



North Dorchester Bay CSO Storage Tunnel

Notice of Intent for NPDES Remediation General Permit for Construction Dewatering Activities

**Prepared for:
Massachusetts Water Resources
Authority**



Prepared by:



**Submitted to:
MA Department of Environmental Protection
US Environmental Protection Agency**

February 8, 2006



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February 8, 2006

MA Department of Environmental Protection
Division of Watershed Management
627 Main Street, 2nd Floor
Worcester, MA 01608

EPA New England
RGP-NOC Processing
Municipal Assistance Unit (CMU)
1 Congress Street, Suite 1100
Boston, MA 02114-2023

**Subject: MWRA Design Contract No. 6220; MWRA Construction Contract No. 6244
North Dorchester Bay CSO Storage Tunnel
Remediation General Permit (RPG) for Construction Dewatering Activities**

Dear EPA:

On behalf of the Massachusetts Water Resources Authority (MWRA), we are providing the enclosed Notice of Intent (NOI) seeking coverage under the Remediation General Permit (RGP) for dewatering activities associated with the North Dorchester Bay CSO Storage Tunnel project (Attachment 1). The proposed North Dorchester Bay CSO Storage Tunnel project is a component of the MWRA's Long-Term CSO Control Plan for North Dorchester Bay and Reserved Channel (EOEA #10335, April 2004).

The project will result in the elimination of CSO discharges to North Dorchester Bay, up to the 25-year storm, by constructing a 17-foot diameter storage tunnel generally along Day Boulevard. The locus map provided with the NOI identifies the entire project area (Attachment 1, Figure 1). The CSO Storage Tunnel will be constructed approximately 30 to 50 feet below ground surface (bgs) and run from a low point in a parking lot on Massport's Conley Terminal to a high point in the impound lot of the MA State Police barracks near the Bayside Expo Center. Mining of the tunnel would take place from a mining shaft located in the Conley Terminal parking lot, and an equipment removal shaft would be located in the State Police impound lot. The mining shaft is anticipated to be an approximately 50-foot diameter structure. Excavate from the tunnel would be removed through the mining shaft.

To address separate stormwater control while not compromising the intended purpose of the project to eliminate CSO discharges to the beaches, MWRA determined that near-surface connections at dropshafts to allow capture of stormwater from outfalls BOS081 to BOS086 into the CSO Storage Tunnel for storms up to approximately the 5-year, 24-hour storm, could be accomplished in a cost-effective manner. Thus, the design of the CSO Storage Tunnel includes stormwater diversion structures that would be installed to allow separate stormwater into the tunnel for storms up to the 5-year, 24-hour storm. In addition, stormwater from outfall BOS087 up to the 1-year, 24-hour storm would be conveyed to the NDB CSO Storage Tunnel. For storms between the 1-year and 5-year, 24-hour storms, the "first flush" from BOS087 would be captured and conveyed to the NDB CSO Storage Tunnel, with the remaining stormwater diverted to BWSC's proposed Morrissey Boulevard Drain. For storms greater than the 5-year, 24-hour storm, all stormwater flow from outfall BOS087 would be diverted to the Morrissey Boulevard Drain.

This RGP is being submitted to cover three separate construction dewatering activities:

1. Construction (using a tunnel boring machine) of the 17-foot diameter storage tunnel from Conley Terminal generally along Day Boulevard to the MA State Police Barracks (near Bayside Expo Center). The slurry generated from the drilling activities, as well as any groundwater that infiltrates into completed sections of the tunnel during construction, will be dewatered at the project laydown area within Conley Terminal (Attachment 1, Figure 2). The resulting water will be treated and discharged to Reserved Channel via BOS080. The tunnel will be 25 - 40 feet bgs in native materials (below urban fill). Soil conditioners (surfactants) will be used during tunnel excavation process, plus oil and grease from tunneling machinery may be present in slurry.
2. Construction of drop shafts, diversion structures, and associated CSO and stormwater piping at outfalls BOS081 to BOS087, to allow separate stormwater into the storage tunnel. Excavation for the drop shafts (0-40 feet bgs) and near surface piping (0-10 feet bgs) could require dewatering of urban fill material. Water will be treated on-site and discharged to North Dorchester Bay via the nearest outfall.
3. Groundwater will collect in the completed storage tunnel while the future CSO pump station is being constructed. Over a span of approximately two years, this water periodically will be treated (if necessary) and discharged to Reserved Channel via outfall BOS080.

Based on historic land uses within the project area, the potential exists for some of the MWRA construction dewatering activities to encounter contaminated groundwater. Considerable data from subsurface sampling wells (Attachment 1, Figure 2) along the proposed tunnel route were reviewed, and several parameters listed in Appendix III of the RGP have been detected. However, with the exception of silver, lead, and nickel, none of the detected parameters exceed the Appendix III effluent limitations.

The anticipated chemical constituents and concentrations of the contaminants within the groundwater, for both the tunnel and the near surface piping components of the project, are provided in Section 3.0 of the NOI. The analytical data used to develop this section of the NOI are provided in Attachment 2. The anticipated dewatering activities and the type of treatment proposed are described in the NOI (Section 4.0). Groundwater from the tunnel and near surface piping excavation will be discharged to a mobile treatment train consisting of a sedimentation basin, an oil/water separator, and a GAC filter. The Contractor will not be permitted to exacerbate any existing groundwater contamination plume or adversely impact any operating off-site groundwater treatment system.

If you have any questions or require additional information relative to this NOI, please contact Ralph Wallace at the MWRA (617-788-4917) or me (781-224-6172).

Sincerely,



Betsy Shreve-Gibb
Project Manager

cc: R. Wallace (MWRA)
B. Kubit (MA DEP)



Enter your transmittal number

W 073963

Transmittal Number

Your unique Transmittal Number can be accessed online: <http://www.mass.gov/dep/counter/trasmfrm.shtml> or call DEP's InfoLine at 617-338-2255 or 800-462-0444 (from 508, 781, and 978 area codes).

Massachusetts Department of Environmental Protection Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

DEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

BRP WM 12

Remediation General Permit – Construction Dewatering

1. Permit Code: 7 or 8 character code from permit instructions

2. Name of Permit Category

Construction Dewatering: CSO Storage Tunnel and Near-Surface Stormwater Connections – Known groundwater contamination, from urban fill, as well as a petroleum spill, exists within portions of the construction area which will require dewatering.

3. Type of Project or Activity

B. Applicant Information – Firm or Individual

Massachusetts Water Resources Authority

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

100 First Avenue, Charlestown Navy Yard, Building 39

5. Street Address

Boston

MA

02129

617-788-4917

6. City/Town

7. State

8. Zip Code

9. Telephone #

10. Ext. #

c/o Ralph Wallace

ralph.wallace@mwra.state.ma.us

11. Contact Person

12. e-mail address (optional)

C. Facility, Site or Individual Requiring Approval

North Dorchester Bay CSO Storage Tunnel

1. Name of Facility, Site Or Individual

In vicinity of South Boston beaches, spanning Day Boulevard from Conley Terminal to Bayside Expo

2. Street Address

Boston

MA

02127

N/A

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

Metcalf & Eddy

1. Name of Firm Or Individual

701 Edgewater Drive

2. Address

Wakefield

MA

01880

781-224-6012

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

James Petras

8. Contact Person

9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? yes no

If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

10335 (Certificate issued 7/16/04)

EOEA File Number

F. Amount Due

Special Provisions:

- Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less).
There are no fee exemptions for BWSC permits, regardless of applicant status.
- Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
- Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
- Homeowner (according to 310 CMR 4.02).

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

006012265

\$775

02-Feb-06

Check Number

Dollar Amount

Date

ATTACHMENT 1

NOTICE OF INTENT

SECTION A: Pages 1 and 2 of the NOI Form - Common to all Discharges

SECTION B Pages 3 through 8 - Specific to each Outfall

BOS080

BOS081

BOS082

BOS083

BOS084

BOS085

BOS086

BOS087

SECTION C: Pages 9 through 12 - of the NOI Form - Common to all Discharges

SECTION A

Pages 1 and 2 of the NOI Form - Common to all Discharges

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

1. General site information. Please provide the following information about the site:

a) Name of facility/site :		Facility/site address:		
Location of facility/site : longitude: _____ latitude: _____	Facility SIC code(s):	Street:		
b) Name of facility/site owner :		Town:		
Email address of owner:		State:	Zip:	County:
Telephone no. of facility/site owner :				
Fax no. of facility/site owner :		Owner is (check one): 1. Federal____ 2. State/Tribal____ 3. Private____ 4. other, if so, describe:		
Address of owner (if different from site):				
Street:				
Town:	State:	Zip:	County:	
c) Legal name of operator :	Operator telephone no:			
	Operator fax no.:		Operator email:	
Operator contact name and title:				

Address of operator (if different from owner):		Street:	
Town:	State:	Zip:	County:
d) Check “yes” or “no” for the following: 1. Has a prior NPDES permit exclusion been granted for the discharge? Yes___ No___, if “yes,” number: 2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Yes___ No___, if “yes,” date and tracking #: 3. Is the discharge a “new discharge” as defined by 40 CFR 122.2? Yes___ No___ 4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes___ No___			
e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes___ No___ If “yes,” please list: 1. site identification # assigned by the state of NH or MA: 2. permit or license # assigned: 3. state agency contact information: name, location, and telephone number:		f) Is the site/facility covered by any other EPA permit, including: 1. multi-sector storm water general permit? Y___ N___, if Y, number: 2. phase I or II construction storm water general permit? Y___ N___, if Y, number: 3. individual NPDES permit? Y___ N___, if Y, number: 4. any other water quality related permit? Y___ N___, if Y, number:	

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:		
b) Provide the following information about each discharge:	1) Number of discharge points:	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft ³ /s)? Max. flow _____ Average flow _____ Is maximum flow a design value ? Y___ N___ For average flow, include the units and appropriate notation if this value is a design value or estimate if not available.
3) Latitude and longitude of each discharge within 100 feet: pt.1:long.____ lat.____; pt.2: long.____ lat.____; pt.3: long.____ lat.____; pt.4:long.____ lat.____; pt.5: long.____ lat.____; pt.6:long.____ lat.____; pt.7: long.____ lat.____; pt.8:long.____ lat.____; etc.		

SECTION B

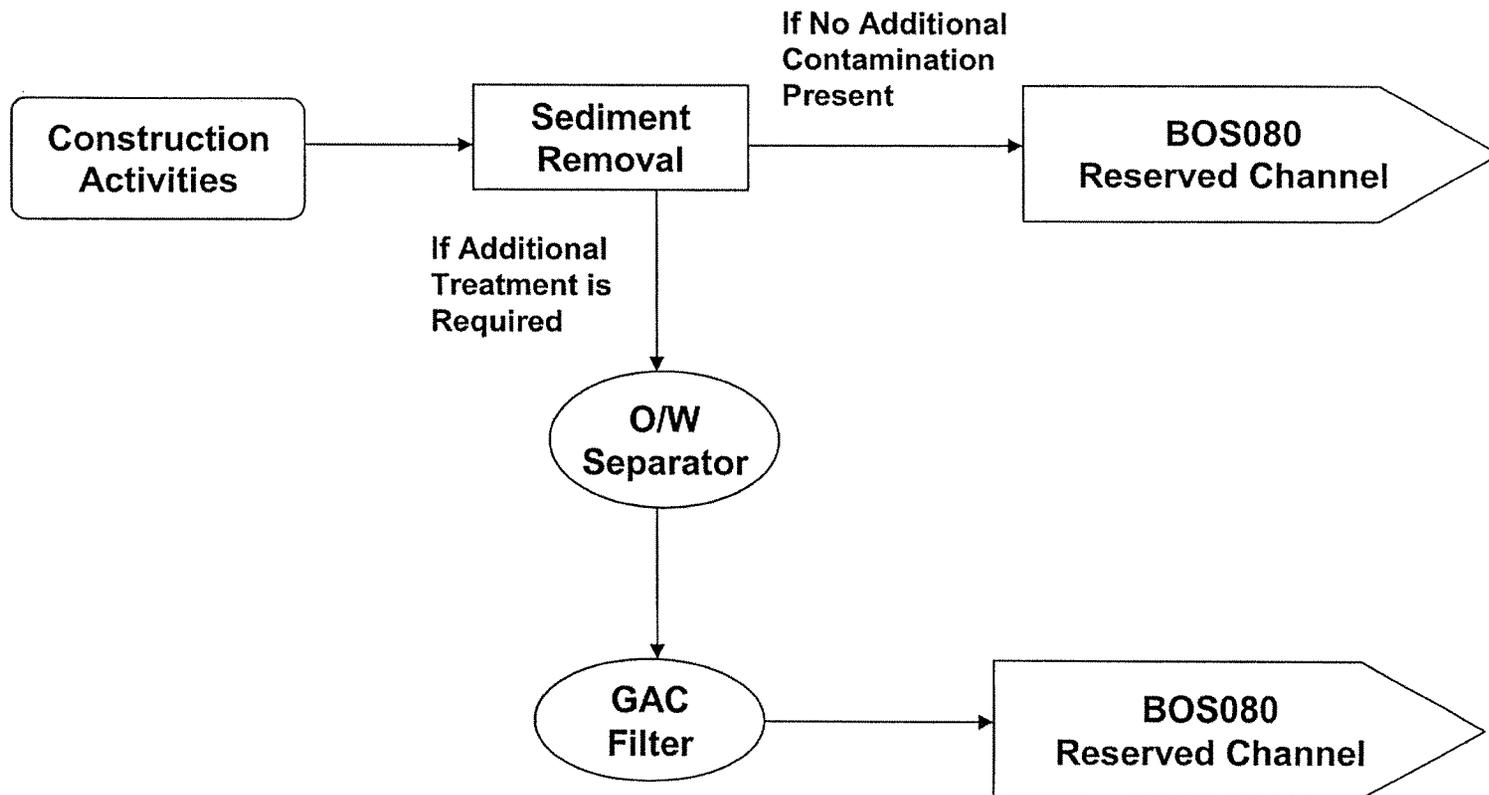
Pages 3 through 8 - Specific to each Outfall

BOS080

Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes _____ No <input checked="" type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start <u>08/01/06</u> end <u>02/28/11</u>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

Flow schematic for tunnel construction and post construction dewatering phase of the project.



Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed. BOS080 (a)

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants <input checked="" type="checkbox"/>	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER BOS080 (a) Storage Tunnel Slurry / Long-Term Dewatering	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		<input checked="" type="checkbox"/>								
2. Total Residual Chlorine										
3. Total Petroleum Hydrocarbons		<input checked="" type="checkbox"/>	6	grab	EPH by MADEP Method 1.0	0.10 ug/L	26 ug/L	1.42E-02	2 ug/L	1.09E-03
4. Cyanide										
5. Benzene										
6. Toluene	<input checked="" type="checkbox"/>									
7. Ethylbenzene	<input checked="" type="checkbox"/>									
8. (m,p,o) Xylenes	<input checked="" type="checkbox"/>									
9. Total BTEX ⁴										

a. Assessment is based on groundwater data from the following seven wells: BO4-14; 97-217; 97-221; 97-108A; MW 13-6; 97-102; MW 13-7

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER BOS080 (a) Storage Tunnel Slurry / Long-Term Dewatering	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)										
11. Methyl-tert-Butyl Ether (MtBE)	✓									
12. tert-Butyl Alcohol (TBA)										
13. tert-Amyl Methyl Ether (TAME)										
14. Naphthalene	✓									
15. Carbon Tetra- chloride										
16. 1,4 Dichlorobenzene										
17. 1,2 Dichlorobenzene										
18. 1,3 Dichlorobenzene										
19. 1,1 Dichloroethane										
20. 1,2 Dichloroethane										
21. 1,1 Dichloroethylene										
22. cis-1,2 Dichloro- ethylene										
23. Dichloromethane (Methylene Chloride)										
24. Tetrachloroethylene										

a. Assessment is based on groundwater data from the following seven wells: BO4-14; 97-217; 97-221; 97-108A; MW 13-6; 97-102; MW 13-7

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS080 (a) Storage Tunnel Slurry / Long-Term Dewatering										
25. 1,1,1 Trichloroethane										
26. 1,1,2 Trichloroethane										
27. Trichloroethylene										
28. Vinyl Chloride										
29. Acetone	✓									
30. 1,4 Dioxane										
31. Total Phenols										
32. Pentachlorophenol										
33. Total Phthalates ⁵ (Phthalate esters)										
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓									
b. Benzo(a) Pyrene	✓									
c. Benzo(b)Fluoranthene	✓									
d. Benzo(k) Fluoranthene	✓									
e. Chrysene	✓									

a. Assessment is based on groundwater data from the following seven wells: BO4-14; 97-217; 97-221; 97-108A; MW 13-6; 97-102; MW 13-7

⁵The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS080 (a) Storage Tunnel Slurry / Long-Term Dewatering										
f. Dibenzo(a,h) anthracene	✓									
g. Indeno(1,2,3-cd) Pyrene	✓									
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓									
i. Acenaphthylene	✓									
j. Anthracene	✓									
k. Benzo(ghi) Perylene	✓									
l. Fluoranthene	✓									
m. Fluorene	✓									
n. Naphthalene-	✓									
o. Phenanthrene	✓									
p. Pyrene	✓									
37. Total Polychlorinated Biphenyls (PCBs)										
38. Antimony										
39. Arsenic		✓	7	grab	SW-846 6000/7000	0.94 ug/L	31 ug/L	1.69E-02	5.6 ug/L	3.05E-03
40. Cadmium	✓									
41. Chromium III										
42. Chromium VI										

a. Assessment is based on groundwater data from the following seven wells: BO4-14; 97-217; 97-221; 97-108A; MW 13-6; 97-102; MW 13-7

PARAMETER BOS080 (a) Storage Tunnel Slurry / Long-Term Dewatering	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper	✓									
44. Lead		✓	7	grab	SW-846 6000/7000	0.50 ug/L	33.2 ug/L	1.81E-02	5.1 ug/L	2.78E-03
45. Mercury	✓									
46. Nickel		✓	1	grab	SW-846 6000/7000	2.0 ug/L	2.4 ug/L	1.31E-03	2.4 ug/L	1.31E-03
47. Selenium		✓	7	grab	SW-846 6000/7000	1.1 ug/L	1.3 ug/L	7.09E-04	0.78 ug/L	4.36E-04
48. Silver	✓									
49. Zinc		✓	2	grab	SW-846 6020A	20 ug/L	21 ug/L	1.14E-02	15.5 ug/L	8.45E-03
50. Iron										
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/></p>	<p>If yes, which metals? Lead. However, the proposed discharge is to saltwater (Reserved Channel).</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: <u>NA (discharge to saltwater)</u> DF: _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals:</p>

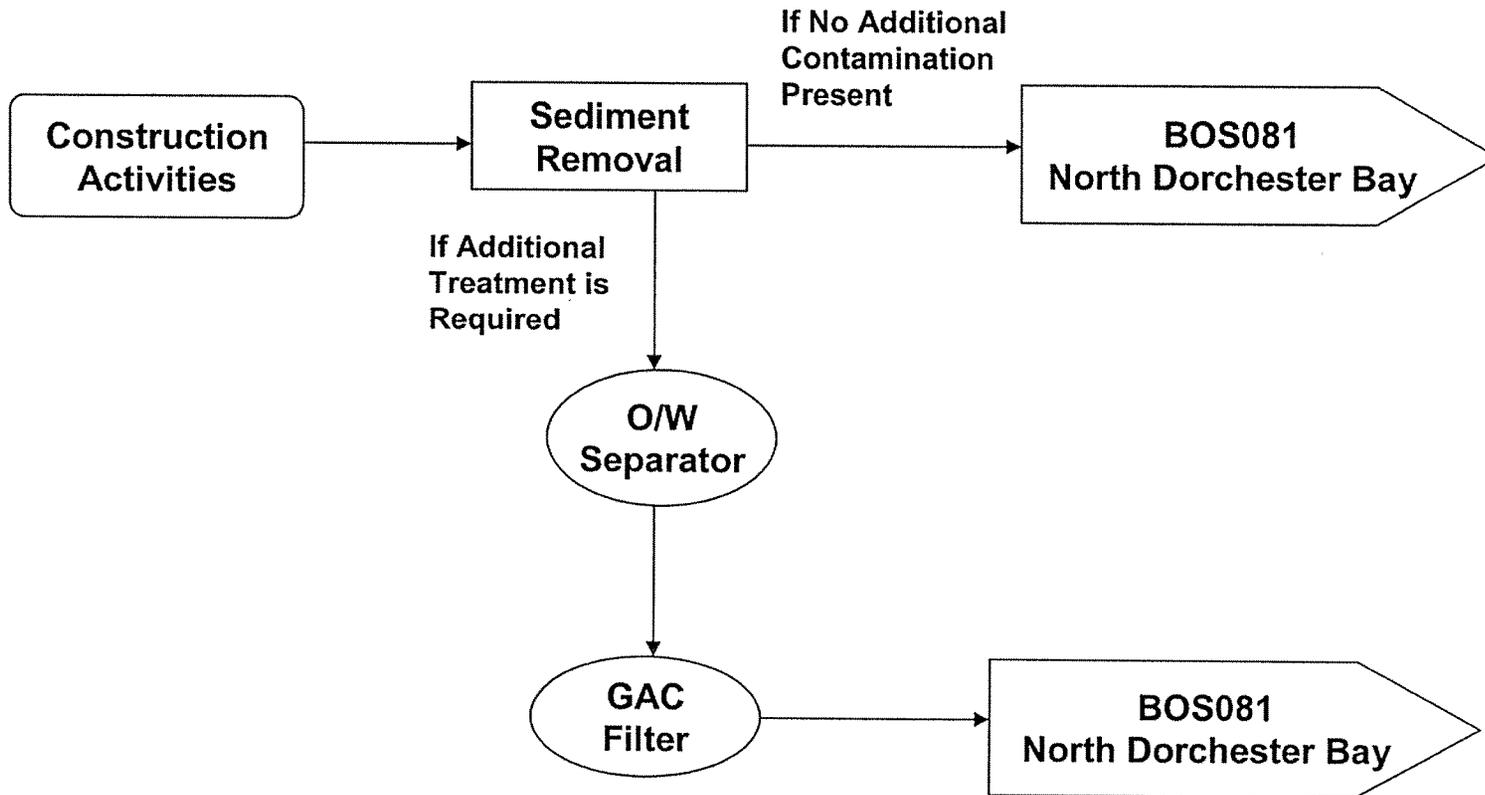
a. Assessment is based on groundwater data from the following seven wells: BO4-14; 97-217; 97-221; 97-108A; MW 13-6; 97-102; MW 13-7

BOS081

Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes _____ No <input checked="" type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start <u>08/01/06</u> end <u>07/31/09</u>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

Flow schematic for tunnel construction and post construction dewatering phase of the project.



Near Surface Piping Dewatering Activity

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for all of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts’ regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (“Chapter 21E”); ii. New Hampshire’s Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed. BOS081(a)

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites <input checked="" type="checkbox"/>	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants <input checked="" type="checkbox"/>	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER BOS081(a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		<input checked="" type="checkbox"/>								
2. Total Residual Chlorine										
3. Total Petroleum Hydrocarbons		<input checked="" type="checkbox"/>	1	grab	EPH by MADEP Method 1.0	0.10 ug/L	37.2 ug/L	2.03E-02	37.2 ug/L	2.03E-02
4. Cyanide										
5. Benzene										
6. Toluene		<input checked="" type="checkbox"/>	1	grab	EPH by MADEP Method 1.0	2.0 ug/L	8.5 ug/L	4.63E-03	8.5 ug/L	4.63E-03
7. Ethylbenzene		<input checked="" type="checkbox"/>	1	grab	EPH by MADEP	2.0 ug/L	4.6 ug/L	2.51E-03	4.6 ug/L	2.51E-03
8. (m,p,o) Xylenes		<input checked="" type="checkbox"/>	1	grab	EPH by MADEP Method 1.0	2.0 ug/L	33.0 ug/L	1.80E-02	33.0 ug/L	1.80E-02
9. Total BTEX ⁴										

a. 97-222 OW

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER BOS081(a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)										
11. Methyl-tert-Butyl Ether (MtBE)										
12. tert-Butyl Alcohol (TBA)										
13. tert-Amyl Methyl Ether (TAME)										
14. Naphthalene										
15. Carbon Tetra- chloride										
16. 1,4 Dichlorobenzene										
17. 1,2 Dichlorobenzene										
18. 1,3 Dichlorobenzene										
19. 1,1 Dichloroethane										
20. 1,2 Dichloroethane										
21. 1,1 Dichloroethylene										
22. cis-1,2 Dichloro- ethylene										
23. Dichloromethane (Methylene Chloride)										
24. Tetrachloroethylene										

a. 97-222 OW

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS081(a) Near Surface Piping										
25. 1,1,1 Trichloroethane										
26. 1,1,2 Trichloroethane										
27. Trichloroethylene										
28. Vinyl Chloride										
29. Acetone	✓									
30. 1,4 Dioxane										
31. Total Phenols										
32. Pentachlorophenol										
33. Total Phthalates ⁵ (Phthalate esters)										
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓									
b. Benzo(a) Pyrene	✓									
c. Benzo(b)Fluoranthene	✓									
d. Benzo(k) Fluoranthene	✓									
e. Chrysene	✓									

a. 97-222 OW

⁵The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS081(a) Near Surface Piping										
f. Dibenzo(a,h) anthracene	✓									
g. Indeno(1,2,3-cd) Pyrene	✓									
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓									
i. Acenaphthylene	✓									
j. Anthracene	✓									
k. Benzo(ghi) Perylene	✓									
l. Fluoranthene		✓	1	grab	MADEP Method 1.0	0.10 ug/L	0.13 ug/L	7.09E-05	0.13 ug/L	7.09E-05
m. Fluorene	✓									
n. Naphthalene-		✓	1	grab	MADEP Method 1.0	0.10 ug/L	0.76 ug/L	4.14E-04	0.76 ug/L	4.14E-04
o. Phenanthrene	✓									
p. Pyrene		✓	1	grab	MADEP Method 1.0	0.10 ug/L	0.12 ug/L	6.54E-05	0.12 ug/L	6.54E-05
37. Total Polychlorinated Biphenyls (PCBs)										
38. Antimony										
39. Arsenic	✓									
40. Cadmium	✓									
41. Chromium III										
42. Chromium VI										

a. 97-222 OW

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS081(a) Near Surface Piping										
43. Copper										
44. Lead		✓	1	grab	SW-846 6000/7000	0.75 ug/L	23 ug/L	1.25E-02	23 ug/L	1.25E-02
45. Mercury	✓									
46. Nickel										
47. Selenium	✓									
48. Silver	✓									
49. Zinc										
50. Iron										
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/></p>	<p>If yes, which metals? Lead. However, the proposed discharge is to saltwater (North Dorchester Bay).</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: <u>NA (discharge to saltwater)</u></p> <p>DF: _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals:</p>

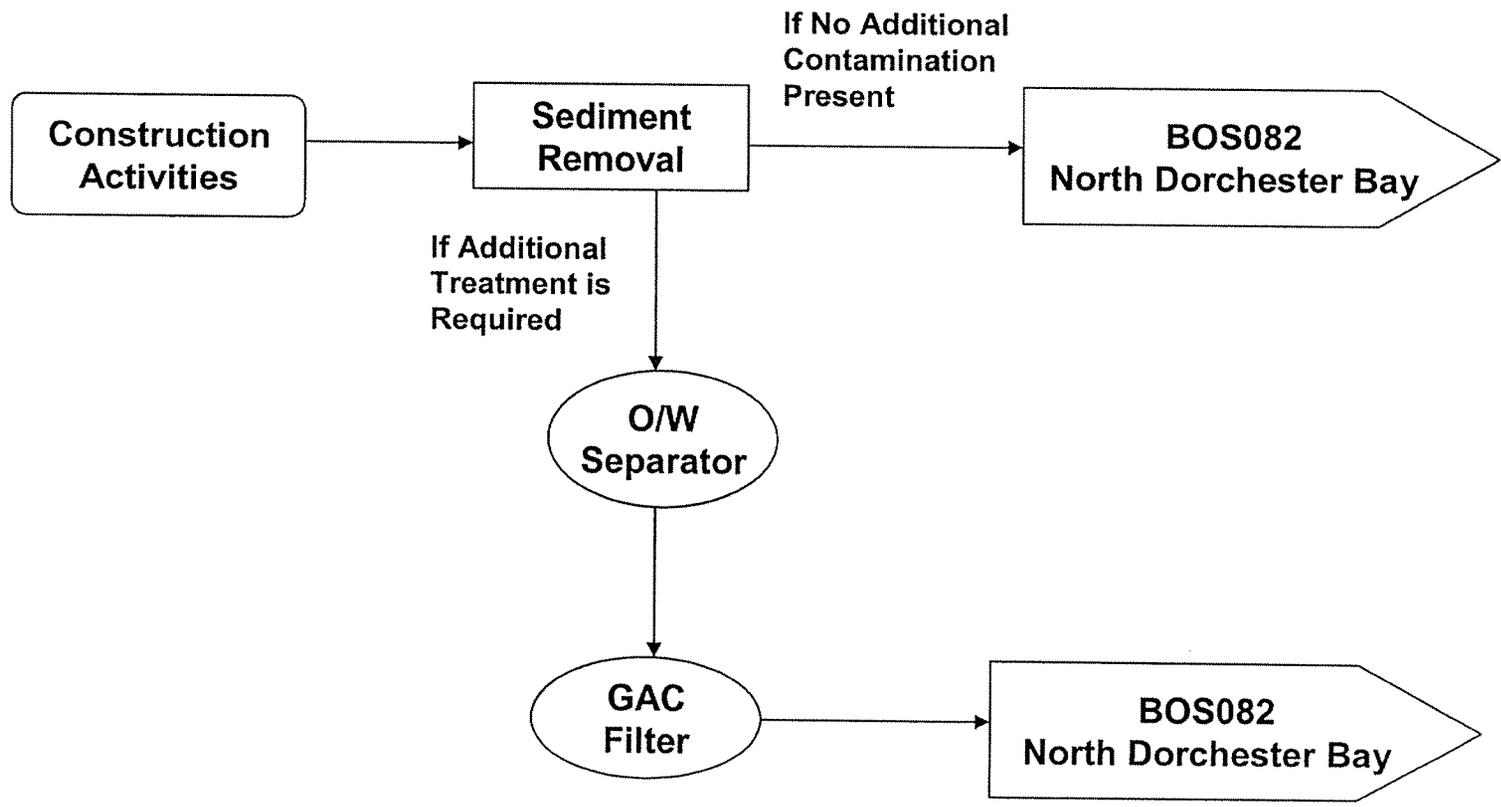
a. 97-222 OW

BOS082

Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes _____ No <input checked="" type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start <u>08/01/06</u> end <u>07/31/09</u>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

Flow schematic for tunnel construction and post construction dewatering phase of the project.



Near Surface Piping Dewatering Activity

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts’ regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (“Chapter 21E”); ii. New Hampshire’s Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed. BOS082 (a)

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals <input checked="" type="checkbox"/>	Urban Fill Sites <input checked="" type="checkbox"/>	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER BOS082 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		<input checked="" type="checkbox"/>								
2. Total Residual Chlorine										
3. Total Petroleum Hydrocarbons	<input checked="" type="checkbox"/>									
4. Cyanide										
5. Benzene	<input checked="" type="checkbox"/>									
6. Toluene	<input checked="" type="checkbox"/>									
7. Ethylbenzene	<input checked="" type="checkbox"/>									
8. (m,p,o) Xylenes	<input checked="" type="checkbox"/>									
9. Total BTEX ⁴										

a. 97-115 OW

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER BOS082 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)										
11. Methyl-tert-Butyl Ether (MtBE)	✓									
12. tert-Butyl Alcohol (TBA)										
13. tert-Amyl Methyl Ether (TAME)										
14. Naphthalene	✓									
15. Carbon Tetra- chloride										
16. 1,4 Dichlorobenzene										
17. 1,2 Dichlorobenzene										
18. 1,3 Dichlorobenzene										
19. 1,1 Dichloroethane										
20. 1,2 Dichloroethane										
21. 1,1 Dichloroethylene										
22. cis-1,2 Dichloro- ethylene										
23. Dichloromethane (Methylene Chloride)										
24. Tetrachloroethylene										

a. 97-115 OW

PARAMETER BOS082 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane										
26. 1,1,2 Trichloroethane										
27. Trichloroethylene										
28. Vinyl Chloride										
29. Acetone	✓									
30. 1,4 Dioxane										
31. Total Phenols										
32. Pentachlorophenol										
33. Total Phthalates ⁵ (Phthalate esthers)										
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓									
b. Benzo(a) Pyrene	✓									
c. Benzo(b)Fluoranthene	✓									
d. Benzo(k) Fluoranthene	✓									
e. Chrysene	✓									

a. 97-115 OW

⁵The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS082 (a) Near Surface Piping										
f. Dibenzo(a,h) anthracene	✓									
g. Indeno(1,2,3-cd) Pyrene	✓									
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓									
i. Acenaphthylene	✓									
j. Anthracene	✓									
k. Benzo(ghi) Perylene	✓									
l. Fluoranthene	✓									
m. Fluorene	✓									
n. Naphthalene-	✓									
o. Phenanthrene	✓									
p. Pyrene	✓									
37. Total Polychlorinated Biphenyls (PCBs)										
38. Antimony										
39. Arsenic	✓									
40. Cadmium		✓	1	grab	SW-846 000/7000	0.48	1.2 ug/L	6.54E-04	1.2 ug/L	6.54E-04
41. Chromium III										
42. Chromium VI										

a. 97-115 OW

PARAMETER BOS082 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper										
44. Lead		✓	1	grab	SW-846 6000/7000	0.75 ug/L	33.6 ug/L	1.83E-02	33.6 ug/L	1.83E-02
45. Mercury	✓									
46. Nickel										
47. Selenium		✓	1	grab	SW-846 6000/7000	1.1 ug/L	6.2 ug/L	3.38E-03	6.2 ug/L	3.38E-03
48. Silver		✓	1	grab	SW-846 6000/7000	2.9 ug/L	5.4 ug/L	2.94E-03	5.4 ug/L	2.94E-03
49. Zinc		✓	1	grab	SW-846 6020A	20 ug/L	49 ug/L	2.67E-02	49 ug/L	2.67E-02
50. Iron										
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/></p>	<p>If yes, which metals? Lead and Silver. However, the proposed discharge is to saltwater (North Dorchester Bay).</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: <u>NA (discharge to saltwater)</u></p> <p>DF: _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals:</p>

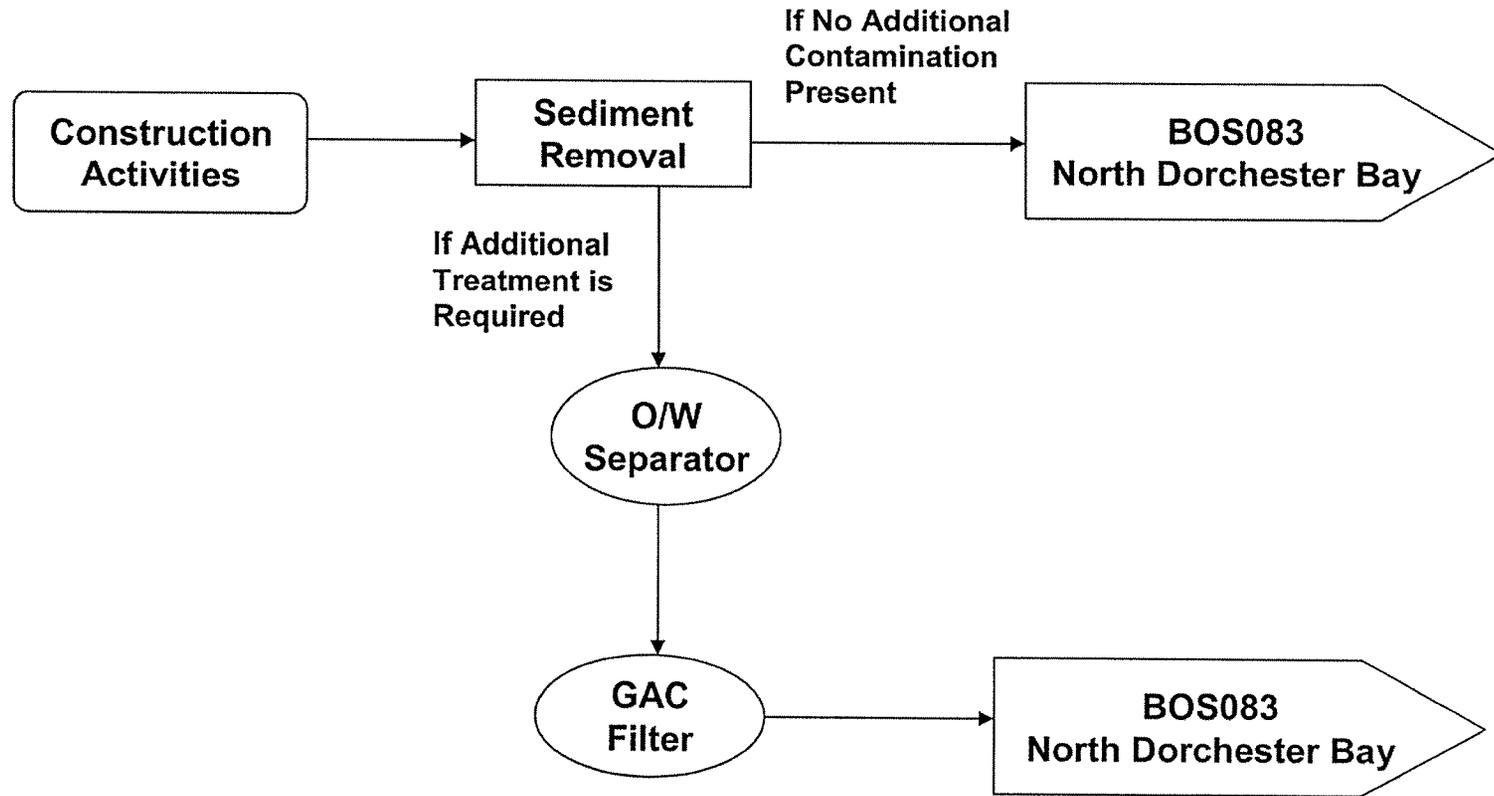
a. 97-115 OW

BOS083

Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes _____ No <input checked="" type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start <u>08/01/06</u> end <u>07/31/09</u>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

Flow schematic for tunnel construction and post construction dewatering phase of the project.



Near Surface Piping Dewatering Activity

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for all of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts’ regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (“Chapter 21E”); ii. New Hampshire’s Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed. BOS083 (a)

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites <input checked="" type="checkbox"/>	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants <input checked="" type="checkbox"/>	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER BOS083 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		<input checked="" type="checkbox"/>								
2. Total Residual Chlorine										
3. Total Petroleum Hydrocarbons		<input checked="" type="checkbox"/>	1	grab	EPH by MADEP Method 1.0	0.10 ug/L	36.2 ug/L	1.97E-02	36.2 ug/L	1.97E-02
4. Cyanide										
5. Benzene	<input checked="" type="checkbox"/>									
6. Toluene	<input checked="" type="checkbox"/>									
7. Ethylbenzene	<input checked="" type="checkbox"/>									
8. (m,p,o) Xylenes										
9. Total BTEX ⁴										

a. 97-112 OW

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER BOS083 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)										
11. Methyl-tert-Butyl Ether (MtBE)										
12. tert-Butyl Alcohol (TBA)										
13. tert-Amyl Methyl Ether (TAME)										
14. Naphthalene										
15. Carbon Tetra- chloride										
16. 1,4 Dichlorobenzene										
17. 1,2 Dichlorobenzene										
18. 1,3 Dichlorobenzene										
19. 1,1 Dichloroethane										
20. 1,2 Dichloroethane										
21. 1,1 Dichloroethylene										
22. cis-1,2 Dichloro- ethylene										
23. Dichloromethane (Methylene Chloride)										
24. Tetrachloroethylene										

a. 97-112 OW

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS083 (a) Near Surface Piping										
25. 1,1,1 Trichloroethane										
26. 1,1,2 Trichloroethane										
27. Trichloroethylene										
28. Vinyl Chloride										
29. Acetone	✓									
30. 1,4 Dioxane										
31. Total Phenols										
32. Pentachlorophenol										
33. Total Phthalates ⁵ (Phthalate esters)										
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓									
b. Benzo(a) Pyrene	✓									
c. Benzo(b)Fluoranthene	✓									
d. Benzo(k) Fluoranthene	✓									
e. Chrysene	✓									

a. 97-112 OW

⁵The sum of individual phthalate compounds.

PARAMETER BOS083 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h) anthracene	✓									
g. Indeno(1,2,3-cd) Pyrene	✓									
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓									
i. Acenaphthylene	✓									
j. Anthracene	✓									
k. Benzo(ghi) Perylene	✓									
l. Fluoranthene	✓									
m. Fluorene	✓									
n. Naphthalene-		✓	1	grab	MADEP Method 1.0	0.10 ug/L	0.32 ug/L	1.74E-04	0.32 ug/L	1.74E-04
o. Phenanthrene	✓									
p. Pyrene										
37. Total Polychlorinated Biphenyls (PCBs)										
38. Antimony										
39. Arsenic	✓									
40. Cadmium		✓	1	grab	SW-846 6000/7000	0.48 ug/L	0.65 ug/L	3.54E-04	0.65 ug/L	3.54E-04
41. Chromium III										
42. Chromium VI										

a. 97-112 OW

PARAMETER BOS083 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper										
44. Lead		✓	1	grab	SW-846 6000/7000	0.75 ug/L	1 ug/L	5.45E-04	1 ug/L	5.45E-04
45. Mercury	✓									
46. Nickel										
47. Selenium	✓									
48. Silver		✓	1	grab	SW-846 6000/7000	2.9 ug/L	3.5 ug/L	1.91E-03	3.5 ug/L	1.91E-03
49. Zinc										
50. Iron										
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/></p>	<p>If yes, which metals? Silver. However, the proposed discharge is to saltwater (North Dorchester Bay).</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: <u>NA (discharge to saltwater)</u></p> <p>DF: _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals:</p>

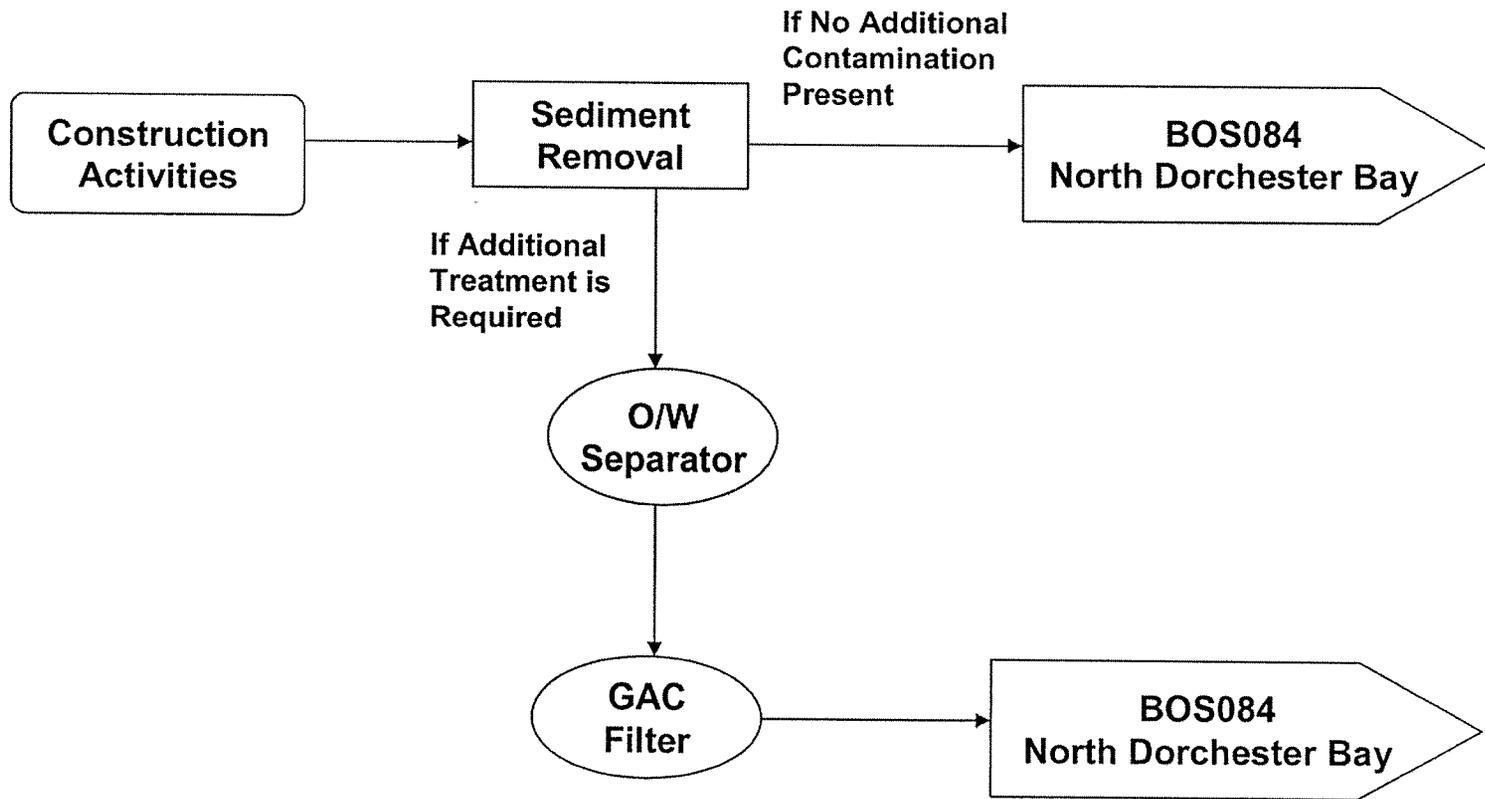
a. 97-112 OW

BOS084

Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes _____ No <input checked="" type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start <u>08/01/06</u> end <u>07/31/09</u>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

Flow schematic for tunnel construction and post construction dewatering phase of the project.



Near Surface Piping Dewatering Activity

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts’ regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (“Chapter 21E”); ii. New Hampshire’s Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed. **BOS084 (a)**

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals ✓	Urban Fill Sites ✓	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER BOS084 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		✓								
2. Total Residual Chlorine										
3. Total Petroleum Hydrocarbons	✓									
4. Cyanide										
5. Benzene	✓									
6. Toluene	✓									
7. Ethylbenzene	✓									
8. (m,p,o) Xylenes	✓									
9. Total BTEX ⁴										

a. 97-110 and 97-111

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER BOS084 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)										
11. Methyl-tert-Butyl Ether (MtBE)										
12. tert-Butyl Alcohol (TBA)										
13. tert-Amyl Methyl Ether (TAME)										
14. Naphthalene										
15. Carbon Tetra- chloride										
16. 1,4 Dichlorobenzene										
17. 1,2 Dichlorobenzene										
18. 1,3 Dichlorobenzene										
19. 1,1 Dichloroethane										
20. 1,2 Dichloroethane										
21. 1,1 Dichloroethylene										
22. cis-1,2 Dichloro- ethylene										
23. Dichloromethane (Methylene Chloride)										
24. Tetrachloroethylene										

a. 97-110 and 97-111

PARAMETER BOS084 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane										
26. 1,1,2 Trichloroethane										
27. Trichloroethylene										
28. Vinyl Chloride										
29. Acetone	✓									
30. 1,4 Dioxane										
31. Total Phenols										
32. Pentachlorophenol										
33. Total Phthalates ⁵ (Phthalate esters)										
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓									
b. Benzo(a) Pyrene	✓									
c. Benzo(b)Fluoranthene	✓									
d. Benzo(k) Fluoranthene	✓									
e. Chrysene	✓									

a. 97-110 and 97-111

⁵The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS084 (a) Near Surface Piping										
f. Dibenzo(a,h) anthracene	✓									
g. Indeno(1,2,3-cd) Pyrene	✓									
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓									
i. Acenaphthylene	✓									
j. Anthracene	✓									
k. Benzo(ghi) Perylene	✓									
l. Fluoranthene	✓									
m. Fluorene	✓									
n. Naphthalene-	✓									
o. Phenanthrene	✓									
p. Pyrene	✓									
37. Total Polychlorinated Biphenyls (PCBs)										
38. Antimony										
39. Arsenic		✓	2	grab	SW-846 6000/7000	0.94 ug/L	1.2 ug/L	6.54E-04	0.84 ug/L	4.58E-04
40. Cadmium	✓									
41. Chromium III										
42. Chromium VI										

a. 97-110 and 97-111

PARAMETER BOS084 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper										
44. Lead		✓	2	grab	SW-846 6000/7000	1.0 ug/L	1.1 ug/L	6.00E-04	1.0 ug/L	5.45E-04
45. Mercury	✓									
46. Nickel										
47. Selenium	✓									
48. Silver		✓	2	grab	SW-846 6000/7000	2.9 ug/L	4.7 ug/L	2.56E-03	3.1 ug/L	1.69E-03
49. Zinc		✓	1	grab	SW-846 6020A	20 ug/L	21 ug/L	1.14E-02	21 ug/L	1.14E-02
50. Iron										
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/></p>	<p>If yes, which metals? Silver. However, the proposed discharge is to saltwater (North Dorchester Bay).</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: <u>NA (discharge to saltwater)</u></p> <p>DF: _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals:</p>

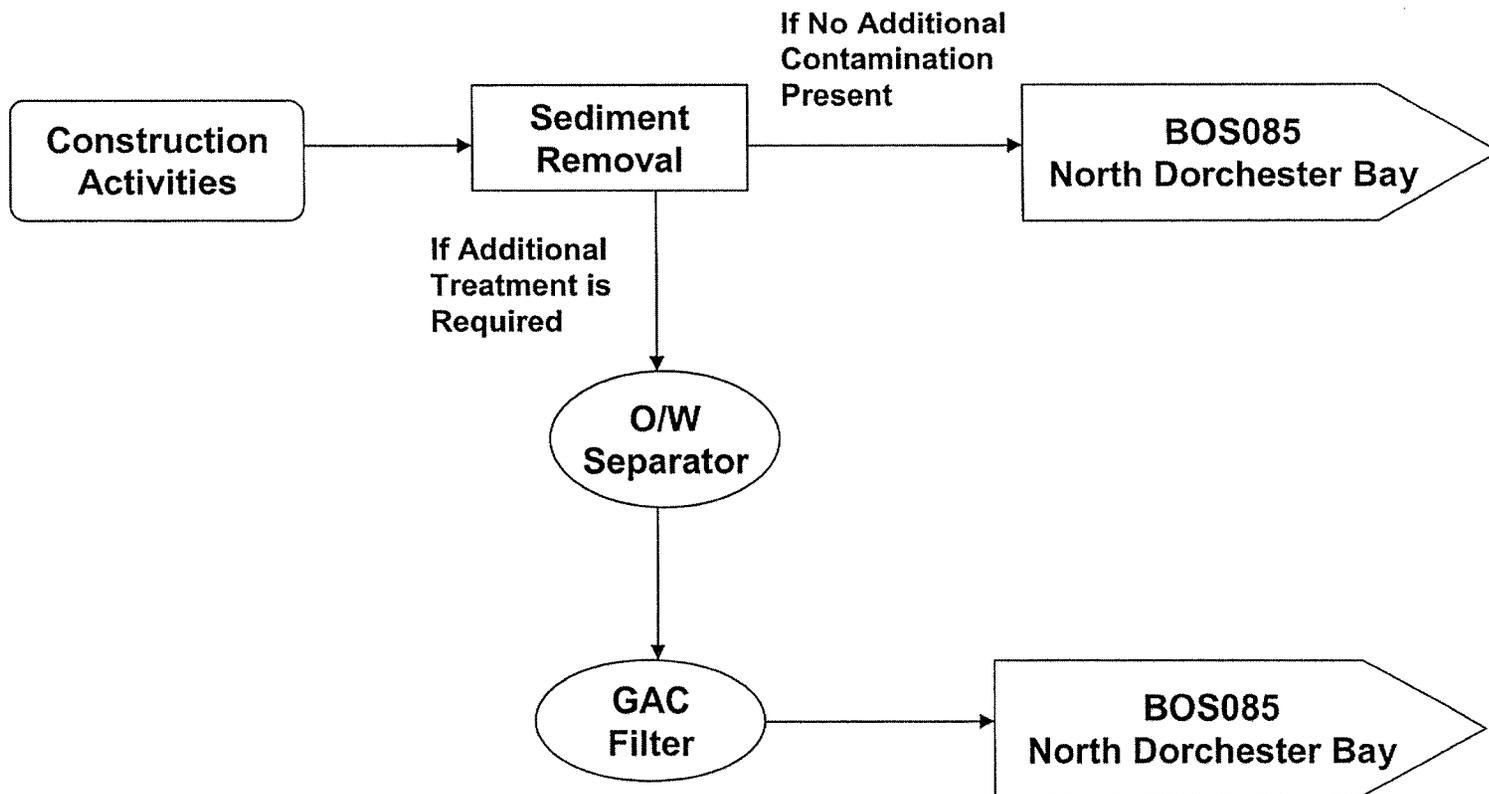
a. 97-110 and 97-111

BOS085

Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes _____ No <input checked="" type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start <u>08/01/06</u> end <u>07/31/09</u>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

Flow schematic for tunnel construction and post construction dewatering phase of the project.



Near Surface Piping Dewatering Activity

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for all of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts’ regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (“Chapter 21E”); ii. New Hampshire’s Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed. BOS085 (a)

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites <input checked="" type="checkbox"/>	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants <input checked="" type="checkbox"/>	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER BOS085 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		<input checked="" type="checkbox"/>								
2. Total Residual Chlorine										
3. Total Petroleum Hydrocarbons		<input checked="" type="checkbox"/>	2	grab	EPH by MADEP Method 1.0	0.10 ug/L	166 ug/L	9.05E-02	144 ug/L	7.85E-02
4. Cyanide										
5. Benzene										
6. Toluene	<input checked="" type="checkbox"/>									
7. Ethylbenzene	<input checked="" type="checkbox"/>									
8. (m,p,o) Xylenes	<input checked="" type="checkbox"/>									
9. Total BTEX ⁴										

a. 97-107A and 98-315

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER BOS085 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)										
11. Methyl-tert-Butyl Ether (MtBE)										
12. tert-Butyl Alcohol (TBA)										
13. tert-Amyl Methyl Ether (TAME)										
14. Naphthalene										
15. Carbon Tetra- chloride										
16. 1,4 Dichlorobenzene										
17. 1,2 Dichlorobenzene										
18. 1,3 Dichlorobenzene										
19. 1,1 Dichloroethane										
20. 1,2 Dichloroethane										
21. 1,1 Dichloroethylene										
22. cis-1,2 Dichloro- ethylene										
23. Dichloromethane (Methylene Chloride)										
24. Tetrachloroethylene										

a. 97-107A and 98-315

PARAMETER BOS085 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane										
26. 1,1,2 Trichloroethane										
27. Trichloroethylene										
28. Vinyl Chloride										
29. Acetone	✓									
30. 1,4 Dioxane										
31. Total Phenols										
32. Pentachlorophenol										
33. Total Phthalates ⁵ (Phthalate esthers)										
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓									
b. Benzo(a) Pyrene	✓									
c. Benzo(b)Fluoranthene	✓									
d. Benzo(k) Fluoranthene	✓									
e. Chrysene	✓									

a. 97-107A and 98-315

⁵The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS085 (a) Near Surface Piping										
f. Dibenzo(a,h) anthracene	✓									
g. Indeno(1,2,3-cd) Pyrene	✓									
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓									
i. Acenaphthylene	✓									
j. Anthracene	✓									
k. Benzo(ghi) Perylene	✓									
l. Fluoranthene	✓									
m. Fluorene	✓									
n. Naphthalene-		✓	2	grab	MADEP Method 1.0	0.10 ug/L	0.32 ug/L	1.74E-04	0.22 ug/L	1.20E-04
o. Phenanthrene		✓	2	grab	MADEP Method 1.0	0.13 ug/L	0.13 ug/L	7.09E-05	0.09 ug/L	4.91E-05
p. Pyrene	✓									
37. Total Polychlorinated Biphenyls (PCBs)										
38. Antimony	✓									
39. Arsenic		✓	2	grab	SW-846 6000/7000	2.4 ug/L	3.8 ug/L	2.07E-03	2.5 ug/L	1.36E-03
40. Cadmium	✓									
41. Chromium III										
42. Chromium VI										

a. 97-107A and 98-315

PARAMETER BOS085 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper	✓									
44. Lead		✓	2	grab	SW-846 6000/7000	0.84 ug/L	1.8 ug/L	9.81E-04	1.1 ug/L	6.00E-04
45. Mercury		✓	2	grab	SW-846 6000/7000	0.10 ug/L	0.49 ug/L	2.62E-04	0.30 ug/L	1.64E-04
46. Nickel		✓	1	grab	SW-846 6000/7000	8.0 ug/L	10.0 ug/L	5.45E-03	10.0 ug/L	5.45E-03
47. Selenium	✓									
48. Silver	✓									
49. Zinc	✓									
50. Iron										
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/></p>	<p>If yes, which metals? Nickel. However, the proposed discharge is to saltwater (North Dorchester Bay).</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: <u>NA (discharge to saltwater)</u></p> <p>DF: _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals:</p>

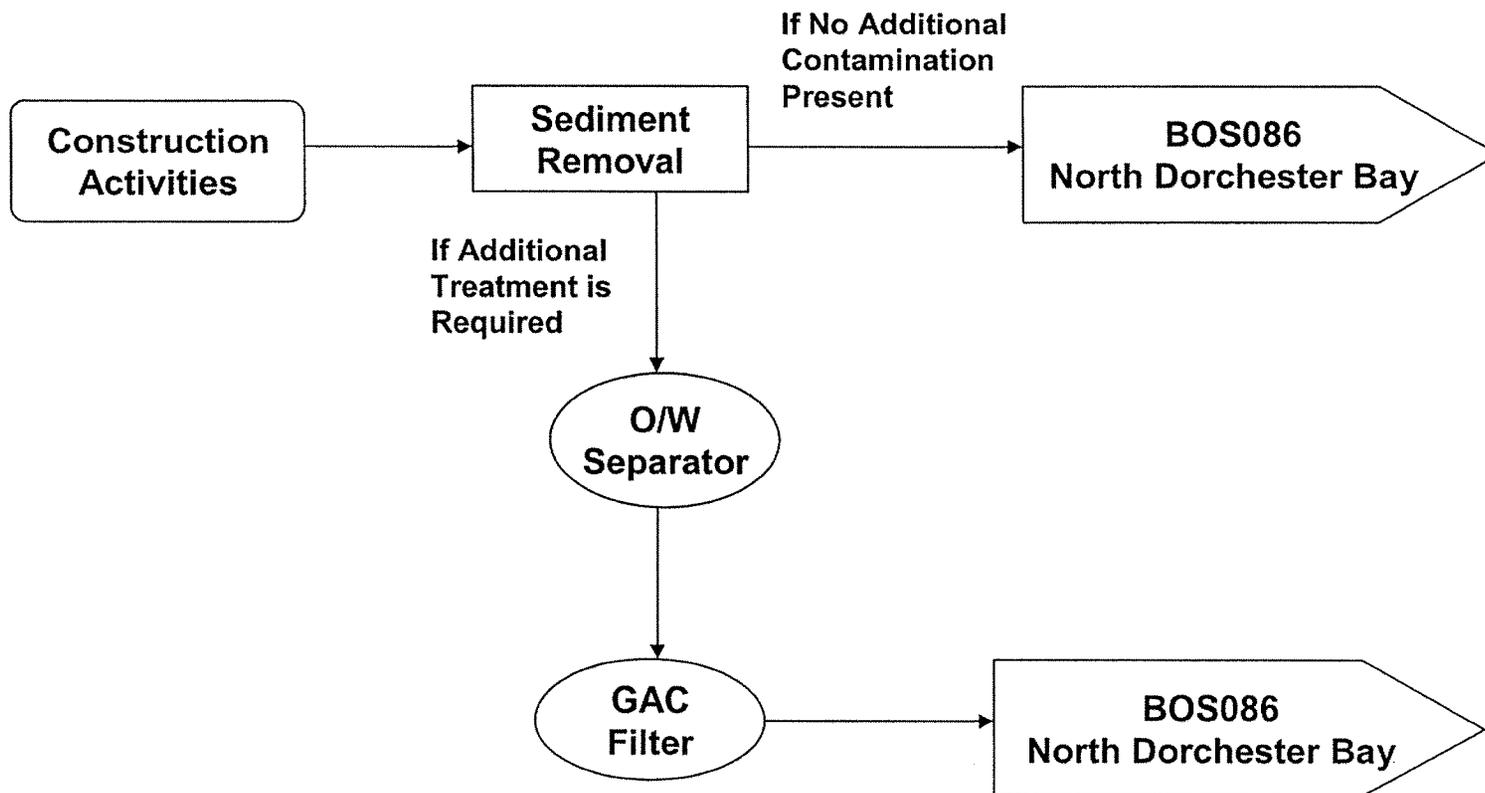
a. 97-107A and 98-315

BOS086

Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes _____ No <input checked="" type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start <u>08/01/06</u> end <u>07/31/09</u>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

Flow schematic for tunnel construction and post construction dewatering phase of the project.



Near Surface Piping Dewatering Activity

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts’ regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (“Chapter 21E”); ii. New Hampshire’s Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed. BOS086 (a)

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals ✓	Urban Fill Sites ✓	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER BOS086 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		✓								
2. Total Residual Chlorine										
3. Total Petroleum Hydrocarbons	✓									
4. Cyanide										
5. Benzene										
6. Toluene	✓									
7. Ethylbenzene	✓									
8. (m,p,o) Xylenes	✓									
9. Total BTEX ⁴										

a. 97-104 and 98-314

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER BOS086 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)										
11. Methyl-tert-Butyl Ether (MtBE)										
12. tert-Butyl Alcohol (TBA)										
13. tert-Amyl Methyl Ether (TAME)										
14. Naphthalene										
15. Carbon Tetra- chloride										
16. 1,4 Dichlorobenzene										
17. 1,2 Dichlorobenzene										
18. 1,3 Dichlorobenzene										
19. 1,1 Dichloroethane										
20. 1,2 Dichloroethane										
21. 1,1 Dichloroethylene										
22. cis-1,2 Dichloro- ethylene										
23. Dichloromethane (Methylene Chloride)										
24. Tetrachloroethylene										

a. 97-104 and 98-314

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS086 (a) Near Surface Piping										
25. 1,1,1 Trichloroethane										
26. 1,1,2 Trichloroethane										
27. Trichloroethylene										
28. Vinyl Chloride										
29. Acetone	✓									
30. 1,4 Dioxane										
31. Total Phenols										
32. Pentachlorophenol										
33. Total Phthalates ⁵ (Phthalate esthers)										
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓									
b. Benzo(a) Pyrene	✓									
c. Benzo(b)Fluoranthene	✓									
d. Benzo(k) Fluoranthene	✓									
e. Chrysene	✓									

a. 97-104 and 98-314

⁵The sum of individual phthalate compounds.

PARAMETER BOS086 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h) anthracene	✓									
g. Indeno(1,2,3-cd) Pyrene	✓									
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓									
i. Acenaphthylene	✓									
j. Anthracene	✓									
k. Benzo(ghi) Perylene	✓									
l. Fluoranthene	✓									
m. Fluorene	✓									
n. Naphthalene-	✓									
o. Phenanthrene	✓									
p. Pyrene	✓									
37. Total Polychlorinated Biphenyls (PCBs)										
38. Antimony	✓									
39. Arsenic		✓	2	grab	SW-846 6000/7000	0.94 ug/L	5.3 ug/L	2.89E-03	3.3 ug/L	1.8E-03
40. Cadmium	✓									
41. Chromium III										
42. Chromium VI										

a. 97-104 and 98-314

PARAMETER BOS086 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper	✓									
44. Lead		✓	2	grab	SW-846 6000/7000	0.75 ug/L	0.89 ug/L	4.85E-04	0.7 ug/L	3.82E-04
45. Mercury	✓									
46. Nickel	✓									
47. Selenium	✓									
48. Silver		✓	2	grab	SW-846 6000/7000	1.4 ug/L	3.5 ug/L	1.91E-03	1.8 ug/L	9.81E-04
49. Zinc	✓									
50. Iron										
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/></p>	<p>If yes, which metals? Silver. However, the proposed discharge is to saltwater (North Dorchester Bay).</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: <u>NA (discharge to saltwater)</u></p> <p>DF: _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals:</p>

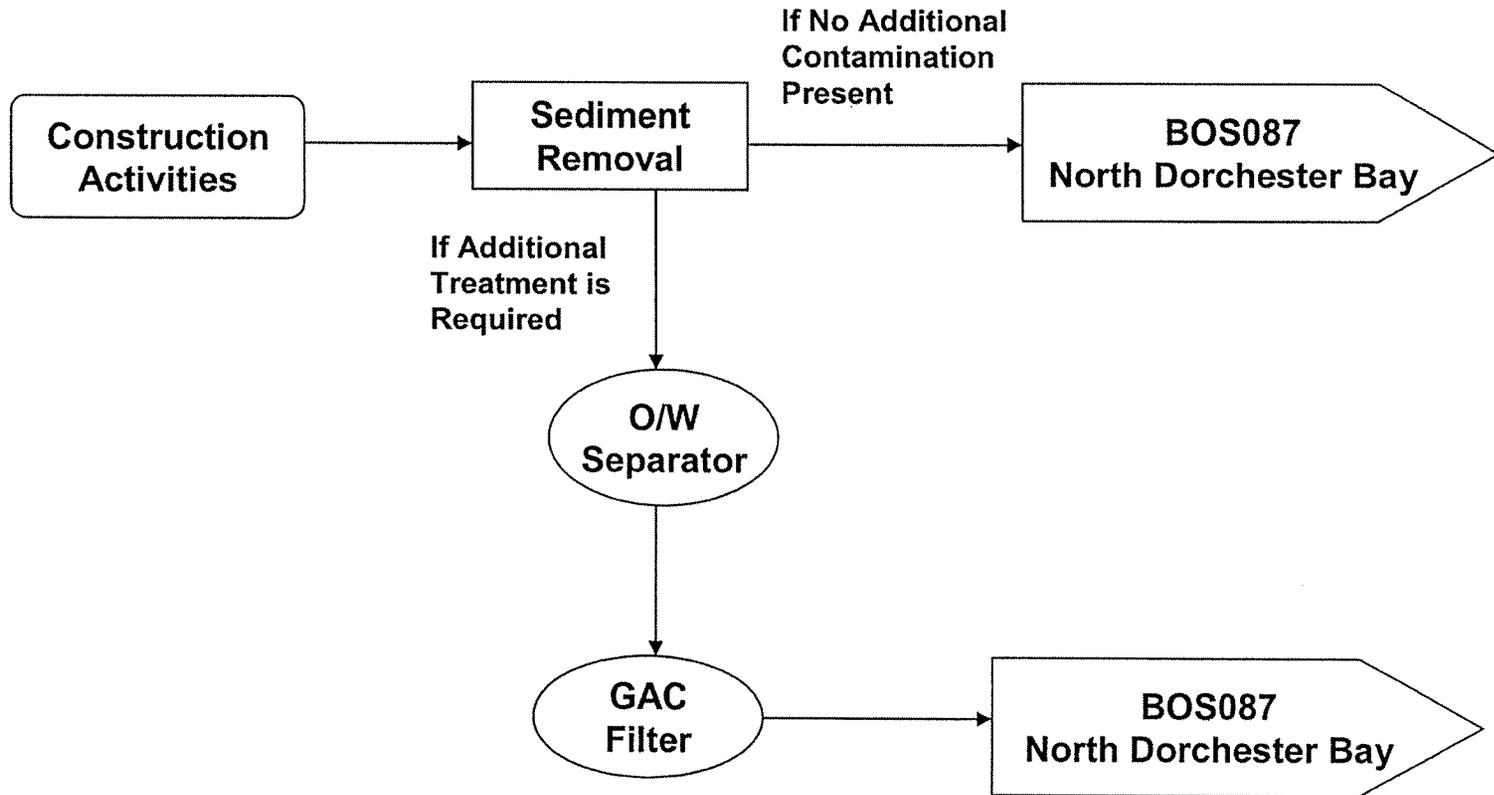
a. 97-104 and 98-314

BOS087

Tunnel Construction Dewatering and Post Construction Tunnel Dewatering Activity

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal _____? Is discharge ongoing Yes _____ No <input checked="" type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start <u>08/01/06</u> end <u>07/31/09</u>	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

Flow schematic for tunnel construction and post construction dewatering phase of the project.



Near Surface Piping Dewatering Activity

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts’ regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (“Chapter 21E”); ii. New Hampshire’s Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals ✓	Urban Fill Sites ✓	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER BOS087 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		✓								
2. Total Residual Chlorine										
3. Total Petroleum Hydrocarbons	✓									
4. Cyanide										
5. Benzene										
6. Toluene	✓									
7. Ethylbenzene	✓									
8. (m,p,o) Xylenes	✓									
9. Total BTEX ⁴										

a. 97-101 OW

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER BOS087 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)										
11. Methyl-tert-Butyl Ether (MtBE)										
12. tert-Butyl Alcohol (TBA)										
13. tert-Amyl Methyl Ether (TAME)										
14. Naphthalene										
15. Carbon Tetra- chloride										
16. 1,4 Dichlorobenzene										
17. 1,2 Dichlorobenzene										
18. 1,3 Dichlorobenzene										
19. 1,1 Dichloroethane										
20. 1,2 Dichloroethane										
21. 1,1 Dichloroethylene										
22. cis-1,2 Dichloro- ethylene										
23. Dichloromethane (Methylene Chloride)										
24. Tetrachloroethylene										

a. 97-101 OW

PARAMETER BOS087 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane										
26. 1,1,2 Trichloroethane										
27. Trichloroethylene										
28. Vinyl Chloride										
29. Acetone	✓									
30. 1,4 Dioxane										
31. Total Phenols										
32. Pentachlorophenol										
33. Total Phthalates ⁵ (Phthalate esthers)										
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓									
b. Benzo(a) Pyrene	✓									
c. Benzo(b)Fluoranthene	✓									
d. Benzo(k) Fluoranthene	✓									
e. Chrysene	✓									

a. 97-101 OW

⁵The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
BOS087 (a) Near Surface Piping										
f. Dibenzo(a,h) anthracene	✓									
g. Indeno(1,2,3-cd) Pyrene	✓									
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓									
i. Acenaphthylene	✓									
j. Anthracene	✓									
k. Benzo(ghi) Perylene	✓									
l. Fluoranthene	✓									
m. Fluorene	✓									
n. Naphthalene-	✓									
o. Phenanthrene	✓									
p. Pyrene	✓									
37. Total Polychlorinated Biphenyls (PCBs)										
38. Antimony										
39. Arsenic		✓	1	grab	SW-846 6000/7000	0.94 ug/L	2.3 ug/L	1.25E-03	2.3 ug/L	1.25E-03
40. Cadmium	✓									
41. Chromium III										
42. Chromium VI										

a. 97-101 OW

PARAMETER BOS087 (a) Near Surface Piping	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper										
44. Lead	✓									
45. Mercury	✓									
46. Nickel										
47. Selenium	✓									
48. Silver	✓									
49. Zinc										
50. Iron										
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y___ N___ ✓</p>	<p>If yes, which metals?</p>
<p><i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: <u>NA (discharge to saltwater)</u></p> <p>DF: _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y___ N___ If "Yes," list which metals:</p>

a. 97-101 OW

SECTION C

Pages 9 through 12 - of the NOI Form - Common to all Discharges

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:						
b) Identify each applicable treatment unit (check all that apply):	Frac. tank	Air stripper	Oil/water separator	Equalization tanks	Bag filter	GAC filter
	Chlorination	Dechlorination	Other (please describe):			
c) Proposed average and maximum flow rates (gallons per minute) for the discharge and the design flow rate(s) (gallons per minute) of the treatment system: Average flow rate of discharge _____ Maximum flow rate of treatment system _____ Design flow rate of treatment system _____						
d) A description of chemical additives being used or planned to be used (attach MSDS sheets):						

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct _____	Within facility__	Storm drain _____	River/brook _____	Wetlands _____	Other (describe):
b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:						

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:

1. For multiple discharges, number the discharges sequentially.

2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water

The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water _____,

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water _____ cfs

Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Yes ___ No ___ If yes, for which pollutant(s)?

Is there a TMDL? Yes ___ No ___ If yes, for which pollutant(s)?

6. Results of Consultation with Federal Services: Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes ___ No ___

Has any consultation with the federal services been completed? No ___ or is consultation underway? Yes ___ No ___

What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (check one):

a “no jeopardy” opinion? ___ or written concurrence ___ on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?

b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge?

Yes ___ No ___ Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes ___ No ___

7. Supplemental information. :

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

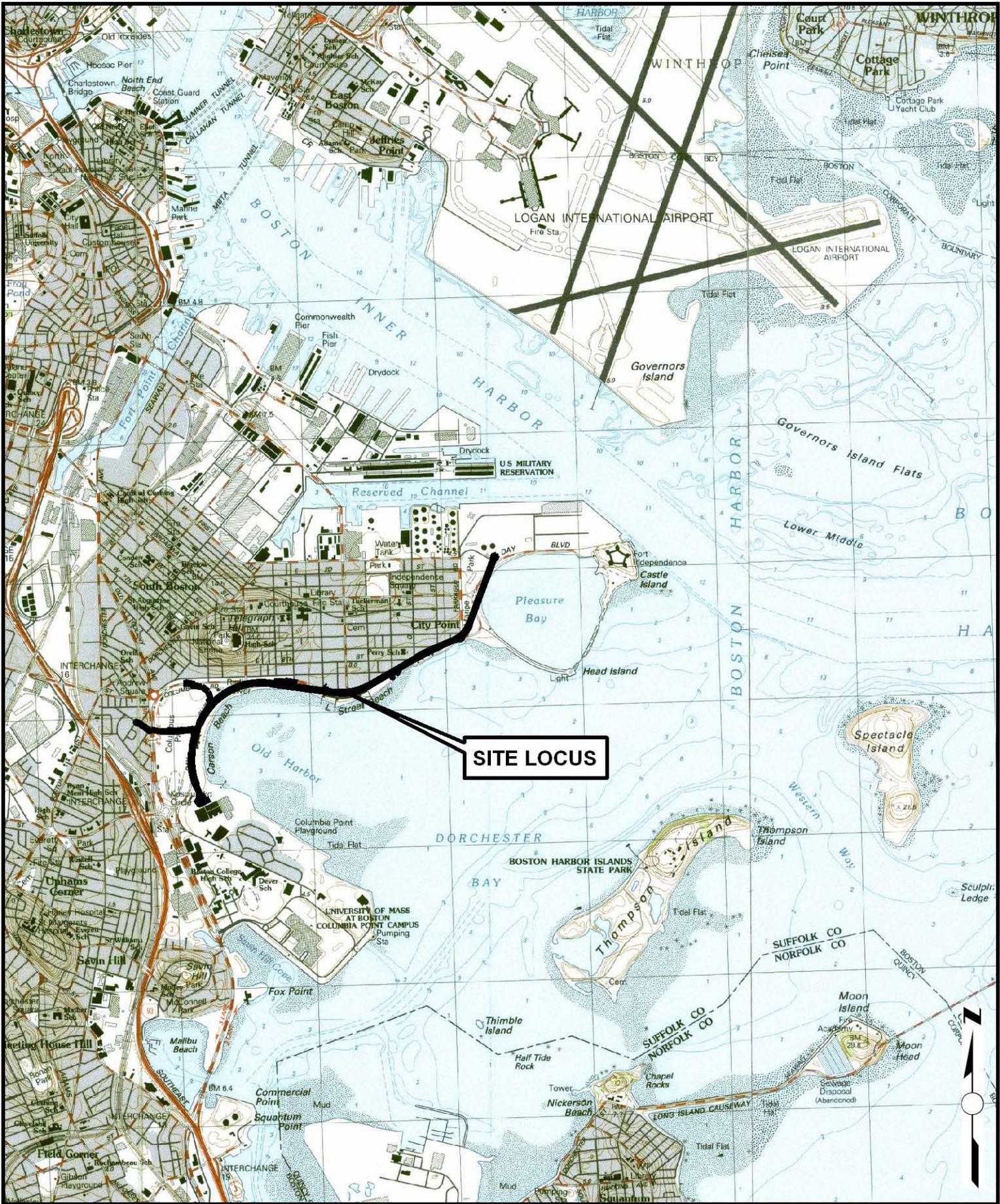
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name: MWRA North Dorchester Bay CSO Storage Tunnel

Operator signature:  (Ralph M. Wallace)

Title: Director, Operations Management and Administration

Date: 2/7/2006



SITE LOCUS



1" = 3,000'

LOCUS MAP



MASSACHUSETTS WATER RESOURCES AUTHORITY

NORTH DORCHESTER BAY CSO STORAGE TUNNEL

Figure 1



G:\Projects\MWRA\NorthDorchesterBay\Maps\CSOTunnel\Fig2.mxd



Date: November 8, 2005

PLAN VIEW



- CSO Storage Tunnel
- Near-Surface Stormwater Connections
-  Monitoring Well (Near Surface Piping)
-  Monitoring Well (Storage Tunnel)

MASSACHUSETTS WATER RESOURCES AUTHORITY
NORTH DORCHESTER BAY CSO STORAGE TUNNEL

FIGURE 2.

ATTACHMENT 2
ANALYTICAL DATA

**TABLE D-2
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
1997/1998 EXPLORATION PROGRAM, NORTH DORCHESTER BAY CSO STORAGE TUNNEL**

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY:	REPORTABLE CONCENTRATIONS GW2 (1)		Remediation General Permit Effluent Limitations for Massachusetts (2)	OW97-102	OW97-104	OW97-108A	OW97-110	OW97-111
	Current GW2	Proposed GW2		Day Blvd at Carson Beach 14 C-24 Tunnel 18 - 33 GW2	S. Parking Area Carson Beach 14 C-23 Shaft 4 - 19 GW2	Columbus Park Hdwks 13 C-22 Tunnel 26 - 41 GW2	Day Blvd. at H St. 14 C-21 Shaft 4 - 14 GW2	Day Blvd. at I St. 16 C-21 Tunnel 5 - 20 GW2
VOLATILE ORGANICS (µg/L)								
Acetone	50,000	50,000	NL	< 10	< 10	< 10	< 10	< 10
Chloroform	400	50	NL	< 2	< 2	< 2	< 2	< 2
2-Butanone (MEK)	50,000	50,000	NL	< 10	< 10	< 10	< 10	< 10
Trichloroethene	300	30	5	< 2	< 2	< 2	< 2	< 2
Tetrachloroethene	3,000	40	5	< 2	< 2	< 2	< 2	< 2
Toluene	6,000	4,000	100 (3)	< 2	< 2	< 2	< 2	< 2
Ethylbenzene	4,000	5,000	100 (3)	< 2	< 2	< 2	< 2	< 2
Xylene (total)	6,000	500	100 (3)	< 2	< 2	< 2	< 2	< 2
VOLATILE PETROLEUM HYDROCARBONS (µg/L)				Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
C5-C8 Aliphatics (excludes BTEX and MTBE)	1,000	3,000	NL					
C9-C12 Aliphatics	1,000	5,000	NL					
C9-C10 Aromatics	4,000	7,000	NL					
Targeted VPH Analytes:								
Methyl-tert-butyl ether (MTBE)	50,000	1,000	70					
Benzene	2,000	2,000	5					
Toluene	6,000	4,000	100 (3)					
Ethylbenzene	4,000	5,000	100 (3)					
Xylene (total)	6,000	500	100 (3)					
Naphthalene	6,000	1,000	20					
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/L)								
C9-C18 Aliphatics	1,000	5,000	NL	< 10	< 10	J< 10	< 10	< 10
C19-C36 Aliphatics	20,000	50,000	NL	< 10	< 10	< 25	< 10	< 10
C10-C22 Aromatics (excludes Targeted PAH Analytes)	30,000	5,000	NL	< 50	< 50	< 50	< 50	< 50
Targeted PAH Analytes:								
Acenaphthene	5,000	6,000	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	3,000	40	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	600	30	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	3,000	1,000	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	3,000	500	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(b)fluoranthene	3,000	400	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(g,h,i)perylene	3,000	20	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	3,000	100	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	3,000	70	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	3,000	40	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	200	200	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	3,000	40	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)pyrene	3,000	100	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

**TABLE D-2
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
1997/1998 EXPLORATION PROGRAM, NORTH DORCHESTER BAY CSO STORAGE TUNNEL**

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)		Remediation General Permit Effluent Limitations for Massachusetts (2)	OW97-102	OW97-104	OW97-108A	OW97-110	OW97-111
	Current GW2	Proposed GW2		Day Blvd at Carson Beach 14 C-24 Tunnel 18 - 33 GW2	S. Parking Area Carson Beach 14 C-23 Shaft 4 - 19 GW2	Columbus Park Hdwks 13 C-22 Tunnel 26 - 41 GW2	Day Blvd. at H St. 14 C-21 Shaft 4 - 14 GW2	Day Blvd. at I St. 16 C-21 Tunnel 5 - 20 GW2
Naphthalene	6,000	1,000	20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	50	10,000	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	3,000	20	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2-Methylnaphthalene	3,000	2,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
RCRA METALS (µg/L)								
Arsenic	400	900	36	1.8	5.3	< 0.94	1.2	< 0.94
Barium	30,000	50,000	NL	55.6	239	170	156	166
Cadmium	10	4	8.9	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48
Chromium	2,000	300	50.3 (6)	< 2.3	< 1.9	< 1.1	< 1.5	< 1.0
Lead	30	10	8.5	< 0.75	0.89	1.1	1.1	0.92
Mercury	1	20	1.1	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Selenium	80	100	71	< 1.1	< 1.1	1.3	< 1.1	< 1.1
Silver	7	7	2.2	< 2.9	<u>3.5</u>	< 2.9	<u>4.7</u>	< 2.9

NOTES :

- (1) Current Reportable Concentrations are from the MCP (MADEP, 1995 and revisions through 10/31/97). Proposed Reportable Concentrations are from the Public Hearing Draft, Proposed Amendments to the MCP (MADEP 9/20/04) and additional proposed revisions made available in May 2005. For reportable concentrations that changed in Fall 2004 and again in May 2005, only the May 2005 proposed values are shown.
- (2) EPA Region I, September 2005. Final Remediation General Permit Under the National Pollutant Discharge Elimination System (NPDES) for Discharges in Massachusetts
- (3) The limit is for Total BTEX (Benzene, Toluene, Ethylbenzene and Xylenes)
- (4) The limit is for the total Group II Polycyclic Aromatic Hydrocarbons (acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene, pyrene)
- (5) The limit is for the total Group I PAHs is 10 ug/L. The compounds included in Group I are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- (6) Limit is for Chromium VI.

< The analyte was not detected at this concentration; value presented is the sample detection limit.

J Value is approximate due to limitations identified in the quality control review.

NA Not Analyzed or Not Applicable.

NL No limit for this analyte

2,000 Concentration exceeds the current and/or proposed GW2 reportable concentration.

2,000 Concentration exceeds the RGP effluent limit.

TABLE D-2
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
1997/1998 EXPLORATION PROGRAM, NORTH DORCHESTER BAY CSO STORAGE TUNNEL

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)		Remediation General Permit Effluent Limitations for Massachusetts (2)	OW97-112	OW97-115	OW97-217	OW97-221
	Current GW2	Proposed GW2		Day Blvd. at K St. 14 C-20 Shaft 4 - 19 GW2	Day Blvd. at N St. 14 C-19 Shaft 4 - 19 GW2	Day Blvd. and L St. 15 C-20 Tunnel 12.5 - 27 GW2	Day Blvd. W. of P St. 15 C-18 Tunnel 35 - 50 GW2
VOLATILE ORGANICS (µg/L)							
Acetone	50,000	50,000	NL	< 10	< 10	< 10	< 10
Chloroform	400	50	NL	< 2	< 2	< 2	< 2
2-Butanone (MEK)	50,000	50,000	NL	< 10	< 10	< 10	< 10
Trichloroethene	300	30	5	< 2	< 2	< 2	< 2
Tetrachloroethene	3,000	40	5	< 2	< 2	< 2	< 2
Toluene	6,000	4,000	100 (3)	< 2	< 2	< 2	< 2
Ethylbenzene	4,000	5,000	100 (3)	< 2	< 2	< 2	< 2
Xylene (total)	6,000	500	100 (3)	< 2	< 2	< 2	< 2
VOLATILE PETROLEUM HYDROCARBONS (µg/L)				Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
C5-C8 Aliphatics (excludes BTEX and MTBE)	1,000	3,000	NL				
C9-C12 Aliphatics	1,000	5,000	NL				
C9-C10 Aromatics	4,000	7,000	NL				
Targeted VPH Analytes:							
Methyl-tert-butyl ether (MTBE)	50,000	1,000	70				
Benzene	2,000	2,000	5				
Toluene	6,000	4,000	100 (3)				
Ethylbenzene	4,000	5,000	100 (3)				
Xylene (total)	6,000	500	100 (3)				
Naphthalene	6,000	1,000	20				
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/L)							
C9-C18 Aliphatics	1,000	5,000	NL	< 10	< 10	< 10	< 10
C19-C36 Aliphatics	20,000	50,000	NL	< 10	< 10	< 26	< 10
C10-C22 Aromatics (excludes Targeted PAH Analytes)	30,000	5,000	NL	< 50	< 50	< 50	< 50
Targeted PAH Analytes:							
Acenaphthene	5,000	6,000	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	3,000	40	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	600	30	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	3,000	1,000	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	3,000	500	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(b)fluoranthene	3,000	400	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(g,h,i)perylene	3,000	20	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	3,000	100	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	3,000	70	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	3,000	40	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	200	200	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	3,000	40	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)pyrene	3,000	100	0.0038 (5)	< 0.10	< 0.10	< 0.10	< 0.10

**TABLE D-2
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
1997/1998 EXPLORATION PROGRAM, NORTH DORCHESTER BAY CSO STORAGE TUNNEL**

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)		Remediation General Permit Effluent Limitations for Massachusetts (2)	OW97-112	OW97-115	OW97-217	OW97-221
	Current GW2	Proposed GW2		Day Blvd. at K St. 14 C-20 Shaft 4 - 19 GW2	Day Blvd. at N St. 14 C-19 Shaft 4 - 19 GW2	Day Blvd. and L St. 15 C-20 Tunnel 12.5 - 27 GW2	Day Blvd. W. of P St. 15 C-18 Tunnel 35 - 50 GW2
Naphthalene	6,000	1,000	20	0.32	< 0.10	< 0.10	< 0.10
Phenanthrene	50	10,000	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	3,000	20	100 (4)	< 0.10	< 0.10	< 0.10	< 0.10
2-Methylnaphthalene	3,000	2,000	NL	0.14	< 0.10	< 0.10	< 0.10
RCRA METALS (µg/L)							
Arsenic	400	900	36	< 0.94	< 0.94	31.0	< 0.94
Barium	30,000	50,000	NL	81.2	124	82.9	61.8
Cadmium	10	4	8.9	0.65	1.2	< 0.48	< 0.48
Chromium	2,000	300	50.3 (6)	< 1.0	< 2.9	< 1.0	< 1.0
Lead	30	10	8.5	1.0	33.6	< 0.75	33.2
Mercury	1	20	1.1	< 0.20	< 0.20	< 0.20	< 0.20
Selenium	80	100	71	< 1.1	6.2	< 1.1	< 1.1
Silver	7	7	2.2	<u>3.5</u>	<u>5.4</u>	< 2.9	< 2.9

NOTES :

- (1) Current Reportable Concentrations are from the MCP (MADEP, 1995 and revisions through 10/31/97). Proposed Reportable Con MCP (MADEP 9/20/04) and additional proposed revisions made available in May 2005. For reportable concentrations that change
- (2) EPA Region I, September 2005. Final Remediation General Permit Under the National Pollutant Discharge Elimination System (NPI
- (3) The limit is for Total BTEX (Benzene, Toluene, Ethylbenzene and Xylenes)
- (4) The limit is for the total Group II Polycyclic Aromatic Hydrocarbons (acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)peryle
- (5) The limit is for the total Group I PAHs is 10 ug/L. The compounds included in Group I are benzo(a)anthracene, benzo(a)pyrene, ber
- (6) Limit is for Chromium VI.

< The analyte was not detected at this concentration; value presented is the sample detection limit.

J Value is approximate due to limitations identified in the quality control review.

NA Not Analyzed or Not Applicable.

NL No limit for this analyte

2,000 Concentration exceeds the current and/or proposed GW2 reportable concentration.

2,000 Concentration exceeds the RGP effluent limit.

**TABLE D-2
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
EXPLORATION PROGRAM, NORTH DORCHESTER BAY CONSOLIDATION CONDUIT**

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)	FEDERAL SDWA MCLs (2)	OW97-101 Bayside Expo Ctr/Day Blvd. 15 10 Shaft 5 - 20 GW2	OW97-102 Day Blvd at Carson Beach 14 10 Tunnel 18 - 33 GW2	OW97-104 S. Parking Area Carson Beach 14 9 Shaft 4 - 19 GW2	OW97-107A Columbus Park 13 9 Shaft 3 - 18 GW2	OW97-108A Columbus Park Hdwks 13 8 Tunnel 26 - 41 GW2	OW97-110 Day Blvd. at H St. 14 8 Shaft 4 - 14 GW2	OW97-111 Day Blvd. at I St. 16 7 Shaft 5 - 20 GW2	OW97-112 Day Blvd. at K St. 14 7 Shaft 4 - 19 GW2
VOLATILE ORGANICS (µg/L)										
Acetone	50,000	NL	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Chloroform	400	100 (3)	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
2-Butanone (MEK)	50,000	NL	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Trichloroethene	300	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Tetrachloroethene	3,000	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	6,000	1,000	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Ethylbenzene	4,000	700	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Xylene (total)	6,000	10,000	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VOLATILE PETROLEUM HYDROCARBONS (µg/L)			Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
C5-C8 Aliphatics (excludes BTEX and MTBE)	1,000	NL								
C9-C12 Aliphatics	1,000	NL								
C9-C10 Aromatics	4,000	NL								
Targeted VPH Analytes:										
Methyl-tert-butyl ether (MTBE)	50,000	NL								
Benzene	2,000	5								
Toluene	6,000	1,000								
Ethylbenzene	4,000	700								
Xylene (total)	6,000	10,000								
Naphthalene	6,000	NL								
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/L)										
C9-C18 Aliphatics	1,000	NL	< 10	< 10	< 10	J 29	J< 10	< 10	< 10	< 10
C19-C36 Aliphatics	20,000	NL	< 10	< 10	< 10	67	< 25	< 10	< 10	< 10
C10-C22 Aromatics (excludes Targeted PAH Analytes)	30,000	NL	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Targeted PAH Analytes:										
Acenaphthene	5,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	600	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	3,000	0.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(b)fluoranthene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(g,h,i)perylene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	200	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)pyrene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthalene	6,000	NL	< 0.10	< 0.10	< 0.10	0.32	< 0.10	< 0.10	< 0.10	0.32

**TABLE D-2
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
EXPLORATION PROGRAM, NORTH DORCHESTER BAY CONSOLIDATION CONDUIT**

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)	FEDERAL SDWA MCLs (2)	OW97-101 Bayside Expo Ctr/Day Blvd. 15 10 Shaft 5 - 20 GW2	OW97-102 Day Blvd at Carson Beach 14 10 Tunnel 18 - 33 GW2	OW97-104 S. Parking Area Carson Beach 14 9 Shaft 4 - 19 GW2	OW97-107A Columbus Park 13 9 Shaft 3 - 18 GW2	OW97-108A Columbus Park Hdwks 13 8 Tunnel 26 - 41 GW2	OW97-110 Day Blvd. at H St. 14 8 Shaft 4 - 14 GW2	OW97-111 Day Blvd. at I St. 16 7 Shaft 5 - 20 GW2	OW97-112 Day Blvd. at K St. 14 7 Shaft 4 - 19 GW2
Phenanthrene	50	NL	< 0.10	< 0.10	< 0.10	< 0.13	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2-Methylnaphthalene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.14
RCRA METALS (µg/L)										
Arsenic	400	50	2.3	1.8	5.3	3.8	< 0.94	1.2	< 0.94	< 0.94
Barium	30,000	2,000	8.7	55.6	239	8.1	170	156	166	81.2
Cadmium	10	5	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	0.65
Chromium	2,000	100	< 1.0	< 2.3	< 1.9	< 1.9	< 1.1	< 1.5	< 1.0	< 1.0
Lead	30	15	< 0.75	< 0.75	0.89	1.8	1.1	1.1	0.92	1.0
Mercury	1	2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Selenium	80	50	< 1.1	< 1.1	< 1.1	< 1.1	1.3	< 1.1	< 1.1	< 1.1
Silver	7	100 (4)	< 2.9	< 2.9	3.5	< 2.9	< 2.9	4.7	< 2.9	3.5

NOTES :

- (1) Reportable Concentrations are from the MCP (MADEP, 1995 and revisions through 10/31/97).
- (2) Federal Safe Drinking Water Act Maximum Contaminant Levels. These values are included as an aid in evaluating the need for treatment of water generated from dewatering of excavations, prior to discharge to surface water. Such discharges are regulated under the National Pollutant Discharge Elimination System (NPDES). Although their use is not codified in regulation or specifically stated in policy, MCLs are generally used by EPA when stating NPDES permit limits for discharge to a water body.
- (3) MCL is for total trihalomethanes.
- (4) MCL for silver is a secondary MCL (non-enforceable and established for aesthetic reasons).
- < The analyte was not detected at this concentration; value presented is the sample detection limit.
- J Value is approximate due to limitations identified in the quality control review.
- R Value rejected due to limitations identified in the quality control review.
- NA Not Analyzed or Not Applicable.
- ND None Detected
- NL No MCP Reportable Concentration or no SDWA MCL
- NR No Reading due to instrument malfunction

~~2,000~~ Concentration exceeds the GW2 reportable concentration.
2,000 Concentration exceeds the federal SDWA MCL.

**TABLE D-2
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
EXPLORATION PROGRAM, NORTH DORCHESTER BAY CONSOLIDATION CONDUIT**

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)	FEDERAL SDWA MCLs (2)	OW97-115 Day Blvd. at N St. 14 6 Shaft 4 - 19 GW2	OW97-123 Site J 15 1 Tunnel 33 - 43 GW2	OW97-123A Site J 1 1 Shaft 15.2 - 30.2 GW2	OW97-201 State Police Barracks Pkg. Lot 14 10 Odor Cont. Fac. 9.5 - 19.5 GW2	OW97-217 Day Blvd. and L St. 15 6 Tunnel 12.5 - 27 GW2	OW97-221 Day Blvd. W. of P St. 15 5 Tunnel 35 - 50 GW2	OW97-222 Day Blvd. S. of Marine Pk. 16 Not Shown Shaft 5 - 20 GW2	OW97-226 Day Blvd. rink parking 13 3 Tunnel 35 - 50 GW2
VOLATILE ORGANICS (µg/L)										
Acetone	50,000	NL	< 10	45	< 10	< 10	< 10	< 10	< 10	< 10
Chloroform	400	100 (3)	< 2	2.4	< 2	< 2	< 2	< 2	< 2	< 2
2-Butanone (MEK)	50,000	NL	< 10	70	< 10	< 10	< 10	< 10	< 10	< 10
Trichloroethene	300	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Tetrachloroethene	3,000	5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Toluene	6,000	1,000	< 2	11	< 2	< 2	< 2	< 2	8.5	< 2
Ethylbenzene	4,000	700	< 2	< 2	< 2	< 2	< 2	< 2	4.6	< 2
Xylene (total)	6,000	10,000	< 2	< 2	< 2	< 2	< 2	< 2	33	< 2
VOLATILE PETROLEUM HYDROCARBONS (µg/L)			Not Analyzed				Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
C5-C8 Aliphatics (excludes BTEX and MTBE)	1,000	NL	<	110	< 110	< 110				
C9-C12 Aliphatics	1,000	NL	<	25	< 25	< 25				
C9-C10 Aromatics	4,000	NL	<	25	< 25	< 25				
Targeted VPH Analytes:										
Methyl-tert-butyl ether (MTBE)	50,000	NL	<	3.6	< 2	< 2				
Benzene	2,000	5	<	2	< 2	< 2				
Toluene	6,000	1,000	<	11	< 2	< 2				
Ethylbenzene	4,000	700	<	2	< 2	< 2				
Xylene (total)	6,000	10,000	<	2	< 2	< 2				
Naphthalene	6,000	NL	<	2	< 2	< 2				
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/L)										
C9-C18 Aliphatics	1,000	NL	< 10	20	< 10	< 10	< 10	< 10	< 10	J 16
C19-C36 Aliphatics	20,000	NL	< 10	< 10	< 10	< 10	< 26	< 10	< 10	< 25
C10-C22 Aromatics (excludes Targeted PAH Analytes)	30,000	NL	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Targeted PAH Analytes:										
Acenaphthene	5,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	600	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	3,000	0.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(b)fluoranthene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(g,h,i)perylene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	200	NL	< 0.10	0.26	< 0.10	< 0.10	< 0.10	< 0.10	0.13	< 0.10
Fluorene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)pyrene	3,000	NL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthalene	6,000	NL	< 0.10	0.23	0.13	< 0.10	< 0.10	< 0.10	0.76	< 0.10

**TABLE D-2
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
EXPLORATION PROGRAM, NORTH DORCHESTER BAY CONSOLIDATION CONDUIT**

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)	FEDERAL SDWA MCLs (2)	OW97-115 Day Blvd. at N St. 14 6 Shaft 4 - 19 GW2	OW97-123 Site J 15 1 Tunnel 33 - 43 GW2	OW97-123A Site J 1 1 Shaft 15.2 - 30.2 GW2	OW97-201 State Police Barracks Pkg. Lot 14 10 Odor Cont. Fac. 9.5 - 19.5 GW2	OW97-217 Day Blvd. and L St. 15 6 Tunnel 12.5 - 27 GW2	OW97-221 Day Blvd. W. of P St. 15 5 Tunnel 35 - 50 GW2	OW97-222 Day Blvd. S. of Marine Pk. 16 Not Shown Shaft 5 - 20 GW2	OW97-226 Day Blvd. rink parking 13 3 Tunnel 35 - 50 GW2
Phenanthrene	50	NL	< 0.10	0.24	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.12
Pyrene	3,000	NL	< 0.10	0.18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2-Methylnaphthalene	3,000	NL	< 0.10	0.37	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.99
RCRA METALS (µg/L)										
Arsenic	400	50	< 0.94	< 0.94	< 0.94	2.1	31.0	< 0.94	< 0.94	< 0.94
Barium	30,000	2,000	124	177	11.7	29.0	82.9	61.8	65.3	17.0
Cadmium	10	5	1.2	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48
Chromium	2,000	100	< 2.9	74.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.3
Lead	30	15	33.6	< 0.75	1.4	3.6	< 0.75	33.2	<u>23.0</u>	1.1
Mercury	1	2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Selenium	80	50	6.2	10.1	4.3	1.1	1.1	1.1	10.8	1.1
Silver	7	100 (4)	5.4	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9

NOTES :

- (1) Reportable Concentrations are from the MCP (MADEP, 1995 and revisions through 10/31/97).
- (2) Federal Safe Drinking Water Act Maximum Contaminant Levels. These values are included as an aid in evaluating the need for treatment of water generated from dewatering of excavations, prior to discharge to surface water. Such discharges are regulated under the National Pollutant Discharge Elimination System (NPDES). Although their use is not codified in regulation or specifically stated in policy, MCLs are generally used by EPA when stating NPDES permit limits for discharge to a water body.
- (3) MCL is for total trihalomethanes.
- (4) MCL for silver is a secondary MCL (non-enforceable and established for aesthetic reasons).
- < The analyte was not detected at this concentration; value presented is the sample detection limit.
- J Value is approximate due to limitations identified in the quality control review.
- R Value rejected due to limitations identified in the quality control review.
- NA Not Analyzed or Not Applicable.
- ND None Detected
- NL No MCP Reportable Concentration or no SDWA MCL
- NR No Reading due to instrument malfunction
- ~~2,000~~ Concentration exceeds the GW2 reportable concentration.
- 2,000 Concentration exceeds the federal SDWA MCL.

**TABLE D-2A
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES: FACILITIES PLANNING PROGRAM, NORTH DORCHESTER BAY CSO STORAGE TUNNEL**

WELL LOCATION : SHEET NUMBER: STREET OR SITE:	REPORTABLE CONCENTRATIONS (1) GW2		Remediation General Permit Effluent Limitations for Massachusetts (2)	MW13-6 C-20 Day Blvd.	MW13-7 C-18 Day Blvd. & O St.
	Current GW2	Proposed GW2			
VOLATILE ORGANICS (ug/L)					
Trichloroethene	300	30	5	< 5	< 5
Tetrachloroethene	3,000	40	5	< 5	< 5
PAHs (ug/L)	NA	NA	NA	ND	ND
PCBs (ug/L)	0.3	5.0	0.000064	ND	ND
RCRA METALS (ug/L)					
Arsenic, total	400	900	36	< 5.8	< 1.8
Barium, total	30,000	50,000	NL	< 90.8	< 201
Cadmium, total	10	4	8.9	< 2.1	< 1.7
Chromium, total	2,000	300	50.3 (3)	< 2.7	< 2.7
Lead, total	30	10	8.5	< 0.80	< 0.80
Mercury, total	1	20	1.1	< 0.20	< 0.20
Selenium, total	80	100	71	< 2.3	< 1.6
Silver, total	7	7	2.2	< 5.1	< 5.1
TPH (mg/L)					
Diesel Range Organics	1	5	NL	< 1	< 1
Gasoline Range Organics	1	5	NL	< 1	< 1

NOTES : (1) Current Reportable Concentrations are from the MCP (MADEP, 1995 and revisions through 10/31/97). Proposed Reportable Concentrations are from the Public Hearing Draft, Proposed Amendments to the MCP (MADEP 9/20/04) and additional proposed revisions made available in May 2005. For reportable concentrations that changed in Fall 2004 and again in May 2005, only the May 2005 proposed values are shown.

(2) EPA Region I, September 2005. Final Remediation General Permit Under the National Pollutant Discharge Elimination System (NPDES) for Discharges in Massachusetts

(3) Limit is for Chromium VI.

< The analyte was not detected at this concentration; value presented is the sample detection limit.

NA Not Analyzed or Not Applicable.

ND None Detected.

2,000 Concentration exceeds the GW2 reportable concentration.

10 Concentration exceeds the federal SDWA MCL.

TABLE D-2B
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
1998/1999 SUPPLEMENTAL EXPLORATION PROGRAM, NORTH DORCHESTER BAY CSO STORAGE TUNNEL

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)		Remediation General Permit Effluent Limitations for Massachusetts (4)	OW98-314	OW98-315
	Current GW2	Proposed GW2		Logan Way, west of Old Colony Ave. S17 C-85 5-15 GW2	Columbia Road at Columbus Park S17 C-78 5-20 GW2
VOLATILE ORGANICS (µg/L)					
1,2-Dichloroethene (cis)	30,000	100	70	< 2	< 2
Trichloroethene	300	30	5	< 2	< 2
Methyl tert-butyl ether (see Note 3)				NA	NA
sec-Butylbenzene (see Note 3)				NA	NA
VOLATILE PETROLEUM HYDROCARBONS (µg/L)					
C5-C8 Aliphatics (excludes BTEX and MTBE)	1,000	3,000	NL	NA	NA
C9-C12 Aliphatics	1,000	5,000	NL	NA	NA
C9-C10 Aromatics	4,000	7,000	NL	NA	NA
Targeted VPH Analytes:					
Methyl-tert-butyl ether (MTBE)	50,000	1,000	70	NA	NA
Benzene	2,000	2,000	5	NA	NA
Toluene	6,000	4,000	100 (5)	NA	NA
Ethylbenzene	4,000	5,000	100 (5)	NA	NA
m-&p-Xylenes	6,000 (9)	500 (9)	100 (5)	NA	NA
o-Xylene	6,000 (9)	500 (9)	100 (5)	NA	NA
Naphthalene	6,000	1,000	20	NA	NA
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/L)					
C9-C18 Aliphatics	1,000	5,000	NL	< 100	< 110
C19-C36 Aliphatics	20,000	50,000	NL	< 100	< 110
C10-C22 Aromatics (excludes Targeted PAH Analytes)	30,000	5,000	NL	< 100	< 110
Targeted PAH Analytes:					
Acenaphthene	5,000	6,000	100 (6)	< 0.10	< 0.11
Acenaphthylene	3,000	40	100 (6)	< 0.10	< 0.11
Anthracene	600	30	100 (6)	< 0.10	< 0.11
Benzo(a)anthracene	3,000	1,000	0.0038 (7)	< 0.10	< 0.11
Benzo(a)pyrene	3,000	500	0.0038 (7)	< 0.10	< 0.11
Benzo(b)fluoranthene	3,000	400	0.0038 (7)	< 0.10	< 0.11
Benzo(g,h,i)perylene	3,000	20	100 (6)	< 0.10	< 0.11
Benzo(k)fluoranthene	3,000	100	0.0038 (7)	< 0.10	< 0.11
Chrysene	3,000	70	0.0038 (7)	< 0.10	< 0.11
Dibenz(a,h)anthracene	3,000	40	0.0038 (7)	< 0.10	< 0.11
Fluoranthene	200	200	100 (6)	< 0.10	< 0.11
Fluorene	3,000	40	100 (6)	< 0.10	< 0.11
Indeno(1,2,3-c,d)pyrene	3,000	100	0.0038 (7)	< 0.10	< 0.11
Naphthalene	6,000	1,000	20	< 0.10	0.12
Phenanthrene	50	10,000	100 (6)	< 0.10	< 0.11
Pyrene	3,000	20	100 (6)	< 0.10	< 0.11
2-Methylnaphthalene	3,000	2,000	NL	< 0.10	< 0.11
PRIORITY POLLUTANT METALS PLUS BARIUM (2) (µg/L)					
Antimony	300	8,000	5.6	< 2.4	< 2.4
Arsenic	400	900	36	< 2.4	< 2.4
Barium	30,000	50,000	NL	81.7	330
Beryllium	50	200	NL	< 1.0	< 1.0
Cadmium	10	4	8.9	< 0.90	< 0.90
Chromium	2,000	300	50.3 (8)	< 2.1	< 2.1
Copper	100,000	100,000	3.7	< 5.0	< 6.6
Lead	30	10	8.5	< 0.84	< 0.84
Mercury	1	20	1.1	< 0.10	0.49
Nickel	80	200	8.2	< 8.0	<u>10.0</u>
Selenium	80	100	71	< 4.8	< 1.8
Silver	7	7	2.2	< 1.4	< 1.4
Thallium	400	3,000	NL	< 0.92	< 0.92
Zinc	900	900	85.6	< 10.0	< 18.0

TABLE D-2C
DETECTED CONCENTRATIONS IN GROUNDWATER SAMPLES
2004/2005 SUPPLEMENTAL EXPLORATION PROGRAM, NORTH DORCHESTER BAY CSO STORAGE TUNNEL

WELL ID: WELL LOCATION: SAMPLE DELIVERY GROUP: SHEET NUMBER: BORING TYPE: SCREENED INTERVAL (FT BGS): DATE SAMPLED: MCP REPORTING CATEGORY :	REPORTABLE CONCENTRATIONS GW2 (1)		Remediation General Permit Effluent Limitations for Massachusetts (3)	97-102 OW	97-110 OW	97-115 OW	97-115 OW	B04-14	B04-15A
	Current GW2	Proposed GW2		Day Blvd. at Carson Beach 0506077 C-24 Tunnel 18-33 06/07/05 GW2	Day Blvd. at H St. 0506077 C-21 Tunnel 4-14 06/07/05 GW2	Day Blvd. at N St. 0506077 C-19 Tunnel 4-19 06/07/05 GW2	Field Duplicate 0506077 C-19 Tunnel 4-19 06/07/05 GW2	Day Blvd. 0506077 C-16 Tunnel 10-25 06/07/05 GW2	Day Blvd. 0506077 C-16 Shaft 10-25 06/08/05 GW2
VOLATILE PETROLEUM HYDROCARBONS (µg/L)									
C5-C8 Aliphatics (excludes BTEX and MTBE)	1,000	3,000	NL	<100	<100	<100	<100	<100	<100
C9-C12 Aliphatics	1,000	5,000	NL	<100	<100	<100	<100	<100	<100
C9-C10 Aromatics	4,000	7,000	NL	<100	<100	<100	<100	<100	<100
Targeted VPH Analytes:									
Methyl-tert-butyl ether (MTBE)	50,000	1,000	70.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	2,000	2,000	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	6,000	4,000	100 (5)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	4,000	5,000	100 (5)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
m-&p-Xylenes	6000 (8)	500 (8)	100 (5)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene	6000 (8)	500 (8)	100 (5)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	6,000	1,000	20	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
TOTAL VPH (ug/L)	NL	NL	NL	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/L)									
C9-C18 Aliphatics	1,000	5,000	NL	<100	<110	<100	<100	<110	<100
C19-C36 Aliphatics	20,000	50,000	NL	<100	<110	<100	<100	<110	<100
C11-C22 Aromatics (excludes Targeted PAH Analytes)	30,000	5,000	NL	<100	<110	<100	<100	<110	<100
Targeted PAH Analytes:									
Acenaphthene	5,000	6,000	100 (6)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Acenaphthylene	3,000	40	100 (6)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Anthracene	3,000	30	100 (6)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Benzo(a)anthracene	3,000	1,000	0.0038 (7)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Benzo(a)pyrene	3,000	500	0.0038 (7)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Benzo(b)fluoranthene	3,000	400	0.0038 (7)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Benzo(g,h,i)perylene	3,000	20	100 (6)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Benzo(k)fluoranthene	3,000	100	0.0038 (7)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Chrysene	3,000	70	0.0038 (7)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Dibenz(a,h)anthracene	3,000	40	0.0038 (7)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Fluoranthene	200	200	100 (6)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Fluorene	3,000	40	100 (6)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Indeno(1,2,3-c,d)pyrene	3,000	100	0.0038 (7)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Naphthalene	6,000	1,000	20	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Phenanthrene	50	10,000	100 (6)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
Pyrene	3,000	20	100 (6)	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
2-Methylnaphthalene	3,000	2,000	NL	<2.0	<2.2	<2.0	<2.0	<2.1	<2.1
TOTAL PAHs (ug/L)	1,000	5,000	NL	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
TOTAL EPH (ug/L)	NL	NL	NL	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
MCP METALS (ug/L) (2) (11)									
Antimony, dissolved	300	8,000	5.6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Arsenic, dissolved	400	900	36	<1.0	<1.0	1.0	<1.0	1.5	1.9
Barium, dissolved	30,000	50,000	NL	13	27	48	47	160	96
Beryllium, dissolved	50	200	NL	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium, dissolved	10	4	8.9	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium, dissolved	2,000	300	50.3 (4)	<20	<20	<20	<20	<20	<20
Lead, dissolved	30	10	8.5	<0.50	<0.50	1.9	2.1	<0.50	<0.50
Mercury, dissolved	1	20	1.1	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Nickel, dissolved	80	200	8.2	2.9	<2.0	5.9	6.2	2.4	<2.0
Selenium, dissolved	80	100	71	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Silver, dissolved	7	7	2.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Thallium, dissolved	400	3,000	NL	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vanadium, dissolved	2,000	4,000	NL	<100	<100	<100	<100	<100	<100
Zinc, dissolved	900	900	85.6	21	21	49	65	<20	<20
SULFATE (mg/L)	NL	NL	NL	270	72	1,200	1,300	<50	<50