 320 cfu/100ml at Outfall 001, 10 - 20 cfu/100ml at Outfall 002, 10 cfu/100 ml at Outfall 003, 10 - 440 cfu/100ml at Outfall 005, and 10 - 1,000 cfu/100ml at Outfall 006.

Current State Water Quality Standards for Class B surface waters require that “the geometric mean of all E. coli samples taken within the most recent six months shall not exceed 126 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 235 colonies per 100 ml; alternatively, the geometric mean of all enterococci samples taken within the most recent six months shall not exceed 33 colonies per 100 ml typically based on a minimum of five samples and no single sample shall exceed 61 colonies per 100 ml. These criteria may be applied on a seasonal basis at the discretion of the Department.”

Storm water runoff is a significant contributor of pathogen pollution. During rain events fecal matter from domestic animals and wildlife are readily transported to surface waters via the storm water drainage systems and/or overland flow. The natural filtering capacity provided by vegetative cover and soils is dramatically reduced as urbanization occurs because of the increase in impervious areas.

Therefore, the Draft Permit shall require the permittee to develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of bacteria through

the facility's storm water system. The permit requires that in the event the source(s) of bacteria cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the bacteria loading to the receiving water. Additionally, the Draft Permit shall require monitoring for *E. coli*, instead of the previous requirement to monitor for fecal coliform, consistent with State Water Quality Standards. The permittee shall sample each stormwater outfall during wet weather for *E. coli*, on a monthly basis. The permittee shall also sample each stormwater outfall during dry weather for *E. coli*, on a quarterly basis.

f. BOD<sub>5</sub>

Review of DMR data reveals that BOD<sub>5</sub> has ranged from 4-6 mg/L for Outfall 001, 4 mg/L for Outfall 002, 2-4 mg/L for Outfall 003, 4-6 mg/L for Outfall 005, and 4 mg/L for Outfall 006. Based on these low levels of BOD<sub>5</sub> in the discharges from Outfalls 001, 002, 003, 005, and 006, the requirement to monitor for BOD<sub>5</sub> at these outfalls has been removed from the Draft Permit.

g. Priority Pollutants (14 heavy metals, PCBs, PAHs)

The current permit requires annual reporting of priority pollutants and quarterly reporting of 14 heavy metals, Polychlorinated Biphenyls (PCBs) and Polynuclear Aromatic Hydrocarbons (PAHs).

The facility requested reduction in the number of priority pollutants tested in a letter to EPA dated February 24, 2009. In response to the facility's request, EPA suspended the requirement for an annual priority pollutant scan, with the exception of asbestos, total BTEX, benzene, toluene, ethylbenzene, and xylenes.

The facility also requested reduction of PAH and PCB sampling. EPA suspended the sampling requirement for Group II PAHs, however, the sampling for Group I PAHs remains unchanged, sampled on a quarterly basis. Additionally, EPA reduced the quarterly PCB monitoring requirement to annually.

The facility also requested reduction of the 14 heavy metals sampling. Sampling for arsenic, beryllium, cadmium, selenium, and thallium were suspended. Quarterly sampling for lead, copper, cyanide, chromium, zinc, nickel, silver, antimony, and mercury remained unchanged.

Based on the most recent data, EPA has calculated Water Quality based metal effluent limitations based on the guidance in the National Recommended Water Quality Criteria. A hardness of 58 mg/L for the receiving water, taken from WET test results, was used in the calculations. Metals calculations are summarized in table form in Attachment E to this Fact Sheet, Metals Criteria, and outlined below.

Based on no dilution, the copper calculations are as follows:

Water Quality based limits:

$$m_a = 0.9422 \quad b_a = -1.700 \quad CF = 0.960 \quad h = 58$$

$$\text{Acute criteria (dissolved)} = \exp \{0.9422[\ln(58)] + (-1.700)\} * 0.960 = \mathbf{8.04 \text{ ug/L}}$$

Acute limit (recoverable) =  $8.04 / 0.960 = 8.38 \text{ ug/L}$

$m_c = 0.8545$     $b_c = -1.702$     $CF = 0.960$     $h = 58$

Chronic criteria (dissolved) =  $\exp \{0.8545[\ln(58)] + (-1.702)\} * 0.960 = 5.62 \text{ ug/L}$

Chronic limit (recoverable) =  $5.62 / 0.960 = 5.85 \text{ ug/L}$

The application data reported by the permittee shows copper concentrations of 6 ug/L at Outfall 001, 4 ug/L at Outfall 002, 5 ug/L at Outfall 003, 8 ug/L at Outfall 005, and 2 ug/L at Outfall 006. Review of DMR data reveals maximum copper concentrations of 13 ug/L at Outfall 001, 44 ug/L at Outfall 002, 22 ug/L at Outfall 003, 71 ug/L at Outfall 005, and 5 ug/L at Outfall 006.

Therefore, the Draft Permit shall require the permittee to develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of copper through the facility's storm water system. The permit requires that in the event the source(s) of copper cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the copper loading to the receiving water. Additionally, the Draft Permit shall continue to require quarterly wet weather sampling for copper, and also require quarterly sampling for copper during dry weather.

The National Recommended Water Quality Criteria for total dissolved zinc is 120 ug/L for both the chronic and acute water quality criteria, assuming hardness of 100 mg/L. Using the average hardness value from the WET tests of 58 mg/L, the total dissolved zinc criteria is calculated as 74 ug/L for the acute water quality criteria. Dividing this dissolved concentration by the metal conversion factor for zinc, the total recoverable zinc water quality acute criterion is 76 ug/L.

The application data reported by the permittee shows zinc concentrations of 36 ug/L for Outfall 001, 28 ug/L for Outfall 002, 73 ug/L for Outfall 003, 39 ug/L for Outfall 005, and 84 ug/L for Outfall 006. Review of DMR data reveals maximum zinc concentrations of 38 ug/L at Outfall 001, 66 ug/L at Outfall 002, 66 ug/L at Outfall 003, 144 ug/L at Outfall 005, and 85 ug/L at Outfall 006.

Therefore, the Draft Permit shall require the permittee to develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of zinc through the facility's storm water system. The permit requires that in the event the source(s) of zinc cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the zinc loading to the receiving water. Additionally, the Draft Permit shall continue to require wet weather sampling for zinc on a quarterly basis. The Draft Permit shall also require quarterly sampling for zinc during dry weather.

The National Recommended Water Quality Criteria (acute) for lead is 65 ug/L, assuming hardness of 100 mg/L. Using the average hardness from the WET tests of 58 mg/L, the total dissolved lead is 36 ug/L for the acute water quality criterion. The total recoverable lead water quality acute criterion is 41 ug/L. The application data reported by the permittee shows lead concentrations of 12 ug/L at Outfall 003, and 7 ug/L at Outfall 005. Review of DMR data reveals maximum lead concentrations of 14 ug/L at Outfall 001, 36 ug/L at Outfall 002, 12 ug/L at Outfall 003, 122 ug/L at Outfall 005, and 2 ug/L at Outfall 006.

Therefore, the Draft Permit shall require the permittee to develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of lead through the facility's storm water system. The permit requires that in the event the source(s) of lead cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the lead loading to the receiving water. Additionally, the Draft Permit shall continue to require sampling for lead on a quarterly basis. The Draft Permit shall also require quarterly sampling for lead during dry weather.

The National Recommended Water Quality Criteria (acute) for nickel is 470 ug/L, assuming hardness of 100 mg/L. Using the average hardness from the WET tests of 58 mg/L, the total dissolved nickel is 295 ug/L for the acute water quality criterion. The total recoverable nickel water quality acute criterion is 296 ug/L. The application data reported by the permittee shows nickel concentrations of 1 ug/L at Outfall 001, 6 ug/L at Outfall 003, 2 ug/L at Outfall 005, and 3 ug/L at Outfall 006. Review of DMR data reveals maximum nickel concentrations of 2 ug/L at Outfall 001, 11 ug/L at Outfall 002, 6 ug/L at Outfall 003, 17 ug/L at Outfall 005, 6 ug/L at Outfall 006. Therefore, the requirement to monitor for nickel has been removed from the Draft Permit.

Total chromium was reported on the permit re-application as 1 ug/L at Outfall 003. Review of DMR data reveals maximum chromium concentrations of 2 ug/L at Outfall 001, 11 ug/L at Outfall 002, 7 ug/L at Outfall 003, 30 ug/L at Outfall 005, and 2 ug/L at Outfall 006. Using the average hardness from the WET tests of 58 mg/L, the National Recommended Water Quality Criteria (acute) for total chromium (III and VI) is 1170 ug/L. Therefore, the requirement to monitor for total chromium has been removed from the Draft Permit.

Review of DMR data reveals maximum mercury concentrations of 2 ug/L at Outfall 001, 2 ug/L at Outfall 002, 0.2 ug/L at Outfall 003, 0.2 ug/L at Outfall 005, and 0.2 ug/L at Outfall 006. The National Recommended Water Quality Criteria (acute) for mercury is 1.4 ug/L (dissolved), which converts to 1.65 ug/L total recoverable. Therefore, the Draft Permit shall require the permittee to develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of mercury through the facility's storm water system. The permit requires that in the event the source(s) of mercury cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the mercury loading to the receiving water. Additionally, the Draft Permit shall continue to require quarterly wet weather mercury monitoring. The Draft Permit shall also require quarterly sampling for mercury during dry weather.

On the permit reapplication, cyanide was reported as <0.005 mg/L at each stormwater outfall. Review of DMR data reveals maximum cyanide concentrations of 10 ug/L at Outfall 001, 5 ug/L at Outfall 002, 5 ug/L at Outfall 003, 5 ug/L at Outfall 005, and 6 ug/L at Outfall 006. The National Recommended Water Quality Criteria for cyanide are 22 ug free CN/L acute and 5.2 ug free CN/L chronic. Although the maximum daily concentrations have not exceeded the acute water quality criteria, they have exceeded the chronic limit. Therefore, the Draft Permit shall require both maximum daily and average monthly monitoring of cyanide in the discharges from



Outfalls 001, 002, 003, 005, and 006. The Draft Permit shall also require quarterly sampling for cyanide during dry weather.

On the permit reapplication, silver was reported as <0.001 mg/L at each stormwater outfall. Review of DMR data reveals maximum silver concentrations of 2 ug/L at Outfall 001, 1 ug/L at Outfall 002, 1 ug/L at Outfall 003, 1 ug/L at Outfall 005, 1 ug/L at Outfall 006. The National Recommended Water Quality Criteria (acute) for silver is 3.2 ug/L (dissolved). This converts to a total recoverable criteria for silver of 1.48 ug/L (assuming wet test results of H = 58). Therefore, the Draft Permit shall continue to require quarterly wet weather silver monitoring. The Draft Permit shall also require quarterly sampling for silver during dry weather.

On the permit reapplication, antimony was reported as <0.005 mg/L at each stormwater outfall. Review of DMR data reveals maximum antimony concentrations of 5 ug/L at Outfall 001, 5 ug/L at Outfall 002, 5 ug/L at Outfall 003, 5 ug/L at Outfall 005, and 5 ug/L at Outfall 006. No National Recommended Water Quality Criteria for Aquatic Life criteria exist for antimony, however the human health criteria (water+organism) is 5.6 ug/L. Therefore, the Draft Permit shall continue to require wet weather monitoring for antimony on a quarterly basis. The Draft Permit shall also require quarterly sampling for antimony during dry weather.

In addition to requiring sampling for metals in the dry weather flows from the stormwater outfalls, the Draft Permit shall also require sampling of all other parameters required to be sampled during wet weather, to collect sufficient data to obtain a characterization of the dry weather flows.

### 3. Storm Water Pollution Prevention Plan

This facility engages in activities which could result in the discharge of pollutants to waters of the United States either directly or indirectly through stormwater runoff. These operations include at least one of the following in an area potentially exposed to precipitation or stormwater: material storage; in-facility transfer; material processing, handling, or loading and unloading. Specifically, at this facility, chemicals stored in rail cars, fuels and oils stored in above ground storage tanks, materials stored in the rail yard including scrap metal piles, the storage of new railroad ties, chemicals in rail cars, and storage of various other materials are examples of material storage, processing and handling operations that shall continue to be included in the Stormwater Pollution Prevention Plan (SWPPP).

To control the activities/operations, which could contribute pollutants to waters of the United States, potentially violating the State's Water Quality Standards, the Draft Permit requires the facility to develop, implement, and maintain a SWPPP documenting the application of best management practices (BMPs) appropriate for this specific facility (See Sections 304(e) and 402(a)(1) of the CWA and 40 CFR §122.44(k)).

The goal of the SWPPP is to reduce, or prevent, the discharge of pollutants through the stormwater system. The SWPPP serves to document the selection, design and installation of control measures, including BMPs. Additionally, the SWPPP requirements in the Draft Permit are

intended to facilitate a systematic approach for the permittee to properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. The SWPPP shall be prepared in accordance with good engineering practices and identify potential sources of pollutants, which may reasonably be expected to affect the quality of stormwater discharges associated with industrial activity from the facility. The SWPPP documents the appropriate BMPs implemented or to be implemented at the facility to satisfy the non-numeric technology-based effluent limitations included in the Draft Permit. These non-numeric effluent limitations support, and are equally enforceable as, the numeric effluent limitations included in the Draft Permit.

This process involves the following four main steps:

- (1) Forming a team of qualified facility personnel who will be responsible for developing and updating the SWPPP and assisting the plant manager in its implementation;
- (2) Assessing the potential stormwater pollution sources;
- (3) Selecting and implementing appropriate management practices and controls for these potential pollution sources; and
- (4) Reevaluating, periodically, the effectiveness of the SWPPP in preventing stormwater contamination and in complying with the various terms and conditions of the Draft Permit.

Additionally, the following site specific BMPs shall be included in the SWPPP:

- a. All operations and maintenance activities shall be conducted indoors.
- b. The permittee shall operate the treatment system at Outfall 004 to ensure the flow does not exceed the design capacity of 50 gpm.
- c. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of bacteria through the facility's storm water system. The permit requires that in the event the source(s) of bacteria cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the bacteria loading to the receiving water.
- d. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of TSS through the facility's storm water system. The permit requires that in the event the source(s) of TSS cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the TSS loading to the receiving water.
- e. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of copper through the facility's storm water system. The permit requires that in the event the source(s) of copper cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the copper loading to the receiving water.

- f. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of zinc through the facility's storm water system. The permit requires that in the event the source(s) of zinc cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the zinc loading to the receiving water.
- g. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of lead through the facility's storm water system. The permit requires that in the event the source(s) of lead cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the lead loading to the receiving water.
- h. The permittee shall develop and implement a Source Identification and Reduction Plan (SIRP) to eliminate or reduce the discharge of mercury through the facility's storm water system. The permit requires that in the event the source(s) of mercury cannot be eliminated, Best Management Practices (BMPs) shall be developed to significantly reduce or eliminate the mercury loading to the receiving water.

## V. ENDANGERED SPECIES ACT

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

EPA has reviewed the federal endangered or threatened species of fish, wildlife, or plants to determine if any listed species might potentially be impacted by the re-issuance of this NPDES permit. The two listed species that have the potential to be present in the vicinity of the East Deerfield Rail Yard are the shortnose sturgeon (*Acipenser brevirostrum*) and the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*).

Based on the expected distribution of the species, EPA has determined that there are no Atlantic sturgeon in the action area and that the reissuance of the permit will have no effect on the species. Therefore, consultation under Section 7 of the ESA with NMFS for Atlantic sturgeon is not required.

Attachment G provides a complete discussion of EPA's Endangered Species Act assessment as it relates to the renewal of the East Deerfield Rail Yard NPDES permit. Based on the analysis of

potential impacts to shortnose sturgeon presented in Attachment G to this Fact Sheet, EPA has determined that impacts to shortnose sturgeon from the East Deerfield Rail Yard will be insignificant or discountable and the reissuance of this permit is not likely to adversely affect the shortnose sturgeon or its habitat. EPA is seeking concurrence with this determination from NMFS through the submittal of this Fact Sheet and Attachment, the Draft Permit and a letter under separate cover.

## VI. 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. Anadromous Atlantic salmon (*Salmo salar*) is the only managed species believed to be present during one or more lifestages within the area which encompasses the discharge site. EPA has determined that the draft permit limits adequately protect Atlantic Salmon EFH, and therefore additional mitigation is not warranted. If adverse impacts to EFH are detected as a result of this permit action, or if new information is received that changes the basis for our conclusion, NOAA Fisheries will be notified and an EFH consultation will be initiated.

A full justification supporting EPA's finding is included in Attachment F of this Fact Sheet. EPA is communicating the basis of this finding to NMFS through the Draft Permit, the information in this Fact Sheet and attachment and a letter to NMFS Habitat Division under separate cover.

## VII. MONITORING AND REPORTING

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 (l), and 122.48.

The Draft Permit includes new provisions related to Discharge Monitoring Report (DMR) submittals to EPA and the State. The Draft Permit requires that, no later than one year after the effective date of the permit, the permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR, unless the permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting

DMRs and reports (“opt out request”).

In the interim (until one year from the effective date of the permit), the permittee may either submit monitoring data and other reports to EPA in hard copy form, or report electronically using NetDMR.

NetDMR is a national web-based tool for regulated Clean Water Act permittees to submit discharge monitoring reports (DMRs) electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: <http://www.epa.gov/netdmr> Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To participate in upcoming trainings, visit <http://www.epa.gov/netdmr> for contact information for Massachusetts.

The Draft Permit requires the permittee to report monitoring results obtained during each calendar month using NetDMR, no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

The Draft Permit also includes an “opt-out” requests process. Permittees who believe they can not use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA at least sixty (60) days prior to the date the facility would otherwise be required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the permittee must submit DMRs and reports to EPA using NetDMR, unless the permittee submits a renewed opt out request sixty (60) days prior to expiration of its opt out, and such a request is approved by EPA.

Until electronic reporting using NetDMR begins, or for those permittees that receive written approval from EPA to continue to submit hard copies of DMRs, the Draft Permit requires that submittal of DMRs and other reports required by the permit continue in hard copy format.

## **VIII. STATE CERTIFICATION REQUIREMENTS**

EPA may not issue a permit unless the MassDEP certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to

violate State Surface Water Quality Standards or unless state certification is waived. The staff of the MassDEP has reviewed the Draft Permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR §124.53 and expects that the Draft Permit will be certified.

## **IX. ADMINISTRATIVE RECORD, PUBLIC COMMENT PERIOD, HEARING REQUESTS, AND PROCEDURES FOR FINAL DECISION**

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection Attn: Nicole Aquillano, 5 Post Office Square, Suite 100 (OEP06-4), Boston, Massachusetts 02109-3912 or via email to [kowalski.nicole@epa.gov](mailto: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 States 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.

## **X. EPA & MassDEP CONTACTS**

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

Nicole Aquillano, EPA New England – Region 1  
5 Post Office Square, Suite 100 (OEP06-4)  
Boston, Massachusetts 02109-3912  
Telephone: (617) 918-1746 FAX: (617) 918-0746  
email: [aquillano.nicole@epa.gov](mailto:aquillano.nicole@epa.gov)

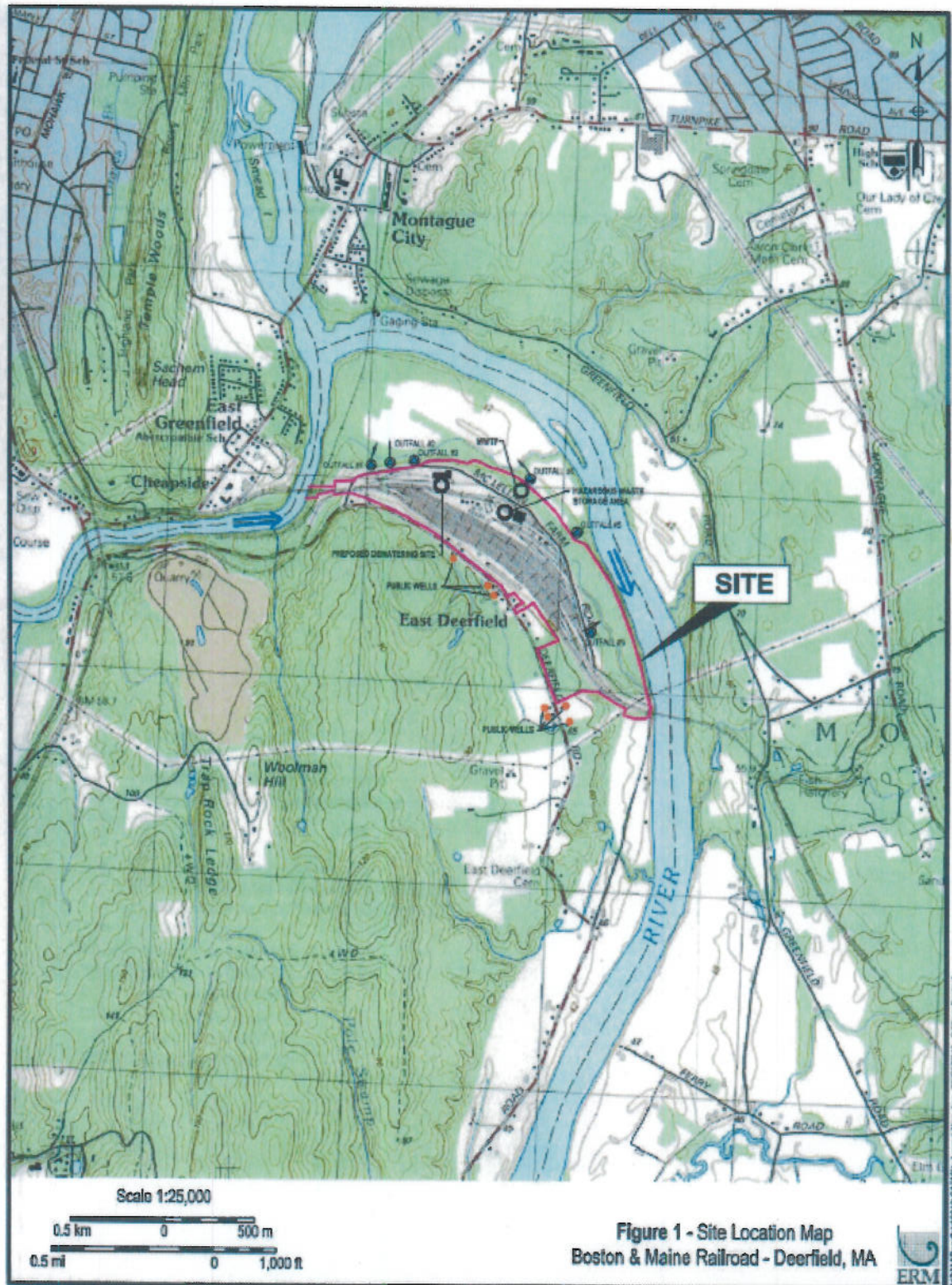
Kathleen Keohane, Massachusetts Department of Environmental Protection  
Division of Watershed Management, Surface Water Discharge Permit Program  
627 Main Street, 2<sup>nd</sup> Floor  
Worcester, Massachusetts 01608  
Telephone: (508) 767-2856 FAX: (508) 791-4131  
email: [kathleen.keohane@state.ma.us](mailto:kathleen.keohane@state.ma.us)

## **XI. ATTACHMENTS**

- A. Site Locus**
- B. DMR Data Summary**
- C. Stormwater Drainage System Plan**
- D. Schematic Water Flow**
- E. Metals Criteria**
- F. Essential Fish Habitat Evaluation**
- G. Endangered Species Act Assessment**



**Attachment A - Site Locus  
Fact Sheet No. MA0000272**





# Attachment B - DMR Data Summary

Fact Sheet No. MA0000272

| Outfall 001A | BOD<br>Req. Mon. mg/L |          | fecal coliform<br>Req. Mon. #/100mL |          | Flow<br>Req. Mon. gal/min | O&G<br>Req. Mon. mg/L |          | pH<br>Req. Mon. SU | TSS<br>Req. Mon. mg/L |          |
|--------------|-----------------------|----------|-------------------------------------|----------|---------------------------|-----------------------|----------|--------------------|-----------------------|----------|
| MP Date      | AVERAGE               | DAILY MX | AVERAGE                             | DAILY MX | DAILY MX                  | AVERAGE               | DAILY MX | MAXIMUM            | AVERAGE               | DAILY MX |
| 3/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 4/30/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | 6                  | R                     | R        |
| 5/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 10/4/2007    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2008    |                       | <2       |                                     | <10      | 30                        |                       | <3       | 6.1                |                       | <2       |
| 4/30/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 5/31/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 4/30/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2010    | 4.                    | 4.       | 320.                                | 320.     | 25.                       | 1.4                   | 1.4      | 6.2                | 5.                    | 5.       |
| 4/30/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2011    | 6.                    | 6.       | 70.                                 | 70.      | 110.                      | 1.4                   | 1.4      | 5.94               | 13.                   | 13.      |
| Ave:         | 5                     | 5        | 195                                 | 195      | 55                        | 1.4                   | 1.4      | 6.06               | 9                     | 9        |
| Min:         | 4.                    | 4.       | 70.                                 | 70.      | 25.                       | 1.4                   | 1.4      | 5.94               | 5.                    | 5.       |
| Max:         | 6.                    | 6.       | 320.                                | 320.     | 110.                      | 1.4                   | 1.4      | 6.2                | 13.                   | 13.      |

| Outfall 001Q | Antimony<br>Req. Mon. ug/L | Arsenic<br>Req. Mon. ug/L | Beryllium<br>Req. Mon. ug/L | Cadmium<br>Req. Mon. ug/L | Chromium<br>Req. Mon. ug/L | Copper<br>Req. Mon. ug/L | Cyanide<br>Req. Mon. ug/L | Lead<br>Req. Mon. ug/L | Mercury<br>Req. Mon. ug/L | Nickel<br>Req. Mon. ug/L | PCBs<br>Req. Mon. ug/L | PAHs<br>Req. Mon. ug/L | Selenium<br>Req. Mon. ug/L | Silver<br>Req. Mon. ug/L | Thallium<br>Req. Mon. ug/L | Zinc<br>Req. Mon. ug/L |
|--------------|----------------------------|---------------------------|-----------------------------|---------------------------|----------------------------|--------------------------|---------------------------|------------------------|---------------------------|--------------------------|------------------------|------------------------|----------------------------|--------------------------|----------------------------|------------------------|
| MP Date      | DAILY MX                   | DAILY MX                  | DAILY MX                    | DAILY MX                  | DAILY MX                   | DAILY MX                 | DAILY MX                  | DAILY MX               | DAILY MX                  | DAILY MX                 | DAILY MX               | DAILY MX               | DAILY MX                   | DAILY MX                 | DAILY MX                   | DAILY MX               |
| 8/31/2006    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        |                        |                        | R                          | R                        | R                          | R                      |
| 9/30/2006    |                            |                           |                             |                           |                            |                          | 10                        |                        |                           |                          |                        |                        |                            |                          |                            |                        |
| 11/30/2006   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/28/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 5/31/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 8/31/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2007   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/29/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 5/31/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 6/23/2008    |                            |                           |                             |                           |                            | 13                       | <5                        | 14                     |                           |                          | <0.2                   | <0.1-<0.5              |                            |                          |                            |                        |
| 8/31/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2008   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/28/2009    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000002                  | .000005                   | .000002                | .0000002                  | .000001                  |                        |                        | .00001                     | .000001                  | .000002                    | .000038                |
| 4/1/2009     |                            |                           |                             |                           |                            | 2                        |                           |                        |                           |                          |                        |                        |                            |                          |                            | 38                     |
| 5/31/2009    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 4                        | .000005                   | 3                      | .0000003                  | 1                        |                        |                        | .00001                     | .000001                  | .000002                    | 34                     |
| 8/31/2009    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 4                        | .000005                   | .000002                | .0000002                  | .000001                  |                        |                        | .00001                     | .000001                  | .000002                    | 24                     |
| 11/30/2009   | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 6                        | .000005                   | .000002                | .0000008                  | 1                        |                        | .08                    | .00001                     | .000001                  | .000002                    | 36                     |
| 2/28/2010    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 2                        | .000005                   | .000002                | .0000002                  | 1                        |                        |                        | .00001                     | .000001                  | .000002                    | 24                     |
| 5/31/2010    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 1                        | .000005                   | .000002                | .0000002                  | 1                        |                        |                        | .00001                     | .000001                  | .000002                    | 23                     |
| 8/31/2010    | .000005                    | .000004                   | .000001                     | .000001                   | 2                          | 2                        | .000005                   | .000002                | .0000002                  | 1                        |                        | .022                   | .00001                     | 2                        | .000002                    | 23                     |
| 11/30/2010   | <0.000005                  | <0.000004                 | <0.000001                   | <0.000001                 | 2                          | 9                        | <0.000005                 | 5                      | <0.0000002                | 2                        | ND                     | .073                   | 13                         | <0.000001                | <0.000002                  | 28                     |
| 2/28/2011    | 5                          | 4                         | 1                           | 1                         | 1                          | 1                        | 5                         | 2                      | 2                         | 1                        |                        |                        | 10                         | 1                        | 2                          | 32                     |
| 8/31/2011    | 5                          | 4                         | 1                           | 1                         | 1                          | 4                        | 5                         | 2                      | 2                         | 1                        |                        |                        | 10                         | 1                        | 2                          | 19                     |
| Ave:         | 1.11                       | 0.49                      | 0.22                        | 0.22                      | 0.60                       | 4.00                     | 1.55                      | 2.36                   | 0.24                      | 0.90                     | 0.00                   | 0.02                   | 3.30                       | 0.44                     | 0.44                       | 25.55                  |
| Min:         | 0.00                       | 0.00                      | 0.00                        | 0.00                      | 0.00                       | 0.00                     | 0.00                      | 0.00                   | 0.00                      | 0.00                     | 0.00                   | 0.00                   | 0.00                       | 0.00                     | 0.00                       | 0.00                   |
| Max:         | 5.00                       | 4.00                      | 1.00                        | 1.00                      | 2.00                       | 13.00                    | 10.00                     | 14.00                  | 2.00                      | 2.00                     | 0.00                   | 0.08                   | 13.00                      | 2.00                     | 2.00                       | 38.00                  |

| Outfall 002A | BOD<br>Req. Mon. mg/L |          | fecal coliform<br>Req. Mon. #/100mL |          | Flow<br>Req. Mon. gal/min | O&G<br>Req. Mon. mg/L |          | pH<br>Req. Mon. SU | TSS<br>Req. Mon. mg/L |          |
|--------------|-----------------------|----------|-------------------------------------|----------|---------------------------|-----------------------|----------|--------------------|-----------------------|----------|
| MP Date      | AVERAGE               | DAILY MX | AVERAGE                             | DAILY MX | DAILY MX                  | AVERAGE               | DAILY MX | MAXIMUM            | AVERAGE               | DAILY MX |
| 3/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 4/30/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | 5.5                | R                     | R        |
| 5/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2008    |                       | <2       |                                     | <10      | 2                         |                       | <3       | 5.6                |                       | <10      |
| 4/30/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 5/31/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 4/30/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2010    | 4.                    | 4.       | 20.                                 | 20.      | 1.                        | 1.4                   | 1.4      | 6.01               | 5.                    | 5.       |
| 4/30/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2011    | 4.                    | 4.       | 10.                                 | 10.      | 30.                       | 1.4                   | 1.4      | 5.84               | 5.5                   | 5.5      |
| Ave:         | 4                     | 4        | 15                                  | 15       | 11                        | 1.4                   | 1.4      | 5.7375             | 5.25                  | 5.25     |
| Min:         | 4.                    | 4.       | 10.                                 | 10.      | 1.                        | 1.4                   | 1.4      | 5.5                | 5.                    | 5.       |
| Max:         | 4.                    | 4.       | 20.                                 | 20.      | 30.                       | 1.4                   | 1.4      | 6.01               | 5.5                   | 5.5      |

| Outfall 002Q | Antimony<br>Req. Mon. ug/L | Arsenic<br>Req. Mon. ug/L | Beryllium<br>Req. Mon. ug/L | Cadmium<br>Req. Mon. ug/L | Chromium<br>Req. Mon. ug/L | Copper<br>Req. Mon. ug/L | Cyanide<br>Req. Mon. ug/L | Lead<br>Req. Mon. ug/L | Mercury<br>Req. Mon. ug/L | Nickel<br>Req. Mon. ug/L | PCBs<br>Req. Mon. ug/L | PAHs<br>Req. Mon. ug/L | Selenium<br>Req. Mon. ug/L | Silver<br>Req. Mon. ug/L | Thallium<br>Req. Mon. ug/L | Zinc<br>Req. Mon. ug/L |
|--------------|----------------------------|---------------------------|-----------------------------|---------------------------|----------------------------|--------------------------|---------------------------|------------------------|---------------------------|--------------------------|------------------------|------------------------|----------------------------|--------------------------|----------------------------|------------------------|
| MP Date      | DAILY MX                   | DAILY MX                  | DAILY MX                    | DAILY MX                  | DAILY MX                   | DAILY MX                 | DAILY MX                  | DAILY MX               | DAILY MX                  | DAILY MX                 | DAILY MX               | DAILY MX               | DAILY MX                   | DAILY MX                 | DAILY MX                   | DAILY MX               |
| 8/31/2006    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2006   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/28/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 4/5/2007     |                            |                           |                             |                           |                            |                          |                           | 5                      |                           |                          |                        |                        |                            |                          |                            |                        |
| 5/31/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 7/7/2007     |                            |                           |                             |                           |                            |                          |                           |                        |                           |                          |                        | 0.9                    |                            |                          |                            |                        |
| 8/31/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2007   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/29/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 3/1/2008     |                            |                           |                             |                           |                            | 1                        |                           |                        |                           |                          |                        |                        |                            |                          |                            |                        |
| 5/31/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 6/23/2008    |                            |                           |                             |                           |                            | 3                        | <5                        | 24                     |                           |                          | <0.2                   |                        |                            |                          |                            |                        |
| 8/31/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2008   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/28/2009    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000002                  | .000005                   | .000002                | .0000002                  | .000002                  |                        |                        | .00001                     | .000001                  | .000002                    | .000013                |
| 4/1/2009     |                            |                           |                             |                           |                            | 2                        |                           |                        |                           |                          | 2                      |                        |                            |                          |                            | 13                     |
| 5/31/2009    | .000005                    | 4                         | .000001                     | .000001                   | 2                          | 10                       | .000005                   | 11                     | .0000003                  | 3                        |                        | .16                    | .00001                     | .000001                  | .000002                    | 55                     |
| 8/31/2009    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | 4                         | .000005                | .000002                   | .0000002                 | 2                      | .12                    | .00001                     | .000001                  | .000002                    | 17                     |
| 11/30/2009   | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | 3                         | .000005                | .000002                   | .0000002                 | 3                      |                        | .00001                     | .000001                  | .000002                    | 28                     |
| 2/28/2010    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | 3                         | .000005                | .000002                   | .0000002                 | 3                      |                        | .00001                     | .000001                  | .000002                    | 29                     |
| 5/31/2010    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 3                        | 12                        | .000005                | 6                         | .0000002                 | 3                      | .19                    | .00001                     | .000001                  | .000002                    | 27                     |
| 8/31/2010    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | 4                         | .000005                | .000002                   | .0000002                 | 3                      | .074                   | .00001                     | .000001                  | .000002                    | 15                     |
| 11/30/2010   | <0.000005                  | 8                         | <0.000001                   | <0.000001                 | 11                         | 44                       | <0.000005                 | 36                     | .0000002                  | 11                       | ND                     | .65                    | <0.000001                  | <0.000001                | <0.000002                  | 66                     |
| 2/28/2011    | 5                          | 4                         | 1                           | 1                         | 1                          | 1                        | 5                         | 2                      | 2                         | 2                        |                        |                        | 10                         | 1                        | 2                          | 22                     |
| 6/31/2011    | 5                          | 4                         | 1                           | 1                         | 1                          | 1                        | 2                         | 5                      | 2                         | 2                        |                        |                        | 10                         | 1                        | 2                          | 13                     |
| Ave:         | 1.11                       | 2.00                      | 0.22                        | 0.22                      | 1.80                       | 6.85                     | 1.11                      | 7.17                   | 0.22                      | 3.09                     | 0.00                   | 0.23                   | 2.22                       | 0.22                     | 0.44                       | 25.91                  |
| Min:         | 0.00                       | 0.00                      | 0.00                        | 0.00                      | 0.00                       | 0.00                     | 0.00                      | 0.00                   | 0.00                      | 0.00                     | 0.00                   | 0.00                   | 0.00                       | 0.00                     | 0.00                       | 0.00                   |
| Max:         | 5.00                       | 8.00                      | 1.00                        | 1.00                      | 11.00                      | 44.00                    | 5.00                      | 36.00                  | 2.00                      | 11.00                    | 0.00                   | 0.90                   | 10.00                      | 1.00                     | 2.00                       | 66.00                  |



| Outfall 003A | BOD<br>Req. Mon. mg/L |          | Fecal coliform<br>Req. Mon. #/100mL |          | Flow<br>Req. Mon. gal/min | O&G<br>Req. Mon. mg/L |          | pH<br>Req. Mon. SU | TSS<br>Req. Mon. mg/L |          |
|--------------|-----------------------|----------|-------------------------------------|----------|---------------------------|-----------------------|----------|--------------------|-----------------------|----------|
| MP Date      | AVERAGE               | DAILY MX | AVERAGE                             | DAILY MX | DAILY MX                  | AVERAGE               | DAILY MX | MAXIMUM            | AVERAGE               | DAILY MX |
| 3/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 4/30/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | 5.7                | R                     | R        |
| 5/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2008    |                       | 2        |                                     | <10      | 10                        |                       | <3       | 5.7                |                       | <10      |
| 4/30/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 5/31/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 4/30/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2010    | 4.                    | 4.       | 10.                                 | 10.      | 30.                       | 1.4                   | 1.4      | 6.1                | 5.                    | 5.       |
| 4/30/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2011    | 4.                    | 4.       | 10.                                 | 10.      | 100.                      | 1.4                   | 1.4      | 5.83               | 5.                    | 5.       |
| Ave:         | 4.00                  | 3.33     | 10.00                               | 10.00    | 46.67                     | 1.40                  | 1.40     | 5.83               | 5.00                  | 5.00     |
| Min:         | 4.00                  | 2.00     | 10.00                               | 10.00    | 10.00                     | 1.40                  | 1.40     | 5.70               | 5.00                  | 5.00     |
| Max:         | 4.00                  | 4.00     | 10.00                               | 10.00    | 100.00                    | 1.40                  | 1.40     | 6.10               | 5.00                  | 5.00     |

| Outfall 003Q | Antimony<br>Req. Mon. ug/L | Arsenic<br>Req. Mon. ug/L | Beryllium<br>Req. Mon. ug/L | Cadmium<br>Req. Mon. ug/L | Chromium<br>Req. Mon. ug/L | Copper<br>Req. Mon. ug/L | Cyanide<br>Req. Mon. ug/L | Lead<br>Req. Mon. ug/L | Mercury<br>Req. Mon. ug/L | Nickel<br>Req. Mon. ug/L | PCBs<br>Req. Mon. ug/L | PAHs<br>Req. Mon. ug/L | Selenium<br>Req. Mon. ug/L | Silver<br>Req. Mon. ug/L | Thallium<br>Req. Mon. ug/L | Zinc<br>Req. Mon. ug/L |
|--------------|----------------------------|---------------------------|-----------------------------|---------------------------|----------------------------|--------------------------|---------------------------|------------------------|---------------------------|--------------------------|------------------------|------------------------|----------------------------|--------------------------|----------------------------|------------------------|
| MP Date      | DAILY MX                   | DAILY MX                  | DAILY MX                    | DAILY MX                  | DAILY MX                   | DAILY MX                 | DAILY MX                  | DAILY MX               | DAILY MX                  | DAILY MX                 | DAILY MX               | DAILY MX               | DAILY MX                   | DAILY MX                 | DAILY MX                   | DAILY MX               |
| 8/31/2006    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2006   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/28/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 4/5/2007     |                            |                           |                             |                           |                            |                          |                           | 6                      |                           |                          |                        |                        |                            |                          |                            |                        |
| 5/31/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 8/31/2007    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2007   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/29/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 3/1/2008     |                            |                           |                             |                           |                            | 1                        |                           |                        |                           |                          |                        |                        |                            |                          |                            |                        |
| 4/1/2009     |                            |                           |                             |                           |                            | 2                        |                           |                        |                           | 5                        |                        |                        |                            |                          |                            | 66                     |
| 5/31/2008    | R                          | R                         | R                           | R                         | R                          | R                        |                           | R                      | R                         | R                        |                        | R                      | R                          | R                        | R                          | R                      |
| 6/23/2008    |                            |                           |                             |                           |                            |                          | <5                        | 12                     |                           |                          | <0.2                   | <0.1-<0.5              |                            |                          |                            | 40                     |
| 8/31/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2008   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/28/2009    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000002                  | .000005                   | .000002                | .000002                   | .000005                  |                        |                        | .00001                     | .000001                  | .000002                    | .000066                |
| 5/31/2009    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 2                        | .000005                   | .000002                | .000003                   | 4                        |                        |                        | .00001                     | .000001                  | .000002                    | 54                     |
| 8/31/2009    | .000001                    | .000001                   | .000001                     | .000014                   | 1                          | 4                        | .000002                   | <0.000002              | .000002                   | 1                        |                        | .9                     | .000004                    | .000001                  | .000005                    | 14                     |
| 11/30/2009   | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 5                        | .000005                   | 3                      | .000002                   | 6                        |                        | .08                    | .00001                     | .000001                  | .000002                    | 53                     |
| 2/28/2010    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 3                        | 4                         | .000005                | 4                         | .000002                  | 3                      |                        | .000001                    | .000001                  | .000002                    | 26                     |
| 5/31/2010    | .000007                    | 15                        | .000001                     | .000026                   | 7                          | 22                       | .000002                   | 11                     | .000002                   | 6                        |                        | .000011                | .000022                    | .000001                  | .000005                    | 28                     |
| 8/31/2010    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 1                        | .000005                   | .000002                | .000002                   | 4                        |                        | .89                    | .00001                     | .000001                  | .000002                    | 44                     |
| 11/30/2010   | <0.000005                  | <0.000004                 | <0.000001                   | <0.000001                 | <0.000001                  | 3                        | <0.000005                 | <0.000002              | <0.000002                 | 4                        | ND                     | .021                   | <0.000001                  | <0.000001                | <0.000002                  | 55                     |
| 2/28/2011    | 5                          | 4                         | 1                           | 1                         | 1                          | 1                        | 5                         | 2                      | 2                         | 2                        |                        |                        | 10                         | 1                        | 2                          | 35                     |
| 8/31/2011    | 5                          | 4                         | 1                           | 1                         | 1                          | 2                        | 5                         | 2                      | 02                        | 3                        |                        |                        | 10                         | 1                        | 2                          | 40                     |
| Ave:         | 1.11                       | 2.56                      | 0.22                        | 0.22                      | 1.44                       | 4.40                     | 1.11                      | 2.75                   | 0.02                      | 3.30                     | 0.00                   | 0.24                   | 2.22                       | 0.22                     | 0.44                       | 34.90                  |
| Min:         | 0.00                       | 0.00                      | 0.00                        | 0.00                      | 0.00                       | 0.00                     | 0.00                      | 0.00                   | 0.00                      | 0.00                     | 0.00                   | 0.00                   | 0.00                       | 0.00                     | 0.00                       | 0.00                   |
| Max:         | 5.00                       | 15.00                     | 1.00                        | 1.00                      | 7.00                       | 22.00                    | 5.00                      | 12.00                  | 0.20                      | 6.00                     | 0.00                   | 0.90                   | 10.00                      | 1.00                     | 2.00                       | 66.00                  |

| MP Date      | Benzene        |          | Flowrate    |          | O&G            |          | pH      |         | TSS            |          | Surfactants    |          | Temperature     |          | Flowrate        |          |
|--------------|----------------|----------|-------------|----------|----------------|----------|---------|---------|----------------|----------|----------------|----------|-----------------|----------|-----------------|----------|
|              | Req. Mon. ug/L |          | 15000 gal/d |          | Req. Mon. mg/L |          | 6.5 SU  |         | Req. Mon. mg/L |          | Req. Mon. mg/L |          | Req. Mon. deg F |          | Req. Mon. gal/d |          |
|              | AVERAGE        | DAILY MX | MO AVG      | DAILY MX | AVERAGE        | DAILY MX | MINIMUM | MAXIMUM | AVERAGE        | DAILY MX | AVERAGE        | DAILY MX | DAILY MX        | DAILY MX | MO AVG          | DAILY MX |
| 7/31/2006    | 0.7            | 0.7      | 11772       | 18120    | 2.1            | 2.1      | 6.6     | 7.16    | 4.5            | 4.5      | 0.07           | 0.07     | 72.7            |          |                 |          |
| 8/31/2006    | 0.5            | 0.5      | 7940        | 13520    | 1.9            | 1.9      | 6.78    | 7.49    | 9.5            | 9.5      | 0.13           | 0.13     | 75.6            |          |                 |          |
| 9/30/2006    | 0.5            | 0.5      |             |          | 1.8            | 1.8      | 6.67    | 7.53    | 6.5            | 6.5      | 0.07           | 0.07     | 74.9            | 9476     | 13580           |          |
| 10/31/2006   | 0.5            | 0.5      |             |          | 2.6            | 2.6      | 6.64    | 7.03    | 7              | 7        | 0.19           | 0.19     | 69.1            | 11575    | 16510           |          |
| 11/30/2006   | 0.5            | 0.5      |             |          | 3.4            | 3.4      | 6.79    | 7.24    | 14             | 14       | 0.08           | 0.08     | 65.45           | 12906    | 27390           |          |
| 12/31/2006   | 0.5            | 0.5      |             |          | 1              | 1        | 6.75    | 7.52    | 4.5            | 4.5      | 0.07           | 0.07     | 65.8            | 8509     | 16200           |          |
| 1/31/2007    | 0.5            | 0.5      |             |          | 1.4            | 1.4      | 6.72    | 7.45    | 3              | 3        | 0.1            | 0.1      | 67.7            | 10276    | 17670           |          |
| 2/28/2007    | 0.9            | 0.9      | NODI        | NODI 9   | 2              | 2        | 6.69    | 7.26    | 4.5            | 4.5      | 0.25           | 0.25     | 68.3            | 5370     | 10880           |          |
| 3/31/2007    | 0.5            | 0.5      | NODI        | NODI 9   | 1              | 1        | 6.65    | 7.35    | 5.5            | 5.5      | 0.1            | 0.1      | 62.7            | 12685    | 27080           |          |
| 4/30/2007    | 1.7            | 1.7      | NODI        | NODI 9   | <1.0           | <1.0     | 6.59    | 7.28    | 6.5            | 6.5      | 0.06           | 0.06     | 64.6            | 16969    | 34830           |          |
| 5/31/2007    | 0.5            | 0.5      |             |          | 1.5            | 1.5      | 6.69    | 7.2     | 8              | 8        | 0.07           | 0.07     | 70              | 11441    | 20690           |          |
| 6/30/2007    | 1.5            | 1.5      |             |          | 1.2            | 1.2      | 6.75    | 7.15    | 28             | 28       | 0.04           | 0.04     | 73.6            | 9863     | 13030           |          |
| 7/31/2007    | 0.5            | 0.5      | NODI        | NODI 9   | 1.1            | 1.1      | 6.82    | 7.08    | 2              | 2        | 0.06           | 0.06     | 72.6            | 8030     | 14410           |          |
| 8/31/2007    | 3.9            | 3.9      |             |          | 2.1            | 2.1      | 6.65    | 7.26    | 2.5            | 2.5      | 0.12           | 0.12     | 76.3            | 5184     | 8910            |          |
| 9/30/2007    | 5              | 5        |             |          | 2              | 2        | 6.98    | 7.26    | 13.5           | 13.5     | 0.13           | 0.13     | 88.6            | 6031     | 10810           |          |
| 10/31/2007   | 5              | 5        |             |          | 1              | 1        | 6.84    | 7.25    | 1              | 1        | 0.08           | 0.08     | 76.3            | 5608     | 12970           |          |
| 11/30/2007   | 5              | 5        |             |          | 1              | 1        | 6.64    | 7.12    | 1              | 1        | 0.07           | 0.07     | 74.6            | 6922     | 17000           |          |
| 12/31/2007   | 5              | 5        |             |          | 1.4            | 1.4      | 6.6     | 6.99    | 5.5            | 5.5      | 0.1            | 0.1      | 77.5            | 7297     | 13120           |          |
| 1/31/2008    | 5              | 5        |             |          | 1              | 1        | 6.72    | 6.93    | 1.5            | 1.5      | 0.1            | 0.1      | 63.4            | 11729    | 19320           |          |
| 2/28/2008    | 5              | 5        |             |          | 2.2            | 2.2      | 6.74    | 7.03    | 5              | 5        | 0.06           | 0.06     | 64.1            | 18414    | 37370           |          |
| 3/31/2008    | 1.1            | 1.1      |             |          | 2              | 2        | 6.74    | 7.73    | 5              | 5        | 0.07           | 0.07     | 47.29           | 22436    | 40260           |          |
| 4/30/2008    | <0.5           | <0.5     | 15227       | NODI 9   | <1             | <1       | 6.76    | 7.23    | 8              | 8        | 0.09           | 0.09     | 59.9            | 15227    | 25520           |          |
| 5/31/2008    | 2.2            | 2.2      | NODI 9      | NODI 9   | 1.4            | 1.4      | 6.76    | 7.12    | 5.5            | 5.5      | 0.16           | 0.16     | 63.4            | 8505     | 13360           |          |
| 6/30/2008    | 1.5            | 1.5      |             |          | 2.2            | 2.2      | 6.71    | 7.3     | 2              | 2        | 0.1            | 0.1      | 68.7            | 7493     | 14670           |          |
| 7/31/2008    | 1.4            | 1.4      |             |          | 1.3            | 1.3      | 6.7     | 7.11    | 2.5            | 2.5      | 0.07           | 0.07     | 71.6            | 10234    | 26260           |          |
| 8/31/2008    | 1.3            | 1.3      |             |          | 1              | 1        | 6.72    | 7.14    | 2.5            | 2.5      | 0.11           | 0.11     | 74.5            | 9209     | 20110           |          |
| 9/30/2008    | 5              | 5        | 12655       | 32744    | 1              | 1        | 6.8     | 7.27    | 2              | 2        | 0.07           | 0.07     | 77.8            | 1489     | 7514            |          |
| 10/31/2008   | 5              | 5        | 10855       | 20661    | 1.9            | 1.9      | 6.68    | 7.07    | 8.5            | 8.5      | 0.1            | 0.1      | 69.9            | 1872     | 6601            |          |
| 11/30/2008   | 7              | 7        | 10356       | 18930    | 1              | 1        | 6.74    | 7       | 5.6            | 5.6      | 0.08           | 0.08     | 70.1            | 2546     | 7531            |          |
| 12/31/2008   | 1.6            | 1.6      | 16353       | 42757    | 1              | 1        | 6.61    | 7.29    | 28             | 28       | 0.06           | 0.06     | 64              | 3818     | 18254           |          |
| 1/31/2009    | 5              | 5        | 10083       | 19543    | 1.2            | 1.2      | 6.61    | 7.04    | 8.5            | 8.5      | 0.1            | 0.1      | 69              | 1451     | 2856            |          |
| 2/28/2009    | 1              | 1        | 8084        | 13743    | 1.4            | 1.4      | 6.56    | 7.19    | 8.5            | 8.5      | 0.04           | 0.04     | 60.41           | 1005     | 3217            |          |
| 3/31/2009    | 1.3            | 1.3      | 13755       | 24264    | 2.1            | 2.1      | 6.66    | 7.55    | 5              | 5        | 0.19           | 0.19     | 54.06           | 1881     | 5800            |          |
| 4/30/2009    | 1              | 1        | 13533       | 19488    | 1.5            | 1.5      | 6.58    | 7.69    | 7.5            | 7.5      | 0.13           | 0.13     | 63              | 782      | 2431            |          |
| 5/31/2009    | 1.1            | 1.1      | 8636        | 15974    | 1.4            | 1.4      | 6.62    | 7.7     | 7.5            | 7.5      | 0.13           | 0.13     | 65              | 443      | 3306            |          |
| 6/30/2009    | 1              | 1        | 10606       | 19555    | 1.4            | 1.4      | 6.57    | 7.12    | 6.5            | 6.5      | 0.16           | 0.16     | 63.75           | 1159     | 4932            |          |
| 7/31/2009    | 1              | 1        | 20563.5     | 52208    | 1.4            | 1.4      | 6.59    | 7.46    | 5              | 5        | 0.09           | 0.09     | 68.6            | 2144     | 10279           |          |
| 8/31/2009    | 1              | 1        | 15897       | 52055    | 1.4            | 1.4      | 6.62    | 7.75    | 5              | 5        | 0.13           | 0.13     | 72              | 1151     | 5951            |          |
| 9/30/2009    | 1              | 1        | 7135        | 14945    | 1.4            | 1.4      | 6.61    | 7.92    | 5              | 5        | 0.23           | 0.23     | 72.2            | 637      | 1244            |          |
| 10/31/2009   | 1              | 1        | 7333        | 20752    | 1.4            | 1.4      | 6.57    | 7.92    | 5              | 5        | 0.34           | 0.34     | 70.3            | 1367     | 5597            |          |
| 11/30/2009   | 1              | 1        | 8006.5      | 14788    | 1.4            | 1.4      | 6.59    | 7       | 5              | 5        | 0.06           | 0.06     | 65.8            | 760.4    | 2854            |          |
| 12/31/2009   | 1              | 1        | 9089.3      | 27425    | 1.7            | 1.7      | 6.56    | 7.04    | 5              | 5        | 0.06           | 0.06     | 63              | 1129.2   | 5896            |          |
| 1/31/2010    | 1              | 1        | 8547.5      | 32380    | 1.4            | 1.4      | 6.59    | 7.17    | 5              | 5        | 0.1            | 0.1      | 61              | 980.5    | 9941            |          |
| 2/28/2010    | 1              | 1        | 9277.3      | 33409    | 1.4            | 1.4      | 6.61    | 7.3     | 5              | 5        | 0.1            | 0.1      | 61.4            | 1330.57  | 12890           |          |
| 3/31/2010    | 1              | 1        | 15628       | 46625    | 1.4            | 1.4      | 6.54    | 6.91    | 5              | 5        | 0.1            | 0.1      | 56.9            | 2386     | 12000           |          |
| 4/30/2010    | 1              | 1        | 11408       | 36158    | 1.4            | 1.4      | 6.56    | 7.05    | 5              | 5        | 0.1            | 0.1      | 60.6            | 539      | 2927            |          |
| 5/31/2010    | 1              | 1        | 5453        | 16476    | 1.4            | 1.4      | 7.67    | 7.67    | 5              | 5        | 0.23           | 0.23     | 71.2            | 17.6     | 80              |          |
| 6/30/2010    | 1              | 1        | 7608        | 19396    | 1.4            | 1.4      | 6.74    | 7.51    | 5              | 5        | 0.06           | 0.06     | 74.4            | 264.3    | 2431            |          |
| 7/31/2010    | 1              | 1        | 6041        | 16895    | 1.4            | 1.4      | 6.58    | 7.92    | 5              | 5        | 0.07           | 0.07     | 78              | 119.1    | 995             |          |
| 8/31/2010    | 1              | 1        | 3863.5      | 8874     | 1.4            | 1.4      | 6.54    | 7.19    | 5              | 5        | 0.2            | 0.2      | 84.9            | 137.5    | 1106            |          |
| 9/30/2010    | 1              | 1        | 4625        | 40776    | 2.4            | 2.4      | 6.61    | 7.32    | 6.5            | 6.5      | 0.17           | 0.17     | 86.4            | 462      | 8244            |          |
| 10/31/2010   | 1              | 1        | 11395       | 58497    | 1.5            | 1.5      | 6.52    | 7.99    | 5              | 5        | 0.23           | 0.23     | 71.3            | 2153     | 49232           |          |
| 11/30/2010   | ND             | ND       | 9125        | 23025    | <1.4           | <1.4     | 6.59    | 7.66    | <5.0           | <5.0     | 0.28           | 0.28     | 73.3            | 939      | 4440            |          |
| 12/31/2010   |                |          | 11968       | 33678    | 2.3            | 2.3      | 6.66    | 7.5     | 5              | 5        | 0.13           | 0.13     | 58.38           | 1635     | 36621           |          |
| 01/31/2011   | 1              | 1        | 5492        | 8819     | 1.5            | 1.5      | 6.61    | 7.48    | 6              | 6        | 0.2            | 0.2      | 62.9            | 9.42     | 89              |          |
| 02/28/2011   |                |          | 5420        | 10448    | 1.4            | 1.4      | 6.61    | 7.34    | 5              | 5        | 0.23           | 0.23     | 64.3            | 121.4    | 1527            |          |
| 03/31/2011   |                |          | 21743       | 39920    | 1.4            | 1.4      | 6.53    | 7.85    | 5              | 5        | 0.26           | 0.26     | 57.9            | 4216     | 20190           |          |
| 04/30/2011   | 1.1            | 1.1      | 11928       | 22147    | 2.8            | 2.8      | 6.53    | 8.04    | 5              | 5        | 0.71           | 0.71     | 57.6            | 680      | 3907            |          |
| 05/31/2011   | 1.2            | 1.2      | 13466       | 24854    | 1.4            | 1.4      | 6.6     | 7.2     | 5              | 5        | 0.05           | 0.05     | 61.8            | 486.46   | 3273            |          |
| 06/30/2011   | 1              | 1        | 12381       | 32519    | 1.4            | 1.4      | 6.55    | 7.5     | 5              | 5        | 0.17           | 0.17     | 66.3            | 520.5    | 11738           |          |
| 07/31/2011   |                |          |             |          |                |          | 6.96    | 6.96    |                |          |                |          | 68              |          |                 |          |
| 08/31/2011   |                |          | 9392        | 40861    | 1.4            | 1.4      | 6.57    | 8.21    | 5              | 5        | 0.22           | 0.22     | 75              | 1724     | 22332           |          |
| 09/30/2011   | 1              | 1        | 20648       | 44808    | 1.4            | 1.4      | 6.56    | 7.36    | 5              | 5        | 0.24           | 0.24     | 70.6            | 3769     | 20160           |          |
| 10/31/2011   | 1              | 1        | 17239       | 38554    | 1.4            | 1.4      | 6.57    | 7.34    | 5              | 5        | 0.21           | 0.21     | 68.9            | 2507     | 18720           |          |
| 11/30/2011   |                |          |             |          |                |          |         |         |                |          |                |          |                 |          |                 |          |
| 12/31/2011   | 1              | 1        | 13737       | 37129    | 1.4            | 1.4      | 6.55    | 8.15    | 5              | 5        | 0.2            | 0.2      | 63.7            | 1176     | 28800           |          |
| 01/31/2012   |                |          |             |          |                |          |         |         |                |          |                |          |                 |          |                 |          |
| Ave:         | 0.90           | 0.91     | 11128.40    | 27692.95 | 1.56           | 1.56     | 6.67    | 7.37    | 6.10           | 6.08     | 0.14           | 0.14     | 68.22           | 4858.18  | 13563.32        |          |
| Min:         | 0.00           | 0.00     | 3863.50     | 8819.00  | 1.00           | 1.00     | 6.52    | 6.91    | 1.00           | 1.00     | 0.04           | 0.04     | 47.29           | 542.00   | 80.00           |          |
| Max:         | 3.90           | 3.90     | 21743.00    | 59497.00 | 3.40           | 3.40     | 7.67    | 8.21    | 28.00          | 28.00    | 0.71           | 0.71     | 88.60           | 22436.00 | 49232.00        |          |
| Exceedences: | NA             | 0.00     | 8.00        | 4.00     | NA             | NA       | 0.00    | 0.00    | NA             | 0.00     | NA             | 2.00     | 3.00            | NA       | NA              | NA       |



| Outfall 004T | Acute LC50   | Acute LC50  | Priority Pollutants | Chronic NOEC | Chronic NOEC |
|--------------|--------------|-------------|---------------------|--------------|--------------|
|              | Ceriodaphnia | Pimephale   |                     | Ceriodaphnia | Pimephale    |
|              | Req. Mon. %  | Req. Mon. % | Req. Mon. ug/L      | Req. Mon. %  | Req. Mon. %  |
| MP Date      | DAILY MN     | DAILY MN    | DAILY MX            | DAILY MN     | DAILY MN     |
| 3/30/2007    | 100          | 100         | R                   | 50           | 100          |
| 3/31/2008    | R            | R           | R                   | 25           | 25           |
| 4/1/2008     |              |             |                     |              | 25           |
| 3/31/2009    | 100.         | 100.        |                     |              | <b>25</b>    |
| 3/31/2010    | 100.         | 100.        | .                   | 100.         | 12.5         |
| 3/31/2011    | 100.         | 100.        | .                   |              |              |
| Ave:         | 100          | 100         | 0                   | 58.3         | 37.5         |
| Min:         | 100.         | 100.        | .                   | 25.0         | 12.5         |
| Max:         | 100.         | 100.        | .                   | 100.0        | 100.0        |



| Outfall 005A | BOD<br>Req. Mon. mg/L |          | fecal coliform<br>Req. Mon. #/100mL |          | flow<br>Req. Mon. gal/min | O&G<br>Req. Mon. mg/L |          | pH<br>Req. Mon. SU | TSS<br>Req. Mon. mg/L |          |
|--------------|-----------------------|----------|-------------------------------------|----------|---------------------------|-----------------------|----------|--------------------|-----------------------|----------|
| MP Date      | AVERAGE               | DAILY MX | AVERAGE                             | DAILY MX | DAILY MX                  | AVERAGE               | DAILY MX | MAXIMUM            | AVERAGE               | DAILY MX |
| 3/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 4/30/2007    | R                     | R        | R                                   | 100      | R                         | R                     | R        | 6                  | R                     | 210      |
| 5/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2008    |                       | <3       |                                     | 10       | >300                      |                       | <3       | 6                  |                       | 56       |
| 4/30/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 5/31/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 4/30/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2010    | 4.                    | 4.       | 440.                                | 440.     | 100.                      | 1.4                   | 1.4      | 6.02               | 5.                    | 5.       |
| 4/30/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2011    | 6.                    | 6.       | 200.                                | 200.     | 350.                      | 1.4                   | 1.4      | 6.69               | 44.                   | 44.      |
| Ave:         | 5                     | 5        | 320                                 | 188      | 225                       | 1.4                   | 1.4      | 6.18               | 25                    | 79       |
| Min:         | 4                     | 4        | 200                                 | 10       | 100                       | 1.4                   | 1.4      | 6.00               | 5                     | 5        |
| Max:         | 6                     | 6        | 440                                 | 440      | 350                       | 1.4                   | 1.4      | 6.69               | 44                    | 210      |

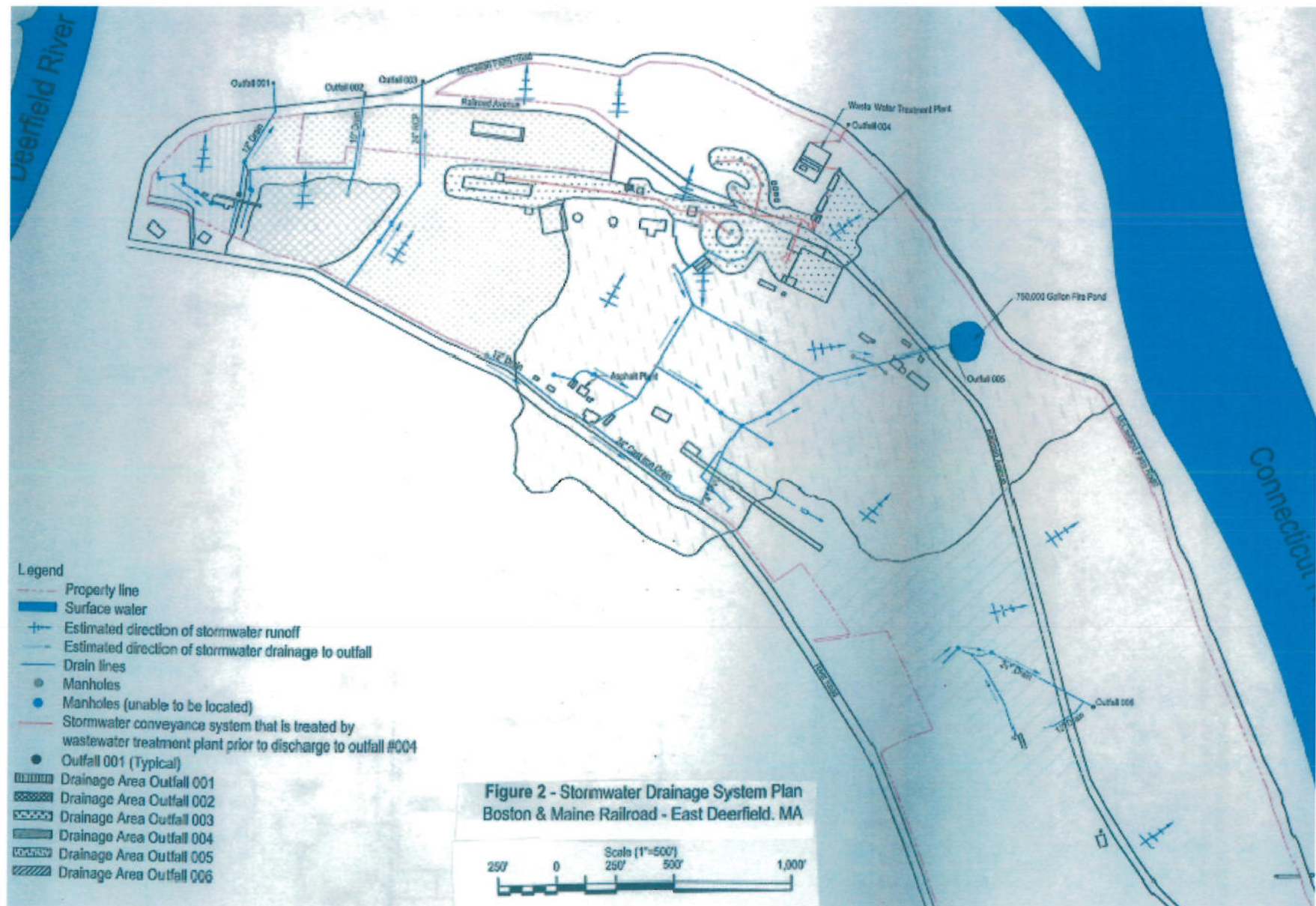
| Outfall 005Q    | Antimony<br>Req. Mon. ug/L | Arsenic<br>Req. Mon. ug/L | Beryllium<br>Req. Mon. ug/L | Cadmium<br>Req. Mon. ug/L | Chromium<br>Req. Mon. ug/L | Copper<br>Req. Mon. ug/L | Cyanide<br>Req. Mon. ug/L | Lead<br>Req. Mon. ug/L | Mercury<br>Req. Mon. ug/L | Nickel<br>Req. Mon. ug/L | PCBs<br>Req. Mon. ug/L | PAHs<br>Req. Mon. ug/L | Selenium<br>Req. Mon. ug/L | Silver<br>Req. Mon. ug/L | Thallium<br>Req. Mon. ug/L | Zinc<br>Req. Mon. ug/L |     |
|-----------------|----------------------------|---------------------------|-----------------------------|---------------------------|----------------------------|--------------------------|---------------------------|------------------------|---------------------------|--------------------------|------------------------|------------------------|----------------------------|--------------------------|----------------------------|------------------------|-----|
| MP Date         | DAILY MX                   | DAILY MX                  | DAILY MX                    | DAILY MX                  | DAILY MX                   | DAILY MX                 | DAILY MX                  | DAILY MX               | DAILY MX                  | DAILY MX                 | DAILY MX               | DAILY MX               | DAILY MX                   | DAILY MX                 | DAILY MX                   | DAILY MX               |     |
| 8/31/2006       | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 11/30/2006      | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 2/28/2007       | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 4/4/2007        |                            |                           |                             |                           | 30                         | 25                       |                           | 20                     |                           |                          |                        |                        |                            |                          |                            |                        |     |
| 5/31/2007       | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 8/31/2007       | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 7/2007 - 9/2007 |                            |                           |                             |                           |                            |                          |                           |                        |                           |                          |                        | 0.3                    |                            |                          |                            |                        |     |
| 11/30/2007      | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 3/1/2008        |                            |                           |                             |                           | 21                         |                          |                           | 51                     |                           |                          |                        |                        |                            |                          |                            |                        |     |
| 6/23/2008       |                            |                           |                             |                           | 2                          | <5                       |                           |                        |                           |                          | <0.2                   | <0.1-<0.5              |                            |                          |                            |                        |     |
| 5/31/2008       | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 8/31/2008       | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 11/30/2008      | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |     |
| 2/28/2009       | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | .000005                   | .000002                | .000002                   | .000002                  |                        |                        | .00001                     | .000001                  | .000002                    | .000022                |     |
| 4/1/2009        |                            |                           |                             |                           |                            | 1                        |                           |                        |                           | 2                        |                        |                        |                            |                          |                            | 22                     |     |
| 5/31/2009       | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 3                        | .000005                   | 2                      | .0000003                  | 2                        |                        |                        | .00001                     | .000001                  | .000002                    | 23                     |     |
| 8/31/2009       | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 2                        | .000005                   | 7                      | .0000002                  | 4                        |                        |                        | .00001                     | .000001                  | .000002                    | 39                     |     |
| 11/30/2009      | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 1                        | .000005                   | 3                      | .000002                   | 2                        |                        |                        | .00001                     | .000001                  | .000002                    | 16                     |     |
| 2/28/2010       | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 3                        | .000005                   | 5                      | .0000002                  | 4                        |                        |                        | .000001                    | .000001                  | .000002                    | 28                     |     |
| 5/31/2010       | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 6                        | .000005                   | .000002                | .0000002                  | 5                        |                        |                        | .00001                     | .000001                  | .000002                    | 45                     |     |
| 8/31/2010       | .000005                    | 12                        | .000001                     | .000001                   | .000001                    | 20                       | 71                        | .000005                | 122                       | .0000002                 | 17                     |                        | 2.7                        | .00001                   | .000001                    | .000002                | 144 |
| 11/30/2010      | <0.000005                  | <0.000004                 | <0.000001                   | <0.000001                 | <0.000001                  | 1                        | 5                         | <0.000005              | <0.000002                 | <0.0000002               | 2                      | ND                     | ND                         | <0.00001                 | <0.000001                  | <0.000002              | 23  |
| 2/28/2011       | 5                          | 4                         | 1                           | 1                         | 1                          | 1                        | 5                         | 2                      | 2                         | 1                        |                        |                        | 10                         | 1                        | 2                          | 25                     |     |
| 8/31/2011       | 5                          | 4                         | 1                           | 1                         | 2                          | 7                        | 5                         | 10                     | 2                         | 3                        |                        |                        | 10                         | 1                        | 2                          | 28                     |     |
| Ave:            | 1.11                       | 2.22                      | 0.22                        | 0.22                      | 5.45                       | 11.14                    | 1.11                      | 20.18                  | 0.04                      | 3.82                     | 0.00                   | 0.38                   | 2.22                       | 0.22                     | 0.44                       | 35.73                  |     |
| Min:            | 0.00                       | 0.00                      | 0.00                        | 0.00                      | 0.00                       | 0.00                     | 0.00                      | 0.00                   | 0.00                      | 0.00                     | 0.00                   | 0.00                   | 0.00                       | 0.00                     | 0.00                       | 0.00                   |     |
| Max:            | 5.00                       | 12.00                     | 1.00                        | 1.00                      | 30.00                      | 71.00                    | 5.00                      | 122.00                 | 0.20                      | 17.00                    | 0.00                   | 2.70                   | 10.00                      | 1.00                     | 2.00                       | 144.00                 |     |

| Outfall 006A | BOD<br>Req. Mon. mg/L |          | fecal coliform<br>Req. Mon. #/100mL |          | Flow<br>Req. Mon. gal/min | O&G<br>Req. Mon. mg/L |          | pH<br>Req. Mon. SU | TSS<br>Req. Mon. mg/L |          |
|--------------|-----------------------|----------|-------------------------------------|----------|---------------------------|-----------------------|----------|--------------------|-----------------------|----------|
| MP Date      | AVERAGE               | DAILY MX | AVERAGE                             | DAILY MX | DAILY MX                  | AVERAGE               | DAILY MX | MAXIMUM            | AVERAGE               | DAILY MX |
| 3/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 4/30/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | 5.9                | R                     | R        |
| 5/31/2007    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2008    | R                     | R        | R                                   | R        | 22.5                      | R                     | R        | 6.1                | R                     | R        |
| 4/30/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 5/31/2008    | R                     | R        | R                                   | R        | R                         | R                     | R        | R                  | R                     | R        |
| 3/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 4/30/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2009    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2010    | 4.                    | 4.       | 10.                                 | 10.      | 15.                       | 1.4                   | 1.4      | 6.04               | 5.                    | 5.       |
| 4/30/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 5/31/2010    |                       |          |                                     |          |                           |                       |          |                    |                       |          |
| 3/31/2011    | 4.                    | 4.       | 1000.                               | 1000.    | 140.                      | 1.5                   | 1.5      | 6.3                | 5.                    | 5.       |
| Ave:         | 4                     | 4        | 505                                 | 505      | 59.2                      | 1.5                   | 1.5      | 6.09               | 5                     | 5        |
| Min:         | 4.                    | 4.       | 10.                                 | 10.      | 15.0                      | 1.4                   | 1.4      | 5.90               | 5.                    | 5.       |
| Max:         | 4.                    | 4.       | 1000.                               | 1000.    | 140.0                     | 1.5                   | 1.5      | 6.30               | 5.                    | 5.       |

| Outfall 006Q | Antimony<br>Req. Mon. ug/L | Arsenic<br>Req. Mon. ug/L | Beryllium<br>Req. Mon. ug/L | Cadmium<br>Req. Mon. ug/L | Chromium<br>Req. Mon. ug/L | Copper<br>Req. Mon. ug/L | Cyanide<br>Req. Mon. ug/L | Lead<br>Req. Mon. ug/L | Mercury<br>Req. Mon. ug/L | Nickel<br>Req. Mon. ug/L | PCBs<br>Req. Mon. ug/L | PAHs<br>Req. Mon. ug/L | Selenium<br>Req. Mon. ug/L | Silver<br>Req. Mon. ug/L | Thallium<br>Req. Mon. ug/L | Zinc<br>Req. Mon. ug/L |
|--------------|----------------------------|---------------------------|-----------------------------|---------------------------|----------------------------|--------------------------|---------------------------|------------------------|---------------------------|--------------------------|------------------------|------------------------|----------------------------|--------------------------|----------------------------|------------------------|
| MP Date      | DAILY MX                   | DAILY MX                  | DAILY MX                    | DAILY MX                  | DAILY MX                   | DAILY MX                 | DAILY MX                  | DAILY MX               | DAILY MX                  | DAILY MX                 | DAILY MX               | DAILY MX               | DAILY MX                   | DAILY MX                 | DAILY MX                   | DAILY MX               |
| 8/31/2008    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        |                        |                        | R                          | R                        | R                          | R                      |
| 11/30/2008   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/28/2009    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 5/31/2009    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 8/31/2009    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 11/30/2009   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/29/2010    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 5/31/2010    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 8/31/2010    |                            |                           |                             |                           |                            |                          | 6                         |                        |                           |                          | <0.2                   | <0.1-<0.5              |                            |                          |                            | 50                     |
| 11/30/2010   | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 2/28/2011    | R                          | R                         | R                           | R                         | R                          | R                        | R                         | R                      | R                         | R                        | R                      | R                      | R                          | R                        | R                          | R                      |
| 5/31/2011    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000003                  | .000005                   | .000002                | .000002                   | .000003                  |                        |                        | .00001                     | .000001                  | .000002                    | .000058                |
| 8/31/2011    |                            |                           |                             |                           |                            | 3                        |                           |                        |                           | 3                        |                        |                        |                            |                          |                            | 58                     |
| 11/30/2011   | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | .000005                   | .000002                | .000003                   | .000003                  |                        |                        | .000001                    | .000001                  | .000002                    | 84                     |
| 2/28/2012    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | .000005                   | .000002                | .000004                   | .000004                  | 2                      |                        | .00001                     | .000001                  | .000002                    | 38                     |
| 5/31/2012    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | .000005                   | .000002                | .000002                   | .000002                  | 3                      |                        | .00001                     | .000001                  | .000002                    | 64                     |
| 8/31/2012    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | .000005                   | .000002                | .000002                   | .000002                  | 3                      |                        | .00001                     | .000001                  | .000002                    | 72                     |
| 11/30/2012   | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | .000001                  | .000005                   | .000002                | .000002                   | .000002                  | 2                      |                        | .00001                     | .000001                  | .000002                    | 27                     |
| 2/28/2013    | .000005                    | .000004                   | .000001                     | .000001                   | .000001                    | 2                        | .000005                   | 2                      | .000002                   | 6                        |                        | 21                     | .00001                     | .000001                  | .000002                    | 85                     |
| 5/31/2013    | <0.000005                  | <0.000004                 | <0.000001                   | <0.000001                 | <0.000001                  | 5                        | <0.000005                 | <0.000002              | <0.000002                 | 3                        | ND                     | ND                     | <0.000001                  | <0.000001                | .000002                    | 85                     |
| 8/31/2013    | 5                          | 4                         | 1                           | 1                         | 1                          | 1                        | 5                         | 2                      | 2                         | 3                        |                        |                        | 10                         | 1                        | 2                          | 80                     |
| 11/30/2013   | 5                          | 4                         | 1                           | 1                         | 1                          | 1                        | 5                         | 2                      | 2                         | 5                        |                        |                        | 10                         | 1                        | 2                          | 73                     |
| Ave:         | 1.11                       | 0.89                      | 0.22                        | 0.22                      | 0.44                       | 2.45                     | 1.60                      | 0.67                   | 0.04                      | 3.00                     | 0.00                   | 0.03                   | 2.22                       | 0.22                     | 0.40                       | 59.67                  |
| Min:         | 0.00                       | 0.00                      | 0.00                        | 0.00                      | 0.00                       | 0.00                     | 0.00                      | 0.00                   | 0.00                      | 0.00                     | 0.00                   | 0.00                   | 0.00                       | 0.00                     | 0.00                       | 0.00                   |
| Max:         | 5.00                       | 4.00                      | 1.00                        | 1.00                      | 2.00                       | 5.00                     | 6.00                      | 2.00                   | 0.20                      | 6.00                     | 0.00                   | 0.21                   | 10.00                      | 1.00                     | 2.00                       | 85.00                  |

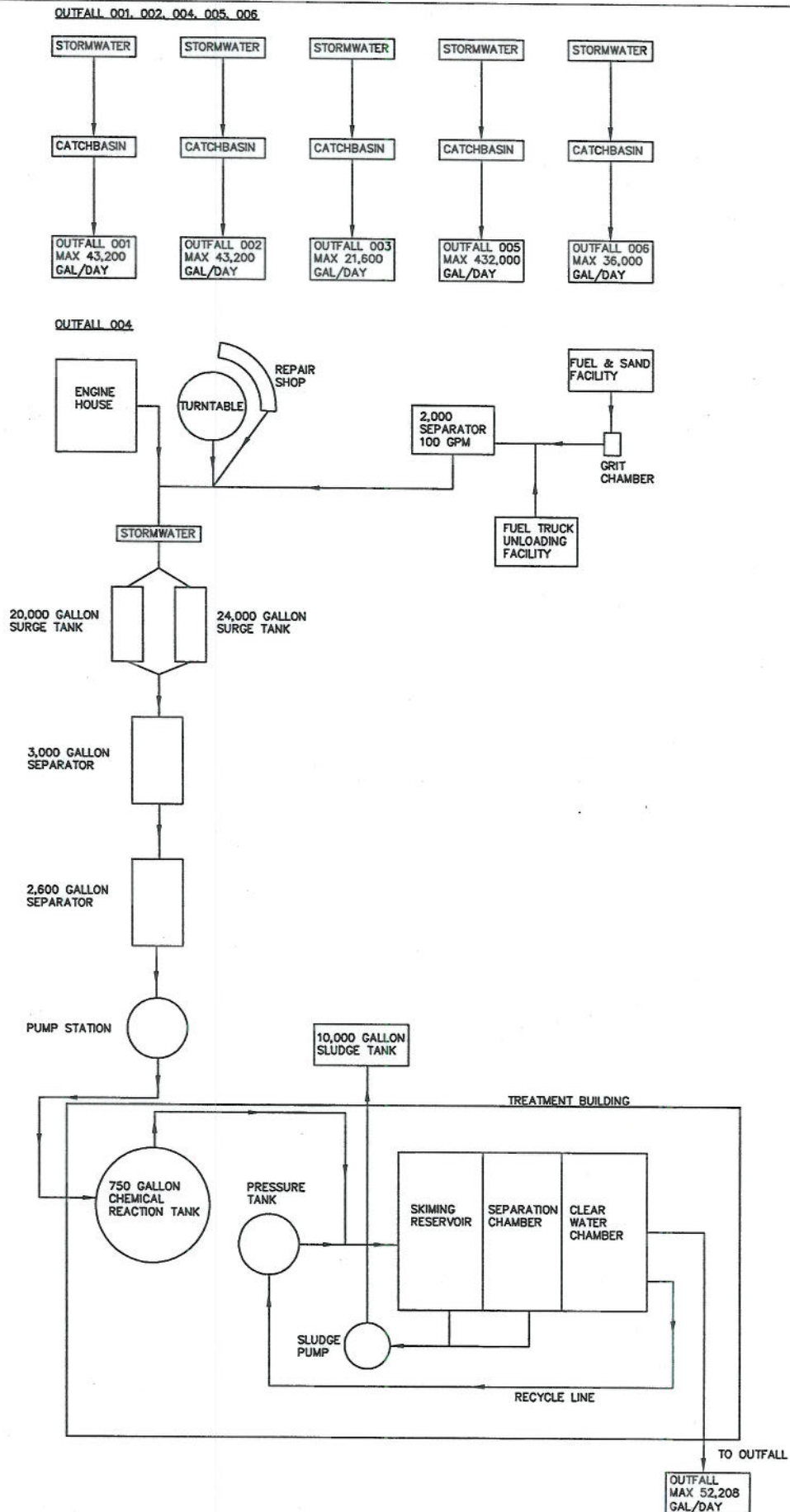


# **Attachment C – Stormwater Drainage System Plan** **Fact Sheet No. MA0000272**



# Attachment D – Schematic Water Flow

## Fact Sheet No. MA0000272



### NOTES

GAL/DAY = GALLONS PER DAY

MAXIMUM FLOW IS ESTIMATED, AS MEASURED ONSITE  
DURING MONITORING

Figure 3 - SCHEMATIC WATER FLOW  
BOSTON & MAINE CORP, MAY 2010



F:\B&M\Unpublished\Report\GYPP\PP\PE\Fig3 Schematic of Water Flow.dwg (06/25/2010 - 2:15pm Boston)

**Attachment E - Metals Criteria**  
**Fact Sheet No. MA0000272**

Dilution = 0

Hardness = 58 mg/L

**Total Recoverable Limits**

| Metal                         | m <sub>A</sub> | b <sub>A</sub> | m <sub>C</sub> | b <sub>C</sub> | CF acute | CF chronic | Dissolved Criteria          |                               | Total Recoverable Criteria  |                               |
|-------------------------------|----------------|----------------|----------------|----------------|----------|------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|
|                               |                |                |                |                |          |            | Acute Criteria (CMC) (ug/L) | Chronic Criteria (CCC) (ug/L) | Acute Criteria (CMC) (ug/L) | Chronic Criteria (CCC) (ug/L) |
| Hardness Dependent Metals     |                |                |                |                |          |            |                             |                               |                             |                               |
| Cadmium                       | 1.0166         | -3.9240        | 0.7409         | -4.7190        | 0.967    | 0.932      | 1.19                        | 0.17                          | 1.23                        | 0.18                          |
| Chromium III                  | 0.8190         | 3.7256         | 0.8190         | 0.6848         | 0.316    | 0.860      | 364.71                      | 47.44                         | 1154.13                     | 55.16                         |
| Copper                        | 0.9422         | -1.7000        | 0.8545         | -1.7020        | 0.960    | 0.960      | 8.04                        | 5.62                          | 8.38                        | 5.86                          |
| Lead                          | 1.2730         | -1.4600        | 1.2730         | -4.7050        | 0.870    | 0.870      | 35.52                       | 1.38                          | 40.81                       | 1.59                          |
| Nickel                        | 0.8460         | 2.2550         | 0.8460         | 0.0584         | 0.998    | 0.997      | 295.34                      | 32.80                         | 295.93                      | 32.90                         |
| Silver                        | 1.7200         | -6.5900        | ---            | ---            | 0.850    | ---        | 1.26                        | ---                           | 1.48                        | ---                           |
| Zinc                          | 0.8473         | 0.8840         | 0.8473         | 0.8840         | 0.978    | 0.986      | 73.86                       | 74.46                         | 75.52                       | 75.52                         |
| Non-Hardness Dependent Metals |                |                |                |                |          |            |                             |                               |                             |                               |
| Arsenic                       |                |                |                |                | 1.000    | 1.000      | 340.00                      | 150.00                        | 340.00                      | 150.00                        |
| Chromium VI                   |                |                |                |                | 0.982    | 0.962      | 16.00                       | 11.00                         | 16.29                       | 11.43                         |
| Mercury                       |                |                |                |                | 0.850    | 0.850      | 1.40                        | 0.77                          | 1.65                        | 0.91                          |
| Aluminum                      |                |                |                |                | ---      | ---        | ---                         | ---                           | 750.00                      | 87.00                         |

**Source:** National Recommended Water Quality Criteria 2002  
<http://www.epa.gov/waterscience/criteria/wqctable/>



## **Attachment F – Essential Fish Habitat Evaluation Fact Sheet No. MA0000272**

The U.S. Environmental Protection Agency, Region I, New England (EPA) is preparing to reissue the NPDES permit to the B&M East Deerfield Rail Yard (facility) in Massachusetts (NPDES PERMIT # MA0000272). With limitations, the draft NPDES permit allows the facility to discharge treated process waste water and storm water to wetlands and unnamed brooks that ultimately drain to the west bank of the Connecticut River, downstream of the confluence with the Deerfield River. The Connecticut River is designated Essential Fish Habitat (EFH) for Atlantic salmon (*Salmo salar*). Pursuant to § 305 (b)(2) of the Magnuson-Stevens Act, in accordance with CWA § 402 and in consideration of the NPDES permit renewal application for the facility, EPA is initiating communication with the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) for potential impacts to EFH.

This Attachment assesses and summarizes the existing impacts to EFH and related resources from components of this facility's operation that are regulated by EPA under the NPDES Program. EPA's review considered the expected habitat utilized by Atlantic salmon in the Connecticut River. Also considered was the duration and volume of the facility's discharge, as well as the type of contaminants that have the potential to be present in the discharge. This information was taken into consideration when setting monitoring requirements and discharge limits intended to minimize any potential resulting impacts to Atlantic salmon or their habitat.

### **Environmental Setting**

The East Deerfield Rail Yard property is bordered by unnamed brooks and a wetland that encompasses approximately 200 acres, ultimately draining into the west bank of the Connecticut River at approximately River Mile 119. This location is just downstream of the confluence of the Deerfield River. The Connecticut River main stem in the area of the facility has been classified as Class B under the Massachusetts Surface Water Quality Standards, with Warm Water and CSO restrictions according to 314 Code of Massachusetts Regulations ("CMR") Section 4.06, Table 7 entitled *Connecticut River Basin*.

A number of anadromous species, including Atlantic salmon, rely on the freshwater habitat of the Connecticut River to complete their life cycles. Fish restoration programs and efforts to increase fish passage at dams are ongoing on the mainstem of the river and its tributaries. A more detailed summary of Atlantic salmon occurrence in the area of the facility is included in a later section of this attachment.

### **B&M East Deerfield Rail Yard NPDES Draft Permit Profile**

Currently, B&M services locomotives, fuels and sands locomotives, and operates a rail switching yard and layover facility for its freight train operation at the B&M East Deerfield Rail Yard.



Some of the maintenance activities that produce process waste water include changing oil in locomotives, cleaning the locomotives, and fueling the locomotives.

The draft permit covers six outfalls that are numbered sequentially from the west-side of the facility to the east-side as Outfalls 001, 002, 003, 004, 005 and 006. Five of the outfalls (Outfall 001, 002, 003, 005, and 006) drain the stormwater from the 129-acre property. Outfalls 001, 002, and 003 discharge stormwater from catch basins located along the western edge of the rail yard, intermittently during wet weather. Outfalls 005 and 006 discharge continuously, containing flows coming from offsite and entering the site in culverts running beneath the railroad yard. Outfall 004 discharges process waste water from the Engine House, after treatment. Each of these outfalls discharges along the northern side of the rail facility into either a small brook or the approximately 200 acre wetland that borders the property. Water discharged from the facility eventually drains to the west bank of the Connecticut River.

The draft permit mandates testing at the five stormwater outfalls for flow rate, oil & grease, total suspended solids, pH, E. Coli, asbestos, mercury, BTEX, PAHs, PCBs, lead, copper, cyanide, zinc, silver, and antimony during wet weather conditions. The Draft Permit also requires monitoring of these parameters at these outfalls during dry weather conditions. Additionally, the draft permit requires the facility to maintain and annually certify a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is required to contain spill prevention and response procedures, preventive maintenance, management of runoff, good housekeeping, and other best management practices to minimize the possible transport of pollutants to the Connecticut River.

Prior to discharge through Outfall 004, process waste water is treated via dissolved-air floatation (DAF) technology. The DAF system removes suspended solids and diesel constituents from the water. The DAF technology consistently reduces the oil and grease level at this outfall to below 3 mg/L, with only one exceedence of this limit to date. Massachusetts has interpreted the Water Quality Standard for oil and grease to be 15 mg/L. Additionally, B&M has consistently met the surfactant limit of 0.3 mg/L, with only two exceedences of this limit to date. The technology removes fats, oil & grease, suspended solids, hydrocarbon oils/emulsions and some other pollutants. At Outfall 004, additional testing and specific limits are also incorporated into the draft permit. Under the draft permit, the facility is required to sample the discharge at Outfall 004 for flow, temperature, oil & grease, surfactants, pH, benzene, total suspended solids, asbestos, BTEX, and whole effluent toxicity.

### **Atlantic Salmon Information**

Of the 59 species that are of concern to NOAA Fisheries in the Northeast Region (New England and Mid-Atlantic), Atlantic salmon is the only species of concern in the Connecticut River. Although the last remnant stock of Atlantic salmon (*Salmo salar*) indigenous to the Connecticut River was believed to have been extirpated over 200 years ago, an active effort has been underway throughout the Connecticut River system since 1967 to restore this historic run (HG&E/MMWEC, 1997).

## Atlantic Salmon - Egg Stage

The EFH designation for Atlantic salmon eggs is comprised of all rivers where the species is currently present, including the Connecticut River (NEFMC, 1998). The time period when salmon eggs are most frequently observed is between October and April (NEFMC, 1998). The female digs a nest with her tail and buries the eggs in a gravel substrate over pool tails, riffles and runs where the water moves swiftly (HG&E/MMWEC, 1997).

It should also be noted that while some natural spawning does take place in the Connecticut River, resulting in the presence of eggs in the system, restoration programs have removed nine of every ten salmon from the fishway at Holyoke Dam (approximately forty miles downstream of the facility) for hatchery spawning efforts. Hatchery spawning produces fertilized eggs that are reared and hatch under controlled conditions. The resulting fry are placed in the tributaries of the Connecticut River once they reach a late larval stage. Several of these tributaries, including the Deerfield River and Millers River (FERC 1999; USFWS 1999), are in the vicinity of the East Deerfield Rail Yard. This process of egg removal precludes the majority of eggs produced by the spawning population from being directly affected by the facility discharge, which eventually reaches the Connecticut River via a wetland or small unnamed brooks.

For the small percentage of naturally spawning Atlantic salmon, the habitat available in the section of the Connecticut River where the Rail Yard discharges is located is characterized by a 200 acre wetland and a few small brooks. The gravel or cobble riffle above or below a pool, described as suitable habitat for Atlantic salmon eggs (NEFMC, 1998), is not generally associated with the permitted discharge area of the facility. In addition, the eggs stay in the nest until they hatch and are not expected to rise into the water column and drift to the river mainstem. Therefore, the segment of the Connecticut River adjacent to the East Deerfield Rail Yard is judged to have little value as suitable habitat for Atlantic salmon eggs.

## Atlantic Salmon - Larval Stage

The EFH designation for Atlantic salmon larvae is comprised of all rivers where the species is currently present, including the Connecticut River (NEFMC, 1998). The benthic habitat requirements for larvae are generally similar to those described for eggs. In addition, water temperatures associated with larvae are generally below 10°C (50°F), and clean, well-oxygenated fresh water is necessary for normal development. The time period when larvae, or alvins/fry are most frequently observed in river systems is between March and June (NEFMC, 1998). Restoration efforts for Atlantic salmon in the Connecticut River began in 1967. Up to the present time, salmon restoration is still largely dependent on hatchery propagation by various fishery agencies (HG&E/MMWEC, 1997). Fry introduced into the Connecticut River as a result of the hatchery program are placed in suitable habitat in tributaries of the river. As noted previously, several of these tributaries are in the general vicinity of the facility. Fry occupy stream habitats and generally live near the bottom of the water column. Since the facility discharges into wetlands and small brooks near the main stem of the river, where larval salmon are not expected to be found, the area of the river adjacent to the East Deerfield Rail Yard is judged to

have little value as suitable habitat for Atlantic salmon larvae.

#### Atlantic Salmon - Juvenile Stage

The EFH designation for Atlantic salmon juveniles is comprised of all rivers where the species is currently present, including the Connecticut River (NEFMC, 1998). Stocking efforts have introduced juveniles in tributaries of the Connecticut River both upstream and downstream of the Rail Yard facility (USFWS, 1999). As they grow, the parr stage of the organism transforms into the smolt stage, which requires access downstream to make their way to Long Island Sound. Individuals are thought to first emigrate out of the Connecticut River at age one or two. Downstream migration of smolts begins when water temperatures increase to about 10°C (50°F). Since smolts stocked upstream of the facility that are out-migrating must pass the reach where the facility's outfalls mix with the river, the aquatic habitat in this area must allow passage and not induce acute or severe chronic effects to juvenile Atlantic salmon that will adversely affect the population as a whole. Out-migration is usually associated with high spring river flows in April and May. High springtime flow in the river, with the associated increased current velocity of the river in the vicinity of the facility, is thought to for the most part eliminate any potential for juvenile to come in contact with the undiluted discharge. Other factors that will minimize impacts to Atlantic salmon juvenile will be discussed later in this letter.

#### Atlantic Salmon - Adult Migration Stage

The EFH designation for Atlantic salmon adults is comprised of all rivers where the species is currently present, including the Connecticut River (NEFMC, 1998). Stocking efforts have been successful in establishing a small population of in-migrating adult Atlantic salmon. A fish passage structure located at the Holyoke Hydroelectric Project Dam, approximately forty river miles downstream of the East Deerfield Rail Yard, serves to document passage of in-migrating adult Atlantic salmon. Fish passage is also monitored at the Gatehouse Dam on the Connecticut River at Turners Falls. This dam is located just upstream of the Rail Yard facility. Adult salmon return to the Connecticut River primarily in May and June (CRASC, 1998). Salmon counts in past years at the Holyoke Dam are listed below (USFWS, 2012).

| Year | Holyoke Dam | Year | Holyoke Dam |
|------|-------------|------|-------------|
| 1998 | 197         | 2005 | 132         |
| 1999 | 91          | 2006 | 115         |
| 2000 | 52          | 2007 | 107         |
| 2001 | 24          | 2008 | 82          |
| 2002 | 34          | 2009 | 60          |
| 2003 | 28          | 2010 | 41          |
| 2004 | 45          | 2011 | N/A         |

Many factors outside the scope of the facility's discharge affect the magnitude of the in-migration of stocked Atlantic salmon into the Connecticut River in any given year. Among these factors are water quality conditions in Long Island Sound, the number of individuals stocked in past years and

the tributary of the river where they were introduced, river flow during the spring period, and the mortality suffered by the population from predation.

### **Atlantic Salmon - Adult Spawning Stage**

The EFH designation for Atlantic salmon adults is comprised of all rivers where the species is currently present, including the Connecticut River (NEFMC, 1998). The gravel or cobble riffle above or below a pool, described as suitable habitat for Atlantic salmon spawning (NEFMC, 1998), is not generally associated with the wetlands and small brooks receiving the permitted discharge of the facility. Any salmon in the wild would more likely spawn in the tributaries of the Connecticut River. Benthic conditions and hydrologic characteristics in the main stem of the river are not thought to be fully suitable for Atlantic salmon spawning. Therefore, the segment of the Connecticut River adjacent to the East Deerfield Rail Yard is judged to have little value as suitable habitat for Atlantic salmon spawning.

### **Potential Impacts to Atlantic Salmon From Facility Operation**

As indicated previously in this attachment, of the 59 species that are of concern to the NOAA Fisheries in the Northeast Region, Atlantic salmon is the only species of concern in the Connecticut River.

EPA generally characterizes the wetlands, small unnamed brooks and main stem of the river adjacent to the facility as marginal habitat for life stages of Atlantic salmon. However, the likely natural movement pattern of Atlantic salmon above the Holyoke Hydroelectric Project described previously could cause salmon to come in contact with the facility discharge after it ultimately mixes with Connecticut River water.

It is further understood that potential introduction of petroleum based pollutants (including diesel constituents) and suspended solids in the stormwater and process wastewater discharged from this facility could have an adverse affect on the habitat of Atlantic salmon. In addition, the potential migration of toxins from the facility into the water column may ultimately become associated with the benthos. Specifically, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) have the potential to cause negative impacts to Atlantic salmon. The discharge of pollutants may kill or impair organisms outright, or create intolerable conditions in otherwise acceptable habitats, or interfere with spawning. Impacts associated with the discharge of chemicals are related primarily to the dilution capacity of the receiving water and the concentration of the pollutant.

### **Factors That Minimize Adverse Impacts**

When evaluating the potential impacts of facility operation on Atlantic salmon habitat, there are several factors that are expected to minimize any adverse impacts. For example, three of the six discharges from the facility are stormwater outfalls (001, 002, and 003) which flow intermittently,

as their discharge is related directly to storm events. In addition to discharging stormwater runoff from the site, the two remaining stormwater outfalls (005 and 006) also discharge during dry weather, as they contain flows coming from offsite and entering the site in culverts running beneath the railroad yard. These five stormwater outfalls discharge into a 200 acre wetland or a small brook and become further diluted before reaching the mainstem of the Connecticut River. It is not likely that Atlantic salmon are subjected to immediate undiluted contact with any of the outfalls from the facility, as these fish are not generally found in shallow wetlands or brooks.

For outfalls that discharge into the wetland, it should be noted that, in general, wetlands tend to act as an environmental filter, potentially trapping some portion of the constituents that may be in the discharges. This natural filtration would take place long before the discharge water mixes with river water where Atlantic salmon may be migrating.

The sixth outfall, Outfall 004, is permitted to have a continuous discharge under the draft permit. The rate of this continuous discharge is relatively low (45,000 gallons per day maximum / 15,000 gallons per day monthly average). After initial dilution in the brook where it is discharged, the effluent eventually drains into the mainstem of the Connecticut River. A great deal of dilution takes place at this point. When formulating the draft permit, EPA estimated that the combined discharge of all six outfalls is diluted over 24,000 times when it reaches the river, based on a 7Q10 in the river of 1690 ft<sup>3</sup>/sec (USGS Montague Gauging Station).

The continuously flowing waste stream that ultimately leaves the facility through Outfall 004 is initially made up of process waste water and storm water. Before treatment, this waste stream may contain suspended solids and diesel constituents. An important factor that will minimize potential adverse impacts to fish communities (including Atlantic salmon) in the Connecticut River is the treatment of this waste water before it is discharged at Outfall 004. As outlined in the fact sheet, the DAF system treats this waste stream. This process removes the suspended solids and diesel constituents from the water, resulting in total suspended solids levels averaging 6 mg/L and oil and grease levels consistently below 3 mg/l.

Other factors that will minimize potential adverse impacts to fish communities include a Storm Water Pollution Prevention Plan (SWPPP) and the outfall monitoring program summarized in the section of this letter entitled "B&M East Deerfield Rail Yard NPDES Draft Permit Profile". 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 the Connecticut River. EPA has a range of options to address the presence in the discharge of potentially harmful pollutants at unexpectedly high levels. For example, if any of the parameters monitored in the draft permit are measured at levels that are of concern, EPA has the statutory authority to "terminate or modify for cause including, but not limited to, ... change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge." See CWA Section 402(b)(1)(C)(iii) as referenced by CWA Section 402(a)(3). Additionally, by regulation EPA has the authority to modify or revoke and reissue a permit for cause in accordance with 40 C.F.R. Section 122.62. A cause for modification "includes any information indicating that cumulative effects on the environment are unacceptable." See 40 C.F.R. Section

122.62(a)(2).

### **EPA Finding**

EPA has concluded that the limits and conditions contained in this draft permit minimize adverse effects to Atlantic salmon EFH for the following reasons:

- This is a reissuance of an existing permit;
- The dilution factor once the discharge reaches the Connecticut River is very high (~24,000:1);
- The Connecticut River is approximately 530 feet wide in the area where the wetland drains into the mainstem of the Connecticut River, providing a large zone of passage for migrating Atlantic salmon that is unaffected by the discharge;
- The facility withdraws no water from the Connecticut River, so no life stages of Atlantic salmon are vulnerable to impingement or entrainment from this facility;
- Chronic toxicity tests will be conducted annually to ensure that the discharge through Outfall 004 does not present toxicity problems;
- The draft permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The effluent limitations and conditions in the draft permit were developed to be protective of all aquatic life;
- The draft permit prohibits violations of the state water quality standards.

EPA believes that the draft permit limits, the mandated Source Identification and Reduction Plans (SIRP) and Best Management Practices (BMPs) and required monitoring adequately protect Atlantic Salmon EFH, and therefore additional mitigation is not warranted. If adverse impacts to EFH are detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusion, NOAA Fisheries will be notified and an EFH consultation will be initiated.

The draft NPDES permit is available for review at: <http://www.epa.gov/region1/npdes>. EPA is communicating the basis of this finding to NMFS through this attachment, the draft permit, the information in this fact sheet and a letter to NMFS Habitat Division under separate cover.

## **Literature Cited**

Connecticut River Atlantic Salmon Commission. 1998. Strategic plan for the restoration of Atlantic Salmon to the Connecticut River. Revised July 1, 1998. 106 pp.

Federal Energy Regulatory Commission - Office of Hydropower Licensing. July 1999. Final Environmental Impact Statement - Holyoke Hydroelectric Project Massachusetts. FERC/FEIS - 0122.

Holyoke Gas & Electric / Massachusetts Municipal Wholesale Electric Company. August 1997. Application For New License For The Holyoke Hydroelectric Project. FERC Project No. 11607-000. Volume II, Exhibit E - Environmental Report.

New England Fishery Management Council. October 7, 1998. Essential Fish Habitat Amendment.

United States Fish and Wildlife Service. Connecticut River Coordinator's Office. January 1999. Atlantic Salmon Stocking Locations in the Connecticut River.

United States Fish and Wildlife Service. Connecticut River Coordinator's Office. 2012. Connecticut River Migratory Fish Counts.

## **Attachment G – Endangered Species Act Assessment Fact Sheet No. MA0000272**

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

The U.S. Environmental Protection Agency, Region I, New England (EPA) is preparing to reissue the NPDES permit to the B&M East Deerfield Rail Yard (B&M facility) in Massachusetts (NPDES PERMIT No. MA0000272). With limitations, the draft NPDES permit allows the facility to discharge treated process waste water and storm water to wetlands and unnamed brooks that ultimately drain to the west bank of the Connecticut River, downstream of the confluence with the Deerfield River.

As the federal agency charged with authorizing the discharge from this facility, EPA has conducted this analysis as part of our consultation responsibilities under section 7 (a)(2) of the Endangered Species Act (ESA) for potential impacts to federally listed species. In this particular case, there are two endangered species under the jurisdiction of NMFS potentially influenced by the reissuance of this permit. One is the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), the other is the shortnose sturgeon (*Acipenser brevirostrum*). There is no designated critical habitat for either of these species in the Connecticut River at this time. Information included below demonstrates that Atlantic sturgeon are not present in the vicinity of the facility and are not affected by the regulated discharge.

It is EPA's determination that the operation of this facility, as governed by the draft permit, is not likely to adversely affect shortnose sturgeon. It is our position that this permit action does not warrant a formal consultation under section 7 of the ESA. The reasoning to support this position follows.

Our intent in this ESA assessment is to evaluate the potential impacts to this endangered species and related resources from those components of this facility's operation that are regulated by EPA under the NPDES Program. Our review considered the expected habitat utilized by shortnose sturgeon in the Connecticut River. Also considered was the duration and volume of the facility's discharge, as well as the type of contaminants that have the potential to be present in the discharge. This information was related to any likely resulting impacts to shortnose sturgeon.



## **Environmental Setting**

The East Deerfield Rail Yard property is bordered by unnamed brooks and a wetland that encompasses approximately 200 acres, ultimately draining into the west bank of the Connecticut River at approximately River Mile 119. This location is just downstream of the confluence of the Deerfield River and approximately 28 miles upstream of the Holyoke Dam. The Connecticut River main stem in the area of the facility has been classified as Class B under the Massachusetts Surface Water Quality Standards, with Warm Water and CSO restrictions according to 314 Code of Massachusetts Regulations ("CMR") Section 4.06, Table 7 entitled *Connecticut River Basin*.

This general segment of the river, where the Deerfield River meets the Connecticut River, has been identified as an important spawning and congregation area for all reproductive stages of shortnose sturgeon. A more detailed summary of shortnose sturgeon presence in the area of the facility is included later in this attachment.

## **B&M East Deerfield Rail Yard NPDES Draft Permit Profile**

Currently, B&M services locomotives, fuels and sands locomotives, and operates a rail switching yard and layover facility for its freight train operation at the B&M East Deerfield Rail Yard. Some of the maintenance activities that produce process waste water include changing oil in locomotives, cleaning the locomotives, and fueling the locomotives.

The draft permit covers six outfalls that are numbered sequentially from the west-side of the facility to the east-side as Outfalls 001, 002, 003, 004, 005 and 006. Five outfalls (Outfall 001, 002, 003, 005, and 006) drain the stormwater from the 129-acre property. Outfalls 001, 002, and 003 discharge stormwater intermittently during wet weather from catch basins located along the western edge of the rail yard. Outfalls 005 and 006 discharge continuously, containing flows coming from offsite and entering the site in culverts running beneath the railroad yard. Outfall 004 discharges process waste water from the Engine House, after treatment. Each of these outfalls discharges along the northern side of the rail facility into either a small brook or the approximately 200 acre wetland that borders the property. Water discharged from the facility eventually drains to the west bank of the Connecticut River.

The draft permit mandates testing at the five stormwater outfalls for flow rate, oil & grease, total suspended solids, pH, E. Coli, asbestos, mercury, BTEX, PAHs, PCBs, lead, copper, cyanide, zinc, silver, and antimony during wet weather conditions. The Draft Permit also requires monitoring of these parameters at these outfalls during dry weather conditions. Additionally, the draft permit requires the facility to maintain and annually certify a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is required to contain spill prevention and response procedures, preventive maintenance, management of runoff, good housekeeping, and other best

management practices to minimize the possible transport of pollutants to the Connecticut River.

Prior to discharge through Outfall 004, process waste water is treated via dissolved-air floatation (DAF) technology. The DAF system removes suspended solids and diesel constituents from the water. The DAF technology consistently reduces the oil and grease level at this outfall to below 3 mg/L, with only one exceedence of this limit to date. Massachusetts has interpreted the Water Quality Standard for oil and grease to be 15 mg/L. Additionally, B&M has consistently met the surfactant limit of 0.3 mg/L, with only two exceedences of this limit to date. The technology removes fats, oil & grease, suspended solids, hydrocarbon oils/emulsions and some other pollutants. At Outfall 004, additional testing and specific limits are also incorporated into the draft permit. Under the draft permit, the facility is required to sample the discharge at Outfall 004 for flow, temperature, oil & grease, surfactants, pH, benzene, total suspended solids, asbestos, BTEX, and whole effluent toxicity. A complete discussion of the facility, the outfalls, and the justification supporting the permit requirements is included in the Draft Permit's Fact Sheet.

### **Atlantic Sturgeon Information**

NMFS announced a final decision on January 31, 2012, to list five distinct population segments (DPSs) of Atlantic sturgeon under the Endangered Species Act. The Chesapeake Bay, New York Bight, Carolina, and South Atlantic populations of Atlantic sturgeon are listed as endangered, while the Gulf of Maine population is listed as threatened.

The following information was taken primarily from a letter dated December 19, 2011, from Patricia Kurkul, NMFS, to John Nagle, EPA, related to ESA Section 7 consultation for the permit reissuance of the Chicopee Water Pollution Control Facility (WPCF):

Atlantic sturgeon have some potential to travel up the mainstem of the Connecticut River into the state of Massachusetts. Atlantic sturgeon are a long-lived, late maturing, estuarine-dependent, anadromous species, feeding primarily on benthic invertebrates (ASSRT, 2007). They have been historically reported in the Connecticut River as far upstream as Hadley, MA. However, significant evidence that Atlantic sturgeon moved past Enfield, CT into the upper Connecticut River was previously rare since this species tends to remain in the lower river in the range of the salt wedge (River Mile 6 – 16; Savoy and Shake, 1993). In 2006, an adult Atlantic sturgeon was observed in the spillway lift at the Holyoke dam, providing some indication that this species may move further upstream into the freshwater reaches of the Connecticut River. However, extensive sampling and the lack of any strong evidence of Atlantic sturgeon spawning indicates that the presence of this species in the vicinity of the discharge is unlikely [Chicopee WPCF Discharge].

The Chicopee WPCF, discussed in the paragraph above, is approximately 33 miles downstream from the B&M facility. The B&M facility is further separated from the Chicopee WPCF by the Holyoke Dam, which is approximately 28 miles downstream from the B&M facility. According to this information, based on the normal distribution and the known information about this species in the Connecticut River at this time, it is highly unlikely that Atlantic sturgeon would be present in the vicinity of the B&M facility discharges. Therefore, consultation under Section 7 of the ESA with NMFS is not required for this species.

### **Shortnose Sturgeon Information**

Information in this attachment on shortnose sturgeon was taken primarily from the Draft Endangered Species Act Section 7 Consultation Biological Opinion (BO) for the Holyoke Hydroelectric Project (Federal Energy Regulatory Commission (FERC) Permit #2004), issued to FERC by NOAA Fisheries on September 1, 2004.

A general profile of the life history of the species follows. Spawning of this anadromous species occurs over channel habitats containing gravel, rubble, or rock-cobble substrates (Dadswell et al. 1984; NOAA Fisheries 1998). Eggs become adhesive soon after fertilization and are not thought to drift high into the water column. Once hatched, the larvae are photonegative, remaining on the bottom for several days. Buckley and Kynard (1981) found week old larvae to be photonegative and form aggregations with other larvae in concealment. Young-of-the-year shortnose sturgeon are believed to move downstream after hatching (Dovel 1981) but remain within freshwater habitats. Juveniles generally move upstream in spring and summer and move back downstream in fall and winter. Shortnose sturgeon typically occur in the deepest parts of rivers or estuaries where suitable oxygen and salinity values are present (Gilbert 1989).

### **Shortnose Sturgeon Activity In The Vicinity Of East Deerfield Rail Yard**

The area of the Connecticut River where process waste water and storm water is discharged from the East Deerfield Rail Yard is also an important upriver (above the Holyoke Hydroelectric Project) habitat for shortnose sturgeon. Fish tracking efforts in the Connecticut River by Kieffer and Kynard (in press) support this finding. Fish tracking showed shortnose sturgeon activity at the Deerfield River/Connecticut River Confluence Area, just upstream of the facility. Many of the fish radio-tagged at Deerfield migrated a short distance upstream from the confluence to Montague. The tagging study suggested that the Deerfield area is used by adults in all reproductive stages during spring and summer.

Successful spawning has been documented at Montague, which is a site near the Turners Falls Dam. This area is also upstream of the East Deerfield Rail Yard. Spawning succeeded more often at Turners Falls than at Rock Dam (Kieffer and Kynard study, in press). Two female fish that migrated past the Holyoke Dam summered at Deerfield, wintered at Whitmore and migrated

to spawn at Montague. This is the likely natural movement pattern if upstream passage is available over the Holyoke Dam (Kynard et al. in press).

### **Potential Impacts to Shortnose Sturgeon From Facility Operation**

As indicated earlier in this attachment, the single federally listed endangered fish species in the Connecticut River in the vicinity of the facility is the shortnose sturgeon (*Acipenser brevirostrum*). The shortnose sturgeon was placed on the original endangered species list in 1967 [32 Fed. Reg. 4001 (1967)] by the USFWS. Currently, NOAA Fisheries has authority over this species under Section 4(a) (2) of the ESA, 16 U.S.C. Section 1533 (a) (2). At present, there are 20 recognized distinct population segments [63 Fed. Reg. 69613-69615 (1998)], which all remain listed as endangered.

EPA recognizes that the river adjacent to the facility is an important habitat for shortnose sturgeon. The likely natural movement pattern of shortnose sturgeon above the Holyoke Hydroelectric Project described above could cause shortnose sturgeon to come in contact with the discharge from the Deerfield Rail Yard that ultimately reaches the Connecticut River.

It is further understood that potential introduction of petroleum based pollutants (including diesel constituents) and suspended solids in the stormwater and process wastewater discharged from this facility could have an adverse affect on the habitat of shortnose sturgeon. In addition, the potential migration of toxins from the facility into the water column may ultimately become associated with the benthos. This benthic contamination can be particularly harmful to benthic organisms (Varanasi 1992) like sturgeon. Specifically, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) have the potential to cause negative impacts to shortnose sturgeon (Kocan 1993; NOAA Fisheries 1998).

### **Factors That Minimize Adverse Impacts**

When evaluating the potential impacts of facility operation on the shortnose sturgeon, there are several factors that are expected to minimize any adverse impacts. For example, five of the six discharges from the facility are stormwater outfalls. Three of the five stormwater outfalls flow intermittently as their discharge is related directly to wet weather events. Also, these outfalls discharge into a 200 acre wetland or a small brook and become further diluted and naturally filtered before reaching the mainstem of the Connecticut River. It is not expected that shortnose sturgeon would come into immediate contact with any of the discharges from the facility, as these fish are generally found in deeper river channels rather than shallow wetlands or brooks.

For outfalls that discharge into the wetland, it should be noted that, in general, wetlands tend to act as an environmental filter, potentially trapping some portion of the constituents that may be in the discharges. This natural filtration would take place prior to the discharge water mixing with the

near bank surface waters of the mainstem of the Connecticut River.

The sixth outfall, Outfall 004, is permitted to have a continuous discharge under the draft permit. The rate of this continuous discharge is relatively low (45,000 gallons per day maximum / 15,000 gallons per day monthly average). Additionally, the Draft Permit shall require an additional flow limitation of 50 gpm for the discharge through Outfall 004, consistent with the design capacity of the treatment facility.

The continuously flowing waste stream that ultimately leaves the facility through Outfall 004 is initially made up of process waste water and storm water. Before treatment, this waste stream may contain suspended solids and diesel constituents. An important factor that will minimize potential adverse impacts to fish communities (including shortnose sturgeon) in the Connecticut River is the treatment of this waste water before it is discharged at Outfall 004. As outlined previously, the DAF system treats this waste stream. This process removes the suspended solids and diesel constituents from the water, resulting in total suspended solids near 1 mg/l and oil and grease levels below 3 mg/l.

Other factors that will continue to minimize potential adverse impacts to fish communities include the Storm Water Pollution Prevention Plan (SWPPP) and the outfall monitoring program summarized in the section of this attachment entitled "B&M East Deerfield Rail Yard NPDES Draft Permit Profile". 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 the Connecticut River. EPA has a range of options to address the presence in the discharge of potentially harmful pollutants at unexpectedly high levels. For example, if any of the 129 Priority Pollutants or any of the other parameters monitored in the draft permit are measured at levels that are of concern, EPA has the statutory authority to "terminate or modify for cause including, but not limited to, ... change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge." See CWA Section 402(b)(1)(C)(iii) as referenced by CWA Section 402(a)(3). Additionally, by regulation EPA has the authority to modify or revoke and reissue a permit for cause in accordance with 40 C.F.R. Section 122.62. A cause for modification "includes any information indicating that cumulative effects on the environment are unacceptable." See 40 C.F.R. Section 122.62(a)(2).

Another important factor that will minimize potential adverse impacts to water quality involves the dilution of the discharge once it reaches the Connecticut River. After initial dilution and natural filtration in the brook and surrounding wetlands where it is discharged, the effluent ultimately drains into the mainstem of the Connecticut River. A great deal of dilution takes place at this point. When formulating the Draft Permit, EPA calculated that the combined discharge of all six outfalls is diluted over 24,000 times when it reaches the river, based on a 7Q10 in the river of 1690 ft<sup>3</sup>/sec (1092.3 MGD) (USGS Montague Gauging Station). In this case, EPA judges that the discharge will only come in contact with the one quarter section of the river that flows along the west bank. Based on this conservative approach, the combined discharge of all six outfalls is expected to be diluted by a factor of 6,000:1 along the west bank of the Connecticut River. It is

difficult to determine with confidence the dimensions of the discharge plume in the Connecticut River once the B&M facility outfalls drain to the river. However, there are physical factors that will assist in estimating the characteristics of any discharge plume. The relatively slow flowing surface drainage of the outfalls will immediately come in contact with the downstream velocity of the Connecticut River along the west bank as the discharge exits the wetland. The river's downstream vector will move any surface plume downstream quickly along the west bank as dilution takes place. It is unlikely that any part of the discharge plume could come in contact with the deep, channelized habitat where shortnose sturgeon would be present. It is difficult to determine how far downstream the discharge plume would be able to be detected as it moves along the west bank, but under wet weather conditions, other wetland areas along the west bank of the river will contribute an increased draining to the river, further diluting the discharge.

### **Monitoring Required By Previous Permit**

Attachment B of the Draft Permit's Fact Sheet contains the raw monitoring data collected from all six outfalls from 2006 through 2011, along with some basic summary statistics. The collection of this information was required by the previous NPDES permit regulating this facility. Parameters measured included flow rate, oil & grease, total suspended solids, surfactants, temperature, pH, BOD, E. Coli, asbestos, cadmium, chromium, nickel, arsenic, beryllium, mercury, BTEX, PAHs, PCBs, cyanide, lead, copper, cyanide, zinc, selenium, silver, thallium and antimony. Section E. (Proposed Permit Effluent Limitations and Conditions) of the Fact Sheet contains a detailed review of the monitoring data and a discussion of how this data supported limits and monitoring requirements in the proposed Draft Permit. All sampling was conducted at each outfall of the facility prior to any dilution. A review of the data supports the conclusion that the SWPPP, the treatment of Outfall 004 before discharge, and other measures required in the permit are minimizing the impact of stormwater to the water quality of the receiving water.

In an informal Section 7 consultation concurrence letter for the B&M East Deerfield Rail Yard Facility NPDES Permit reissuance sent by Chris Mantzeris (for Patricia A. Kurkul, NMFS Regional Administrator) to David Webster of EPA, dated January 12, 2005, NMFS included the following:

Based on the above analysis of water quality effects and the determination that the discharges are likely to have only an insignificant effect on water quality in the Connecticut River, NOAA Fisheries concurs with EPA's determination that the proposed reissuance of the NPDES permit for this facility is not likely to adversely affect shortnose sturgeon. Therefore, no further consultation pursuant to Section 7 of the ESA is required. NOAA Fisheries expects that the monitoring data will confirm the conclusions made in the draft permit in regards to water quality in the receiving waters.

EPA has analyzed the monitoring data and has judged the data to be consistent with the determination that the discharges are likely to have only an insignificant effect on water quality in the Connecticut River.

## **EPA Finding**

Based on the expected, deeper water, river channel habitat where shortnose sturgeon will occur in the Connecticut River, these fish will not come in contact with discharge from the facility until water from the six outfalls have been subjected to significant downstream dilution. In addition, the Draft Permit continues a much more conservative approach to the protection of water quality in the river. Based on these factors and a review of the monitoring data, EPA finds that the reissuance of this permit is not likely to adversely affect the shortnose sturgeon or its habitat. EPA is seeking concurrence with this determination from NMFS through this analysis, the Draft Permit and a letter under separate cover.

MASSACHUSETTS DEPARTMENT OF  
ENVIRONMENTAL PROTECTION  
COMMONWEALTH OF MASSACHUSETTS  
1 WINTER STREET  
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY, REGION 1  
OFFICE OF ECOSYSTEM PROTECTION  
5 POST OFFICE SQ. SUITE 100 (OEP06-4)  
BOSTON, MASSACHUSETTS 02109-3912

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE  
ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF  
THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT  
(THE "ACT"), AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER  
SECTION 401 OF THE ACT.

DATE OF NOTICE: August 10, 2012

PERMIT NUMBER: MA0000272

PUBLIC NOTICE NUMBER: MA-017-12

NAME AND MAILING ADDRESS OF APPLICANT:

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

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Boston and Maine Corporation (B&M)  
East Deerfield Rail Yard  
38 Railroad Yard Road  
East Deerfield, MA 01342

RECEIVING WATER(S): unnamed wetlands that flow to the Connecticut River

RECEIVING WATER CLASSIFICATION(S): Class B (Warm Water Fishery)

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a permit for the above identified facility. The effluent limits and permit conditions imposed have been drafted to assure that State Water Quality Standards and provisions of the Clean Water Act will be met. EPA has formally requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified.

INFORMATION ABOUT THE DRAFT PERMIT:

A fact sheet (describing the type of facility; type and quantities of wastes; a brief summary of the basis for the draft permit conditions; and significant factual, legal and policy questions



considered in preparing this draft permit) and the draft permit may be obtained at no cost at [http://www.epa.gov/region1/npdes/draft\\_permits\\_listing\\_ma.html](http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html) or by writing or calling EPA's contact person named below:

Nicole Aquillano  
U.S. EPA  
5 Post Office Square – Suite 100 (OEP06-4)  
Boston, MA 02109-3912  
Telephone: (617) 918-1746

The administrative record containing all documents relating to this draft permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

#### PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by **September 8, 2012**, to the U.S. EPA, Office of Ecosystem Protection, Five Post Office Square – Suite 100 (OEP06-4), Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this 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 this draft permit the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

#### FINAL PERMIT DECISION:

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.

DAVID FERRIS, DIRECTOR  
MASSACHUSETTS WASTEWATER  
MANAGEMENT PROGRAM  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

STEPHEN S. PERKINS, DIRECTOR  
OFFICE OF ECOSYSTEM PROTECTION  
ENVIRONMENTAL PROTECTION  
AGENCY – REGION 1