



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
BOSTON, MA 02109-3912

CERTIFIED MAIL RETURN RECEIPT REQUESTED

OCT 03 2012

Michael Zylich
Environmental Engineer
NSTAR Electric
One Start Way
Westwood, MA 02090

Re: Authorization to discharge under the Remediation General Permit (RGP) –
MAG910000. Proposed Duct Bank Installation site located at Willoughby Street, Eastern
Avenue, Central Avenue, Marginal Street and Suffolk Street in Chelsea, MA 02150,
Suffolk County; Authorization # MAG910556

Dear Mr. Zylich:

Based on the review of a Notice of Intent (NOI) submitted on behalf of NSTAR Electric
by the firm Lightship Engineering, LLC, for the site referenced above, the U.S.
Environmental Protection Agency (EPA) hereby authorizes you, as the named Owner and
Operator, to discharge in accordance with the provisions of the RGP at that site. Your
authorization number is listed above.

The checklist enclosed with this RGP authorization indicates the pollutants which you are
required to monitor. Also indicated on the checklist are the effluent limits, test methods
and minimum levels (MLs) for each pollutant. Please note that the checklist does not
represent the complete requirements of the RGP. Operators must comply with all of the
applicable requirements of this permit, including influent and effluent monitoring,
narrative water quality standards, record keeping, and reporting requirements, found in
Parts I and II, and Appendices I – VIII of the RGP. See EPA's website for the complete
RGP and other information at: <http://www.epa.gov/region1/npdes/mass.html#dgp>.

Please note the enclosed checklist includes parameters that exceeded Appendix III limits.
The checklist also includes other parameters for which your laboratory reports indicated
there was insufficient sensitivity to detect these parameters at the minimum levels
established in Appendix VI of the RGP.

Also, please note that the metals included on the checklist are dilution dependent
pollutants and subject to limitations based on selected dilution ranges and technology-
based ceiling limitations. With the absence of dilution of freshwater into tidal water,

EPA determined that the Dilution Factor Range (DFR) for each parameter for this site is in the one and five (1-5) range. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limits for lead of 8.5 ug/l, zinc of 8.5 ug/L, and iron of 1,000 ug/L are required to achieve permit compliance at your site.

Finally, please note the checklist of pollutants attached to this authorization is subject to a recertification if the operations at the site result in a discharge lasting longer than six months. A recertification can be submitted to EPA within six (6) to twelve (12) months of operations in accordance with the 2010 RGP regulations.

This general permit and authorization to discharge will expire on September 9, 2015. You have reported that this project will terminate on November 1, 2013. If for any reason the discharge terminates sooner you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

Thank you in advance for your cooperation in this matter. Please contact Victor Alvarez at 617-918-1572 or Alvarez.Victor@epa.gov, if you have any questions.

Sincerely,



Thelma Murphy, Manager
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
Joe Foti, Chelsea DPW
Brian LaPierre, Lightship Engineering

**2010 Remediation General Permit
Summary of Monitoring Parameters^[1]**

NPDES Authorization Number:	MAG910556
Authorization Issued:	September, 2012
Facility/Site Name:	Proposed Duck Bank Installation
Facility/Site Address:	Willoughby Street, Eastern Avenue, Central Avenue, Marginal Street and Suffolk Street in Chelsea, MA 02150, Suffolk County
	Email address of owner: Michael.Zylich@NSTAR.com
Legal Name of Operator:	NSTAR Electric
Operator contact name, title, and Address:	Michael Zylick. One STAR Way, Westwood, MA 02090, North folk County
	Email: Same as the owner
Estimated date the work will be completed:	November 1, 2013
Category and Sub-Category:	Category III. Contaminated Construction Dewatering. Subcategory A and B. General Urban Fill Sites and Known Contaminated Sites, Respectively.
RGP Termination Date:	September 10, 2015
Receiving Water:	

Monitoring & Limits are applicable if checked. All samples are to be collected as grab samples

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
✓	1. Total Suspended Solids (TSS)	30 milligrams/liter (mg/L) **, 50 mg/L for hydrostatic testing **, Me#60.2/ML5ug/L
✓	2. Total Residual Chlorine (TRC) ¹	Freshwater = 11 ug/L ** Saltwater = 7.5 ug/L **/ Me#330.5/ML 20ug/L
✓	3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/L/ Me# 1664A/ML 5.0mg/L
✓	4. Cyanide (CN) ^{2, 3}	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ ML 2ug/L
	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	9. Total Benzené, Toluene, Ethyl Benzene, and Xylenes (BTEX) ⁴	100 ug/L/ Me#8260C/ ML 2ug/L
	10. Ethylene Dibromide (EDB) (1,2- Dibromoethane)	0.05 ug/l/ Me#8260C/ ML 10ug/L
	11. Methyl-tert-Butyl Ether (MtBE)	70.0 ug/l/Me#8260C/ML 10ug/L
	12.tert-Butyl Alcohol (TBA) (TertiaryButanol)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	13. tert-Amyl Methyl Ether (TAME)	Monitor Only(ug/L)/Me#8260C/ML 10ug/L
	14. Naphthalene ⁵	20 ug/L /Me#8260C/ML 2ug/L
	15. Carbon Tetrachloride	4.4 ug/L /Me#8260C/ ML 5ug/L
	16. 1,2 Dichlorobenzene (o-DCB)	600 ug/L /Me#8260C/ ML 5ug/L
	17. 1,3 Dichlorobenzene (m-DCB)	320 ug/L /Me#8260C/ ML 5ug/L
✓	18. 1,4 Dichlorobenzene (p-DCB)	5.0 ug/L /Me#8260C/ ML 5ug/L
	18a. Total dichlorobenzene	763 ug/L - NH only /Me#8260C/ ML 5ug/L
	19. 1,1 Dichloroethane (DCA)	70 ug/L /Me#8260C/ ML 5ug/L
	20. 1,2 Dichloroethane (DCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	21. 1,1 Dichloroethene (DCE)	3.2 ug/L/Me#8260C/ ML 5ug/L
	22. cis-1,2 Dichloroethene (DCE)	70 ug/L/Me#8260C/ ML 5ug/L
✓	23. Methylene Chloride	4.6 ug/L/Me#8260C/ ML 5ug/L
	24. Tetrachloroethene (PCE)	5.0 ug/L/Me#8260C/ ML 5ug/L
	25. 1,1,1 Trichloro-ethane (TCA)	200 ug/L/Me#8260C/ ML 5ug/L
	26. 1,1,2 Trichloro-ethane (TCA)	5.0 ug/L /Me#8260C/ ML 5ug/L
	27. Trichloroethene (TCE)	5.0 ug/L /Me#8260C/ ML 5ug/L
✓	28. Vinyl Chloride (Chloroethene)	2.0 ug/L /Me#8260C/ ML 5ug/L
	29. Acetone	Monitor Only(ug/L)/Me#8260C/ML 50ug/L
	30. 1,4 Dioxane	Monitor Only /Me#1624C/ML 50ug/L
✓	31. Total Phenols	300 ug/L Me#420.1&420.2/ML 2 ug/L/ Me# 420.4 /ML 50ug/L
✓	32. Pentachlorophenol (PCP)	1.0 ug/L /Me#8270D/ML 5ug/L,Me#604 &625/ML 10ug/L
✓	33. Total Phthalates (Phthalate esters) ⁶	3.0 ug/L ** /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L& Me#625/ML 5ug/L
	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/L /Me#8270D/ML 5ug/L,Me#606/ML 10ug/L & Me#625/ML 5ug/L

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L
✓	a. Benzo(a) Anthracene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	b. Benzo(a) Pyrene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	c. Benzo(b)Fluoranthene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	d. Benzo(k)Fluoranthene ⁷	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	e. Chrysene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	f. Dibenzo(a,h)anthracene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
✓	g. Indeno(1,2,3-cd) Pyrene ⁷	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	100 ug/L
✓	h. Acenaphthene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	i. Acenaphthylene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	j. Anthracene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	k. Benzo(ghi) Perylene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	l. Fluoranthene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	m. Fluorene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	n. Naphthalene ⁵	20 ug/l / Me#8270/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	o. Phenanthrene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
✓	p. Pyrene	X/Me#8270D/ML 5ug/L, Me#610/ML 5ug/L & Me#625/ML 5ug/L
	37. Total Polychlorinated Biphenyls (PCBs) ^{8,9}	0.000064 ug/L/Me# 608/ ML 0.5 ug/L
✓	38. Chloride	Monitor only/Me# 300.0/ ML 100 ug/L

<u>Metal parameter</u>	<u>Total Recoverable Metal Limit @ H ¹⁰ = 50 mg/l CaCO3 for discharges in Massachusetts (ug/l) ^{11/12}</u>	<u>Minimum level=ML</u>
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		Saltwater	
	39. Antimony	5.6/ML 10	
	40. Arsenic **	36/ML 20	
	41. Cadmium **	8.9/ML 10	
	42. Chromium III (trivalent) **	100/ML 15	
	43. Chromium VI (hexavalent) **	50.3/ML 10	
	44. Copper **	3.7/ML 15	
✓	45. Lead **	31.4/ML 20	
	46. Mercury **	1.1/ML 0.2	
	47. Nickel **	8.2/ML 20	
	48. Selenium **	71/ML 20	
	49. Silver	2.2/ML 10	
✓	50. Zinc **	316.7/ML 15	
✓	51. Iron	3,700/ML 20	

	Other Parameters	Limit
✓	52. Instantaneous Flow	Site specific in CFS
✓	53. Total Flow	Site specific in CFS
	54. pH Range for Class A & Class B Waters in MA	6.5-8.3; 1/Month/Grab ¹³
✓	55. pH Range for Class SA & Class SB Waters in MA	6.5-8.3; 1/Month/Grab ¹³
	56. pH Range for Class B Waters in NH	6.5-8; 1/Month/Grab ¹³
	57. Daily maximum temperature - Warm water fisheries	83°F; 1/Month/Grab ¹⁴
	58. Daily maximum temperature - Cold water fisheries	68°F; 1/Month/Grab ¹⁴
	59. Maximum Change in Temperature in MA - Any Class A water body	1.5°F; 1/Month/Grab ¹⁴
	60. Maximum Change in Temperature in MA - Any Class B water body- Warm Water	5°F; 1/Month/Grab ¹⁴
	61. Maximum Change in Temperature in MA - Any Class B water body - Cold water and Lakes/Ponds	3°F; 1/Month/Grab ¹⁴
	62. Maximum Change in Temperature in MA - Any Class SA water body - Coastal	1.5°F; 1/Month/Grab ¹⁴
	63. Maximum Change in Temperature in MA - Any Class SB water body - July to September	1.5°F; 1/Month/Grab ¹⁴
	64. Maximum Change in Temperature in MA -Any Class SB water body - October to June	4°F; 1/Month/Grab ¹⁴

Footnotes:

¹ Although the maximum values for TRC are 11ug/l and 7.5 ug/l for freshwater, and saltwater respectively, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., Method 330.5, 20 ug/l).

² Limits for cyanide are based on EPA's water quality criteria expressed as micrograms per liter. There is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.

³ Although the maximum values for cyanide are 5.2 ug/l and 1.0 ug/l for freshwater and saltwater, respectively, the compliance limits are equal to the minimum level (ML) of the Method 335.4 as listed in Appendix VI (i.e., 10 ug/l).

⁴ BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.

⁵ Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. If both VOC and SVOC are analyzed, the highest value must be used unless the QC criteria for one of the analyses is not met. In such cases, the value from the analysis meeting the QC criteria must be used.

⁶ The sum of individual phthalate compounds (not including the #34, Bis (2-Ethylhexyl) Phthalate). The compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.

Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measurement of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.

⁷ Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.

⁸ In the November 2002 WQC, EPA has revised the definition of Total PCBs for aquatic life as total PCBs is the sum of all homologue, all isomer, all congener, or all "Oroclor analyses." Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measure of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.

⁹ Although the maximum value for total PCBs is 0.000064 ug/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., 0.5 ug/l for Method 608 or 0.00005 ug/l when Method 1668a is approved).

¹⁰ Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.

¹¹ For a Dilution Factor (DF) from 1 to 5, metals limits are calculated using DF times the base limit for the metal. See Appendix IV. For example, iron limits are calculated using $DF \times 1,000 \text{ ug/L}$ (the iron base limit). Therefore DF is 1.5, the iron limit will be 1,500 ug/L; DF 2, then iron limit = $1,000 \times 2 = 2,000 \text{ ug/L}$, etc. not to exceed the DF=5.

¹² Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. The ML is calculated by multiplying the laboratory-determined method detection limit by 3.18 (see 40 CFR Part 136, Appendix B).

¹³ pH sampling for compliance with permit limits may be performed using field methods as provided for in EPA test Method 150.1.

¹⁴ Temperature sampling per Method 170.1



September 13, 2012

Mr. Victor Alvarez
USEPA New England
1 Congress Street, Suite 1100
Boston, Massachusetts 02114

**RE: National Pollutant Discharge Elimination System Remediation General Permit
Proposed Duct Bank Installation
Willoughby Street, Eastern Avenue, and Marginal Street
Chelsea, Massachusetts
Lightship Eng. Project No. 500.85.10**

Dear Mr. Alvarez:

On behalf of the NSTAR Electric ("NSTAR"), Lightship Engineering, LLC ("Lightship Engineering") is submitting the attached Notice of Intent ("NOI") for coverage under the National Pollutant Discharge Elimination System ("NPDES") Remediation General Permit ("RGP") associated with the proposed temporary construction-related dewatering of a trench along a limited portion of Willoughby Street, Eastern Avenue, and Marginal Street in Chelsea, Massachusetts (the "Site"). The construction activities will be conducted in an area that is less than five acres in size. The following data is attached in connection with the RGP for the Site:

- Notice of Intent Submittal Form;
- MassDEP Transmittal Form for Permit Application and Payment – X252994;
- Attachment A – Figures
 - Figure 1 – Site Locus Map
 - Figure 2 – Site Maps
 - Figure 3 – Description of Treatment System;
- Attachment B – Laboratory Analytical Data Packages;
- Attachment C – Dilution Factor Calculations;
- Attachment D – StreamStats Ungaged Site Report;
- Attachment E – Material Safety Data Sheets ("MSDS")
 - Floc Blocks
- Attachment F – Areas of Critical Environmental Concern Documentation;
- Attachment G – Remediation Activities in Vicinity of Site;



USEPA New England
September 13, 2012
Page 2 of 2

- Attachment H – Endangered and Threatened Species Documentation; and
- Attachment I – National Register of Historic Places Documentation.

A vacuum truck and/or pump will be used to transfer groundwater from the proposed trench at the location indicated on Figure 2, Attachment A. Purged groundwater will be temporary stored in two 20,000-gallon fractionation tanks and ultimately treated prior to discharge. The groundwater treatment system will be designed to treat and discharge groundwater at a maximum flow rate of 250 gallons per minute (“gpm”) and an average flow rate of 200 gpm. The groundwater will be treated with; three bag filters (5 to 25 micron), in parallel and two 2,000 pound liquid activated carbon vessels that will ultimately be discharged to a stormwater catch basins located on Eastern Avenue, and Marginal Street at the locations indicated on Figure 2, Attachment A. The catchbasin ultimately discharges to the Chelsea River. A schematic of the treatment system is provided as Figure 3, Attachment A. Flocculation blocks will be utilized in the fractionation tanks, if necessary.

The treated water will be sampled consistent with the RGP requirements from in-line influent and effluent sample ports. The samples will be submitted to a Commonwealth of Massachusetts certified analytical laboratory on a 48-hour to 72-hour turnaround time. The treatment system is expected to be operated for a period of two to four months.

Your assistance in processing this NOI is greatly appreciated. If you have any questions, please call Brian LaPierre or Michael Pierdinock at (508) 830-3344, extensions 160 and 110, respectively.

Very truly yours,

Lightship Engineering, LLC

Brian LaPierre, P.E.
Senior Project Manager

Michael Pierdinock, LSP, CHMM
Principal

Attachments

cc: Department of Environmental Protection, Division of Watershed Management
Mr. Michael Zylich, NSTAR Electric

NOTICE OF INTENT SUBMITTAL FORM

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

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

a) Name of facility/site: Willoughby Street, Eastern Avenue & Marginal Street		Facility/site mailing address:	
Location of facility/site: longitude: 42° 23' 15.83" latitude: -71° 01' 25.04"	Facility SIC code(s): N/A	Street: Willoughby Street, Eastern Avenue from Willoughby Street to Central Avenue & Marginal Street from Central Avenue to Suffolk Street - See Figure 1, Attachment A	
b) Name of facility/site owner: NSTAR Electric		Town: Chelsea	
Email address of facility/site owner: Michael.Zylich@NSTAR.com		State: MA	County: Suffolk
Telephone no. of facility/site owner: (781) 441-3804		Zip: 02150	
Fax no. of facility/site owner:		Owner is (check one): 1. Federal ☐ 2. State/Tribal ☐	
Address of owner (if different from site):		3. Private ☐ 4. Other ☒ if so, describe: Utility, Public Right-of-Way	
Street: One NSTAR Way			
Town: Westwood	State: MA	Zip: 02090	County: Norfolk
c) Legal name of operator: NSTAR Electric		Operator telephone no: (781) 441-3804	
Operator contact name and title: Michel Zylich, P.G., LSP, Environmental Engineer		Operator fax no.:	Operator email: michael.zylich@NSTAR.com
Address of operator (if different from owner):		Street: Same as Owner	
Town:	State:	Zip:	County:

d) Check Y for "yes" or N for "no" for the following: 1. Has a prior NPDES permit exclusion been granted for the discharge? Y ☐ N ☒, if Y, number: N/A 2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Y ☐ N ☒, if Y, date and tracking #: N/A 3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Y ☐ N ☒ 4. For sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) and exempt from state permitting? Y ☐ N ☒	e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y ☐ N ☒ If Y, please list: 1. site identification # assigned by the state of NH or MA: 2. permit or license # assigned: N/A 3. state agency contact information: name, location, and telephone number: MassDEP - Northeast Regional Office 205 B Lowell Street, Wilmington, Massachusetts (978) 694-3200 f) Is the site/facility covered by any other EPA permit, including: 1. Multi-Sector General Permit? Y ☐ N ☒, if Y, number: N/A 2. Final Dewatering General Permit? Y ☐ N ☒, if Y, number: N/A 3. EPA Construction General Permit? Y ☐ N ☒, if Y, number: N/A 4. Individual NPDES permit? Y ☐ N ☒, if Y, number: N/S 5. any other water quality related individual or general permit? Y ☐ N ☒, if Y, number: N/A g) Is the site/facility located within or does it discharge to an Area of Critical Environmental Concern (ACEC)? Y ☐ N ☒ h) Based on the facility/site information and any historical sampling data, identify the sub-category into which the potential discharge falls. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left;">Activity Category</th> <th style="width: 50%; text-align: left;">Activity Sub-Category</th> </tr> </thead> <tbody> <tr> <td>I - Petroleum Related Site Remediation</td> <td> A. Gasoline Only Sites ☐ B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) ☐ C. Petroleum Sites with Additional Contamination ☐ </td> </tr> <tr> <td>II - Non Petroleum Site Remediation</td> <td> A. Volatile Organic Compound (VOC) Only Sites ☐ B. VOC Sites with Additional Contamination ☐ C. Primarily Heavy Metal Sites ☐ </td> </tr> <tr> <td>III - Contaminated Construction Dewatering</td> <td> A. General Urban Fill Sites ☒ B. Known Contaminated Sites ☒ </td> </tr> </tbody> </table>	Activity Category	Activity Sub-Category	I - Petroleum Related Site Remediation	A. Gasoline Only Sites ☐ B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) ☐ C. Petroleum Sites with Additional Contamination ☐	II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites ☐ B. VOC Sites with Additional Contamination ☐ C. Primarily Heavy Metal Sites ☐	III - Contaminated Construction Dewatering	A. General Urban Fill Sites ☒ B. Known Contaminated Sites ☒
Activity Category	Activity Sub-Category								
I - Petroleum Related Site Remediation	A. Gasoline Only Sites ☐ B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) ☐ C. Petroleum Sites with Additional Contamination ☐								
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites ☐ B. VOC Sites with Additional Contamination ☐ C. Primarily Heavy Metal Sites ☐								
III - Contaminated Construction Dewatering	A. General Urban Fill Sites ☒ B. Known Contaminated Sites ☒								

IV - Miscellaneous Related Discharges	☐ A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites ☐ B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites ☐ C. Hydrostatic Testing of Pipelines and Tanks ☐ D. Long-Term Remediation of Contaminated Sumps and Dikes ☐ E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit)
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2. Discharge information. Please provide information about the discharge, (attaching additional sheets as necessary) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:

Discharge of treated groundwater generated during soil excavation activities to install new electrical conduit and manholes.

b) Provide the following information about each discharge:

1) Number of discharge points:	4 (If necessary)	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft ³ /s)?	Max. flow 0.223	Is maximum flow a design value? Y ☐ N ☒	Estimate
			Average flow (include units) 0.223 cfs		Is average flow a design value or estimate?

3) Latitude and longitude of each discharge within 100 feet:

pt.1: lat	42 23' 09.53"	long	-71 01' 34.41"	pt.2: lat	42 23' 17.76"	long	-71 01' 16.74"
pt.3: lat	42 23' 26.30"	long	-71 01' 14.43"	pt.4: lat	42 23' 40.81"	long	-71 01' 08.72"
pt.5: lat		long		pt.6: lat		long	
pt.7: lat		long		pt.8: lat		long	

4) If hydrostatic testing, total volume of the discharge (gals):

5) Is the discharge intermittent ☒ or seasonal ☐ ?
Is discharge ongoing? Y ☐ N ☒

c) Expected dates of discharge (mm/dd/yy): start 10/1/2012 end 11/1/2013

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).
See attached Figure 2 - Site Maps and Figure 3 - Proposed Treatment System

3. Contaminant information.

a) Based on the sub-category selected (see Appendix III), indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (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)
1. Total Suspended Solids (TSS)		☐	☒	6	Grab	30, 2540D	N/A	750,000		321,300	
2. Total Residual Chlorine (TRC)		☒	☐	6	Grab	30,4500CL-D	50 ug/L	ND		ND	
3. Total Petroleum Hydrocarbons (TPH)		☒	☐	6	Grab	74, 1664A	4,000 ug/L	ND		ND	
4. Cyanide (CN)	57125	☐	☒	6	Grab	30, 4500CN-1 ²	5 ug/L	16		5.3	
5. Benzene (B)	71432	☒	☐	6	Grab	1, 8260B	5 ug/L	ND		ND	
6. Toluene (T)	108883	☒	☐	6	Grab	1, 8260B	5 ug/L	ND		ND	
7. Ethylbenzene (E)	100414	☒	☐	6	Grab	1, 8260B	5 ug/L	ND		ND	
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	☒	☐	6	Grab	1, 8260B	10 ug/L	ND		ND	
9. Total BTEX ²	n/a	☒	☐	6	Grab	1, 8260B	25 ug/L	ND		ND	
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) ³	106934	☒	☐	6	Grab	1, 8260B	0.019 ug/L	ND		ND	
11. Methyl-tert-Butyl Ether (MTBE)	1634044	☒	☐	6	Grab	1, 8260B	100 ug/L	ND		ND	
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	☒	☐	6	Grab	1, 8260B	500 ug/L	ND		ND	

* Numbering system is provided to allow cross-referencing to Effluent Limits and Monitoring Requirements by Sub-Category included in Appendix III, as well as the Test Methods and Minimum Levels associated with each parameter provided in Appendix VI.

² BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

³ EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
13. tert-Amyl Methyl Ether (TAME)	9940508	☒	☐	6	Grab	ND	100 ug/L	ND		ND	
14. Naphthalene	91203	☒	☐	6	Grab	1, 8260B	5 ug/L	ND		ND	
15. Carbon Tetrachloride	56235	☒	☐	6	Grab	1, 8260B	5 ug/L	ND		ND	
16. 1,2 Dichlorobenzene (o-DCB)	95501	☒	☐	6	Grab	1, 8260B	25 ug/L	ND		ND	
17. 1,3 Dichlorobenzene (m-DCB)	541731	☒	☐	6	Grab	1, 8260B	25 ug/L	ND		ND	
18. 1,4 Dichlorobenzene (p-DCB)	106467	☒	☐	6	Grab	1, 8260B	25 ug/L	ND		ND	
18a. Total dichlorobenzene		☒	☐	6	Grab	1, 8260B	75 ug/L	ND		ND	
19. 1,1 Dichloroethane (DCA)	75343	☒	☐	6	Grab	1, 8260B	7.5 ug/L	ND		ND	
20. 1,2 Dichloroethane (DCA)	107062	☒	☐	6	Grab	1, 8260B	7.5 ug/L	ND		ND	
21. 1,1 Dichloroethene (DCE)	75354	☒	☐	6	Grab	1, 8260B	5 ug/L	ND		ND	
22. cis-1,2 Dichloroethene (DCE)	156592	☒	☐	6	Grab	1, 8260B	5 ug/L	ND		ND	
23. Methylene Chloride	75092	☒	☐	6	Grab	1, 8260B	25 ug/L	ND		ND	
24. Tetrachloroethene (PCE)	127184	☒	☐	6	Grab	1, 8260B	7.5 ug/L	ND		ND	
25. 1,1,1 Trichloro-ethane (TCA)	71556	☒	☐	6	Grab	1, 8260B	10 ug/L	ND		ND	
26. 1,1,2 Trichloro-ethane (TCA)	79005	☒	☐	6	Grab	1, 8260B	7.5 ug/L	ND		ND	
27. Trichloroethene (TCE)	79016	☒	☐	6	Grab	1, 8260B	5 ug/L	ND		ND	

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (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)
28. Vinyl Chloride (Chloroethene)	75014	☒	☐	6	Grab	1, 8260B	10 ug/L	ND		ND	
29. Acetone	67641	☒	☐	6	Grab	1, 8260B	50 ug/L	ND		ND	
30. 1,4 Dioxane	123911	☒	☐	6	Grab	1, 8260B	1,000 ug/L	ND		ND	
31. Total Phenols	108952	☐	☒	6	Grab	1, 8270C-SIM	30 ug/L	130		24.2	
32. Pentachlorophenol (PCP)	87865	☒	☐	6	Grab	1, 8270C-SIM	20 ug/L	ND		ND	
33. Total Phthalates (Phthalate esters) ⁴		☒	☐	6	Grab	1, 8270C-SIM	35 ug/L	ND		ND	
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	☒	☐	6	Grab	1, 8270C-SIM	10 ug/L	ND		ND	
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		☐	☒	6	Grab	1, 8270C-SIM	1.4 ug/L	2.7		0.648	
a. Benzo(a) Anthracene	56553	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	2.7		0.817	
b. Benzo(a) Pyrene	50328	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	1.9		0.627	
c. Benzo(b)Fluoranthene	205992	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	2.7		0.833	
d. Benzo(k)Fluoranthene	207089	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	1.3		0.85	
e. Chrysene	21801	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	2.6		0.843	
f. Dibenzo(a,h)anthracene	53703	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	0.39		0.127	
g. Indeno(1,2,3-cd) Pyrene	193395	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	1.4		0.437	
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		☐	☒	6	Grab	1, 8270M	1.8 ug/L	14		1.78	

⁴ The sum of individual phthalate compounds.

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (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)
h. Acenaphthene	83329	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	8		1.632	
i. Acenaphthylene	208968	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	0.7		0.23	
j. Anthracene	120127	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	5.2		1.235	
k. Benzo(ghi) Perylene	191242	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	0.83		0.388	
l. Fluoranthene	206440	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	11		3.162	
m. Fluorene	86737	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	7.9		1.608	
n. Naphthalene	91203	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	9.6		1.88	
o. Phenanthrene	85018	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	14		3.135	
p. Pyrene	129000	☐	☒	6	Grab	1, 8270C-SIM	0.2 ug/L	9.5		2.757	
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	☒	☐	6	Grab	5, 608	0.255 ug/L	ND		ND	
38. Chloride	16887006	☐	☐	6	Grab	44, 300.0					
39. Antimony	7440360	☒	☐	6	Grab	1, 6020	5 ug/L	ND		ND	
40. Arsenic	7440382	☒	☐	6	Grab	1, 6020	5 ug/L	ND		ND	
41. Cadmium	7440439	☒	☐	6	Grab	1, 6020	0.2 ug/L	ND		ND	
42. Chromium III (trivalent)	16065831	☒	☐	6	Grab	1, 6020	10 ug/L	ND		ND	
43. Chromium VI (hexavalent)	18540299	☒	☐	6	Grab	30, 3500CR-D	20 ug/L	ND		ND	
44. Copper	7440508	☐	☐	6	Grab	1, 6020		ND		ND	
45. Lead	7439921	☒	☐	6	Grab	1, 6020	15 ug/L	ND		ND	
46. Mercury	7439976	☒	☐	6	Grab	3, 245.1	0.2 ug/L	ND		ND	
47. Nickel	7440020	☒	☐	6	Grab	1, 6020	25 ug/L	ND		ND	
48. Selenium	7782492	☒	☐	6	Grab	1, 6020	5 ug/L	ND		ND	
49. Silver	7440224	☒	☐	6	Grab	1, 6020	0.4 ug/L	ND		ND	
50. Zinc	7440666	☒	☐	6	Grab	1, 6020	50 ug/L	ND		ND	
51. Iron	7439896	☐	☒	6	Grab	19, 200.7	50 ug/L	3,200		1,142.5	
Other (describe):		☐	☐								

Parameter *	CAS Number	Believed Absent	Believed Present	# of Samples	Sample Type (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)
		☐	☐								
		☐	☐								

b) For discharges where **metals** are believed present, please fill out the following (attach results of any calculations):

<i>Step 1:</i> Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y ☒ N ☐		If yes, which metals? Iron
<i>Step 2:</i> For any metals which 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? Metal: Iron DF: 1.369 Metal: DF: Metal: DF: Metal: DF: Etc.		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 Y, list which metals: Iron

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: See Attached Figure 3 - Proposed Treatment System.																	
b) Identify each applicable treatment unit (check all that apply): <table border="1"> <tr> <td>Frac. tank ☒</td> <td>Air stripper ☐</td> <td>Oil/water separator ☐</td> <td>Equalization tanks ☒</td> <td>Bag filter ☒</td> <td>GAC filter ☒</td> </tr> <tr> <td>Chlorination ☐</td> <td>De-chlorination ☐</td> <td>Other (please describe):</td> <td colspan="3">Floculation Blocks (If Necessary)</td> </tr> </table>						Frac. tank ☒	Air stripper ☐	Oil/water separator ☐	Equalization tanks ☒	Bag filter ☒	GAC filter ☒	Chlorination ☐	De-chlorination ☐	Other (please describe):	Floculation Blocks (If Necessary)		
Frac. tank ☒	Air stripper ☐	Oil/water separator ☐	Equalization tanks ☒	Bag filter ☒	GAC filter ☒												
Chlorination ☐	De-chlorination ☐	Other (please describe):	Floculation Blocks (If Necessary)														

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 gpm Maximum flow rate of treatment system gpm
Design flow rate of treatment system gpm

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):

Floc Blocks - See Attachment E for MSDS.

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

a) Identify the discharge pathway:	Direct to receiving water ☐	Within facility (sewer) ☐	Storm drain ☒	Wetlands ☐	Other (describe):
------------------------------------	--	--	---	-----------------------------------	--

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:
Treated water will be transferred through 4" diameter hose to a municipal storm drain on Marginal Street, Eastern Avenue, or Willoughby Street that ultimately discharges to the Chelsea River.

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 discharges, 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? Y ☒ N ☐ If yes, for which pollutant(s)?
Ammonia, Trash, Organic Enrichment/ Oxygen Depletion, Pathogens, Oil and Grease, PCBs, Taste/ Color/ Odor, Turbidity.

Is there a final TMDL? Y ☐ N ☒ If yes, for which pollutant(s)?

6. ESA and NHPA Eligibility.

Please provide the following information according to requirements of Permit Parts I.A.4 and I.A.5 Appendices II and VII.

- a) Using the instructions in Appendix VII and information on Appendix II, under which criterion listed in Part I.C are you eligible for coverage under this general permit?
A ☒ B ☐ C ☐ D ☐ E ☐ F ☐
- b) If you selected Criterion D or F, has consultation with the federal services been completed? Y ☐ N ☐ Underway ☐
- c) If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received? Y ☐ N ☐
- d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4.
- e) Using the instructions in Appendix VII, under which criterion listed in Part II.C are you eligible for coverage under this general permit?
1 ☒ 2 ☐ 3 ☐
- f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.

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.

Analytical Laboratory Data Reports dated November 29, 2005 and November 30, 2005 from groundwater samples taken from temporary monitoring wells. See ☐ Attachment B.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 C.F.R. 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:	Eastern Avenue & Marginal Street
Operator signature:	
Printed Name & Title:	Michael Zylich, P.G., LSP, Environmental Engineer
Date:	9/13/2012

TRANSMITTAL FORM FOR PERMIT APPLICATION AND PAYMENT – X252994



Enter your transmittal number

X242994

Transmittal Number

Your unique Transmittal Number can be accessed online: <http://mass.gov/dep/service/online/trasmfrm.shtml>**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:

MassDEP
P.O. Box 4062
Boston, MA
02211

* Note:
For BWSC Permits,
enter the LSP.

A. Permit Information

BRPWM12

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

Contaminated Construction Dewatering

3. Type of Project or Activity

Remediation/Miscellaneous Contaminated Sites

2. Name of Permit Category

B. Applicant Information – Firm or Individual

NSTAR Electric

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

2. Last Name of Individual

One NSTAR Way

5. Street Address

Westwood

6. City/Town

Michael Zylich

11. Contact Person

3. First Name of Individual

MA
7. State

02090

8. Zip Code

Michael.Zylich@NSTAR.com

12. e-mail address (optional)

(781) 441-3804

9. Telephone #

4. MI

10. Ext. #

C. Facility, Site or Individual Requiring Approval

Proposed Duct Bank Installation

1. Name of Facility, Site Or Individual

Eastern Avenue

2. Street Address

Chelsea

3. City/Town

MA
4. State

02150

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)*

Lightship Engineering, LLC

1. Name of Firm Or Individual

39 Industrial Park Road, Unit C

2. Address

Plymouth

3. City/Town

Brian LaPierre, P.E.

8. Contact Person

MA
4. State

02360

5. Zip Code

(508) 830-3344

6. Telephone #

160

7. Ext. #

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 EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due**Special Provisions:**

1. ☐ 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.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

12777

Check Number

\$775.00

Dollar Amount

9/14/2012

Date

ATTACHMENT A

Figures

Figure 1 – Site Locus Map

Figure 2 – Site Maps

Figure 3 – Proposed Treatment System



UTM COORDINATES

(NAD83):

4,695,617 m North

333,633 m East

SCALE: 1 inch ~ 2,350 feet

PREPARED FOR

NSTAR Electric & Gas
One NSTAR Way, SE-250
Westwood, Massachusetts 02090

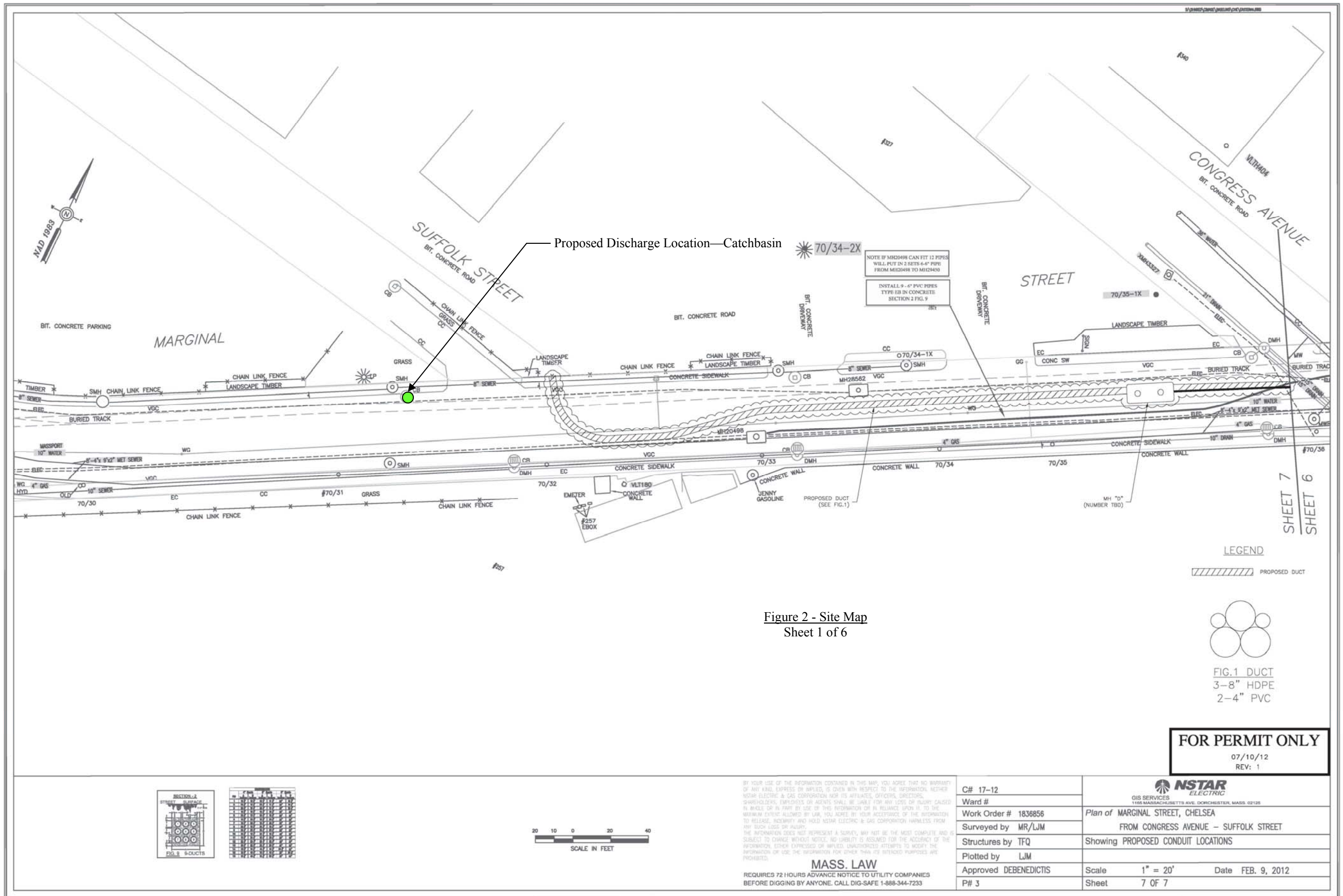
PROJECT

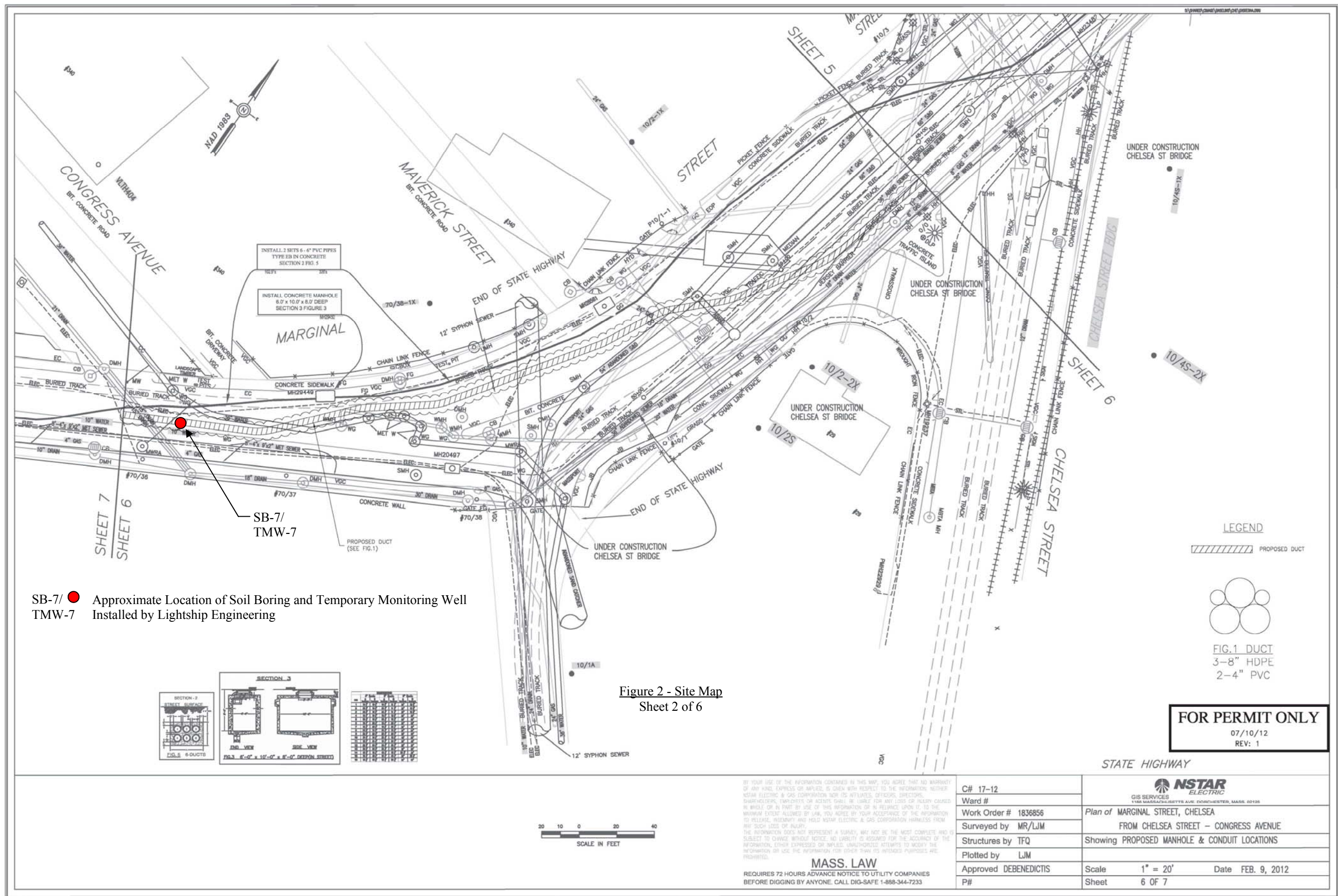
Proposed Duct Bank Installation
Eastern Avenue
Chelsea, Massachusetts 02150

FIGURE 1 Site Locus Map

LIGHTSHIP
ENGINEERING
ENVIRONMENTAL & LAND-USE
CONSULTANTS







SB-7/ ● Approximate Location of Soil Boring and Temporary Monitoring Well
TMW-7 Installed by Lightship Engineering

Figure 2 - Site Map
Sheet 2 of 6

FOR PERMIT ONLY
07/10/12
REV: 1

BY YOUR USE OF THE INFORMATION CONTAINED IN THIS MAP, YOU AGREE THAT NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, IS GIVEN WITH RESPECT TO THE INFORMATION. NEITHER NSTAR ELECTRIC & GAS CORPORATION NOR ITS AFFILIATES, OFFICERS, DIRECTORS, SHAREHOLDERS, EMPLOYEES OR AGENTS SHALL BE LIABLE FOR ANY LOSS OR INJURY CAUSED, IN WHOLE OR IN PART BY USE OF THIS INFORMATION OR IN RELIANCE UPON IT, TO THE MAXIMUM EXTENT ALLOWED BY LAW. YOU AGREE BY YOUR ACCEPTANCE OF THE INFORMATION TO RELEASE, INDEMNIFY AND HOLD NSTAR ELECTRIC & GAS CORPORATION HARMLESS FROM ANY SUCH LOSS OR INJURY. THE INFORMATION DOES NOT REPRESENT A SURVEY, MAY NOT BE THE MOST COMPLETE AND IS SUBJECT TO CHANGE WITHOUT NOTICE. NO LIABILITY IS ASSIGNED FOR THE ACCURACY OF THE INFORMATION, EITHER EXPRESSED OR IMPLIED. UNAUTHORIZED ATTEMPTS TO MODIFY THE INFORMATION OR USE THE INFORMATION FOR OTHER THAN ITS INTENDED PURPOSES ARE PROHIBITED.

MASS. LAW
REQUIRES 72 HOURS ADVANCE NOTICE TO UTILITY COMPANIES BEFORE DIGGING BY ANYONE. CALL DIG-SAFE 1-888-344-7233

C# 17-12	
Ward #	
Work Order # 1836856	Plan of MARGINAL STREET, CHELSEA
Surveyed by MR/LJM	FROM CHELSEA STREET - CONGRESS AVENUE
Structures by TFQ	Showing PROPOSED MANHOLE & CONDUIT LOCATIONS
Plotted by LJM	
Approved DEBENEDICTIS	Scale 1" = 20' Date FEB. 9, 2012
P#	Sheet 6 OF 7

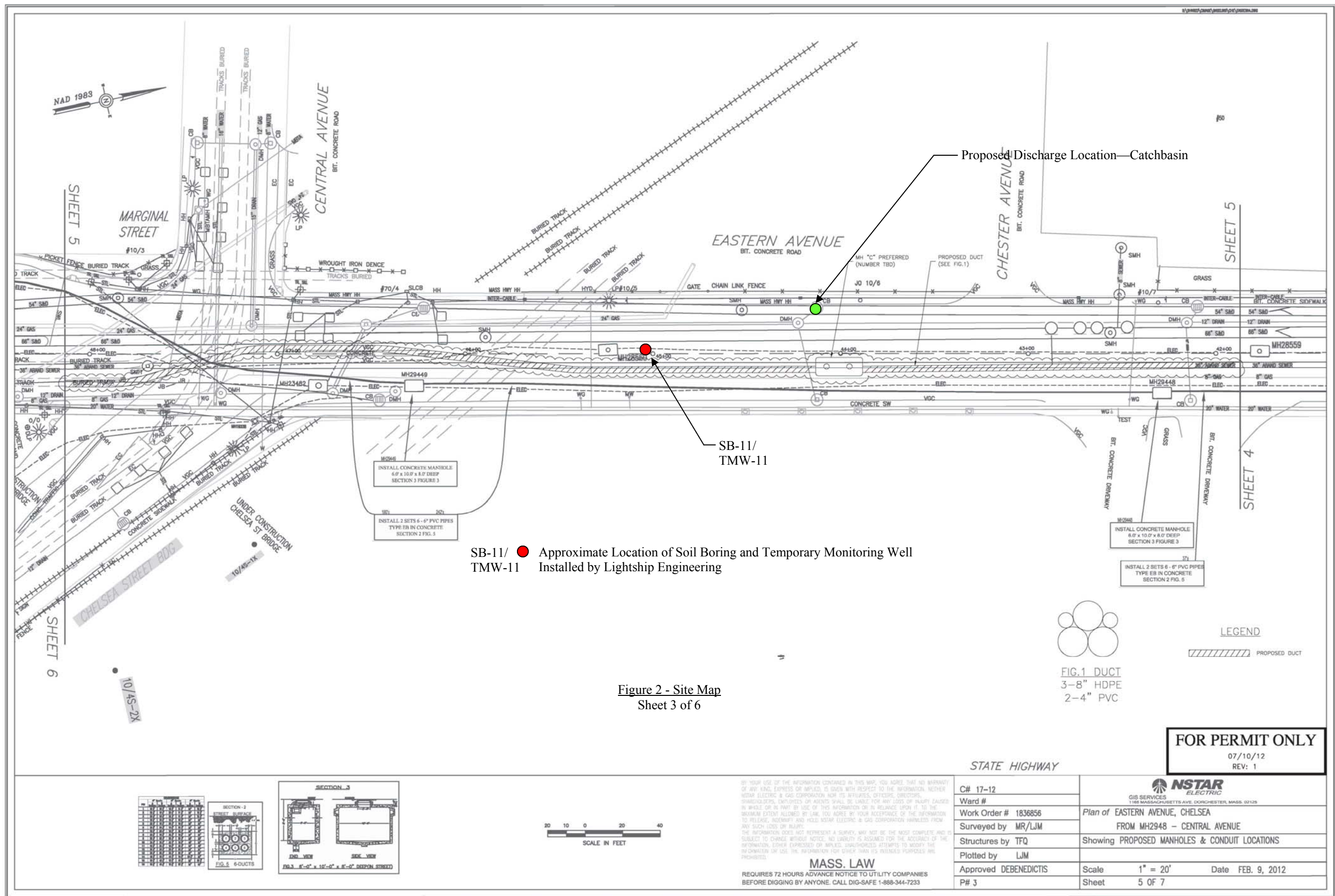
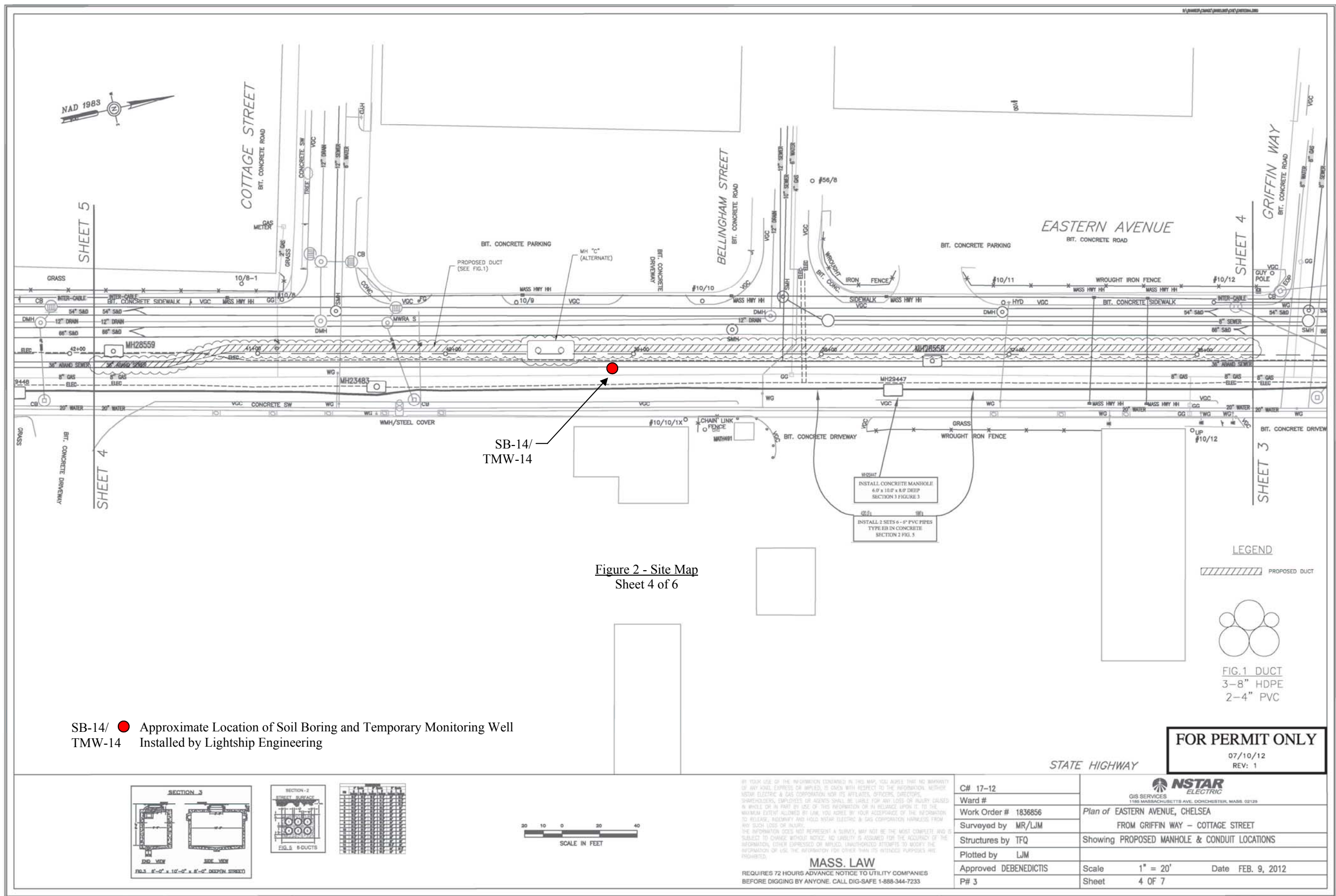
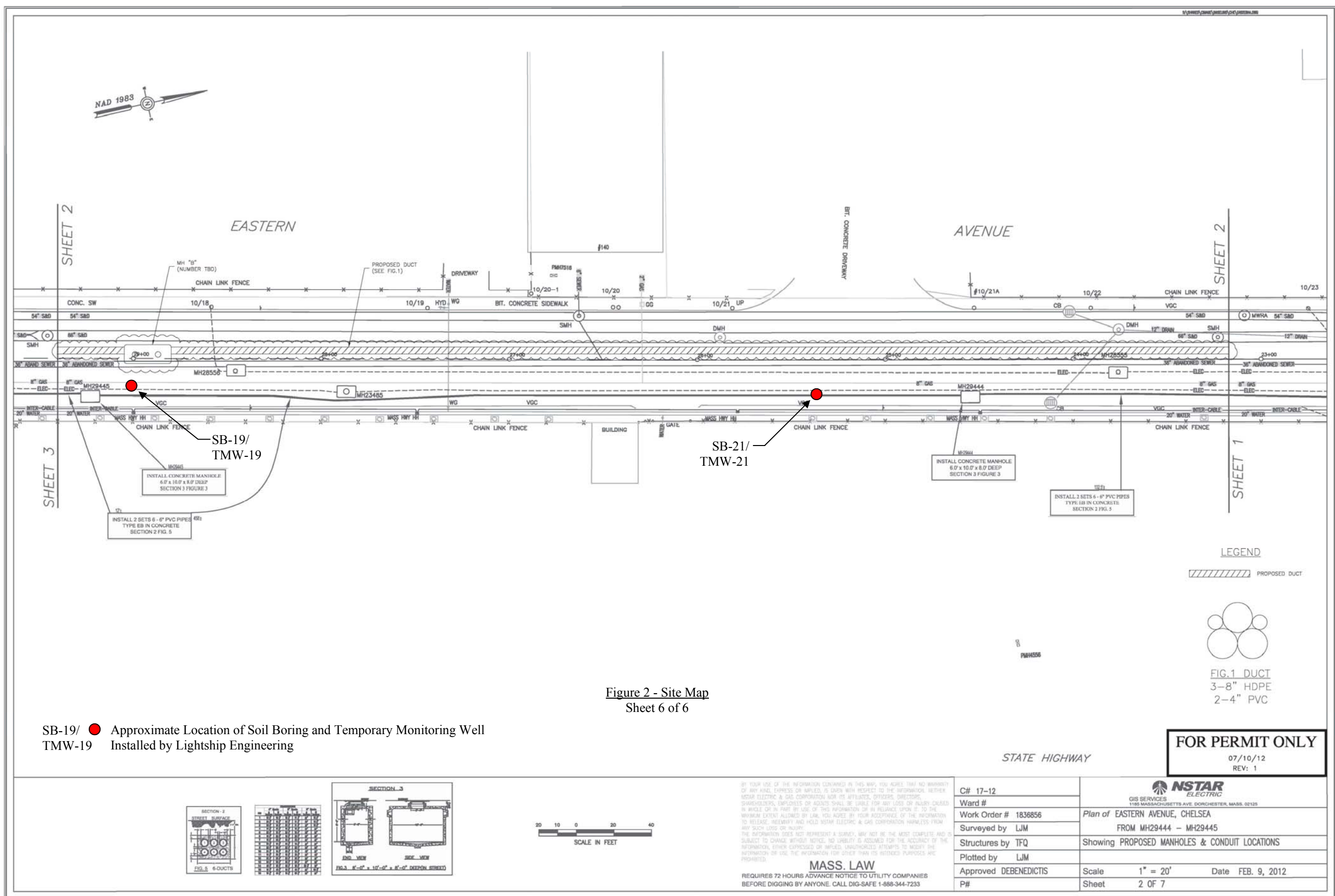


Figure 2 - Site Map
Sheet 3 of 6





ATTACHMENT B

Laboratory Analytical Data Packages

Samples: SB-7/ (TMW-7) – November 29, 2005
 SB-11/ (TMW-11) – November 29, 2005
 SB-14/ (TMW-14) – November 29, 2005
 SB-17/ (TMW-17) – November 29, 2005
 SB-19/ (TMW-19) – November 30, 2005
 SB-21/ (TMW-21) – November 30, 2005

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alpha-lab.com

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: Lightship Engineering

Laboratory Job Number: L0514542

Address: 36 Cordage Park Circle
Suite 312
Plymouth, MA 02360

Date Received: 30-NOV-2005

Attn: Ms. Tara Walsh

Date Reported: 08-DEC-2005

Project Number: 500.66

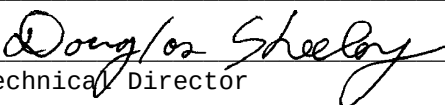
Delivery Method: Alpha

Site: MARGINAL/EASTERN

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0514542-01	SB-2/ (TMW-2)	NSTAR
L0514542-02	SB-7/ (TMW-7)	NSTAR
L0514542-03	SB-11/ (TMW-11)	NSTAR
L0514542-04	SB-14/ (TMW-14)	NSTAR
L0514542-05	SB-17/ (TMW-17)	NSTAR
L0514542-06	SB-19/ (TMW-19)	NSTAR
L0514542-07	SB-21/ (TMW-21)	NSTAR

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by:


Technical Director

**ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT**

Laboratory Job Number: L0514542

Volatile Organics

The following have elevated limits of detection due to analytical dilutions required by the matrix of the samples:

L0514542-01 to 07 (5X)

Semi-Volatile Organics 8270

Re-analysis on dilution was required in order to quantitate the sample within the range of the calibration. The result is reported as a greater than value for the compound that exceeded the calibration on the initial analysis. The re-analysis was performed only for the compound which exceeded the range of the calibration. The dilution is as follows:

L0514542-01 (5X)

The WG222490 LCS has a high % recovery for 2,4-Dinitrotoluene.

The WG223032 LCS has a high % recovery for Pentachlorophenol.

The WG223032 MSD has a high % recovery for Pentachlorophenol.

PAH-LOW

L0514542-01 has elevated limits of detection due to the 25x dilutions required by the elevated concentrations of target compounds in the sample.

Metals

L0514542-01 has an elevated limit of detection for Total Pb due to the 2X dilution required to quantitate the samples within the calibration curve.

L0514542-02 has an elevated limits of detection for Soluble Pb due to the 2X dilution performed because of the sample matrix.

L0514542-02 has an elevated limits of detection for Total Pb due to the 3X dilution performed because of the sample matrix.

L0514542-02 has an elevated limit of detection for soluble Ag due to the 2X dilution performed because of the sample matrix.

L0514542-02 has an elevated limit of detection for total Ag due to the 2X dilution performed because of the sample matrix.

L0514542-03 has an elevated limits of detection for Soluble Pb due to the 15X dilution performed because of the sample matrix.

L0514542-03 has an elevated limit of detection for soluble Ag due to the 2X dilution performed because of the sample matrix.

L0514542-05 has an elevated limit of detection for total Pb due to the 2X dilution required to quantitate the samples within the calibration curve.

ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT

Laboratory Job Number: L0514542

Continued

Pesticides

L0514554-02 has elevated limits of detection due to the 5x dilutions required by the elevated concentrations of target compounds in the sample.

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0514542-01	Date Collected: 29-NOV-2005 15:00
Sample Matrix: SB-2/ (TMW-2)	Date Received : 30-NOV-2005
Condition of Sample: Satisfactory	Date Reported : 08-DEC-2005
Field Prep: Field Filtered	
Number & Type of Containers: 10-Amber,5-Plastic,4-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Solids, Total Suspended	310	mg/l	15.	4 160.2		1205 15:30	DT
Cyanide, Total	0.008	mg/l	0.005	4 335.2	1203 12:40	1205 17:09	DD
Chlorine, Total Residual	ND	mg/l	0.05	4 330.1		1130 21:05	DP
TPH	6.95	mg/l	4.40	74 1664A	1205 11:30	1206 08:30	AT
Phenolics, Total	0.27	mg/l	0.06	4 420.1		1207 09:00	AT
Chromium, Hexavalent	ND	mg/l	0.02	30 3500CR-D	1130 19:00	1130 19:00	HS
Total Metals				19 200.7			
Antimony, Total	0.006	mg/l	0.005	3 200.9	1201 13:30	1205 13:13	PY
Arsenic, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:39	MG
Cadmium, Total	0.0016	mg/l	0.0002	4 213.2	1201 13:30	1205 18:03	PY
Chromium, Total	0.05	mg/l	0.01	19 200.7	1201 13:30	1202 12:39	MG
Iron, Total	5.2	mg/l	0.05	19 200.7	1201 13:30	1202 12:39	MG
Lead, Total	0.053	mg/l	0.002	3 200.9	1201 13:30	1207 11:59	PY
Mercury, Total	ND	mg/l	0.0002	4 245.2	1201 16:50	1202 14:36	DM
Nickel, Total	ND	mg/l	0.025	19 200.7	1201 13:30	1202 12:39	MG
Selenium, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:39	MG
Silver, Total	ND	mg/l	0.0002	4 272.2	1201 13:30	1206 20:08	PY
Zinc, Total	0.238	mg/l	0.050	19 200.7	1201 13:30	1202 12:39	MG
Dissolved Metals							
Antimony, Dissolved	ND	mg/l	0.005	4 204.2	1201 13:30	1205 11:45	PY
Arsenic, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 11:30	MG
Cadmium, Dissolved	0.0010	mg/l	0.0002	4 213.2	1201 13:30	1205 16:47	PY
Chromium, Dissolved	0.03	mg/l	0.01	19 200.7	1201 13:30	1202 11:30	MG
Iron, Dissolved	ND	mg/l	0.05	19 200.7	1201 13:30	1202 11:30	MG
Lead, Dissolved	ND	mg/l	0.001	4 239.2	1201 13:30	1206 22:42	PY
Mercury, Dissolved	ND	mg/l	0.0002	3 245.1	1201 16:50	1202 14:12	DM
Nickel, Dissolved	ND	mg/l	0.025	19 200.7	1201 13:30	1202 11:30	MG
Selenium, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 11:30	MG
Silver, Dissolved	ND	mg/l	0.0002	4 272.2	1201 13:30	1206 14:04	PY
Zinc, Dissolved	0.107	mg/l	0.050	19 200.7	1201 13:30	1202 11:30	MG

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-01
SB-2/ (TMW-2)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Pesticides by GC 504				14 504.1	1206 15:00	1206 17:57	JB
1,2-Dibromoethane	ND	ug/l	0.020				
1,2-Dibromo-3-chloropropane	ND	ug/l	0.020				
Volatile Organics by GC/MS 624				5 624		1202 10:32	MM
Methylene chloride	ND	ug/l	25.				
1,1-Dichloroethane	ND	ug/l	7.5				
Chloroform	ND	ug/l	7.5				
Carbon tetrachloride	ND	ug/l	5.0				
1,2-Dichloropropane	ND	ug/l	18.				
Dibromochloromethane	ND	ug/l	5.0				
1,1,2-Trichloroethane	ND	ug/l	7.5				
2-Chloroethylvinyl ether	ND	ug/l	50.				
Tetrachloroethene	ND	ug/l	7.5				
Chlorobenzene	ND	ug/l	18.				
Trichlorofluoromethane	ND	ug/l	25.				
1,2-Dichloroethane	ND	ug/l	7.5				
1,1,1-Trichloroethane	ND	ug/l	10.				
Bromodichloromethane	ND	ug/l	5.0				
trans-1,3-Dichloropropene	ND	ug/l	7.5				
cis-1,3-Dichloropropene	ND	ug/l	7.5				
Bromoform	ND	ug/l	5.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0				
Benzene	ND	ug/l	5.0				
Toluene	ND	ug/l	5.0				
Ethylbenzene	ND	ug/l	5.0				
Chloromethane	ND	ug/l	50.				
Bromomethane	ND	ug/l	25.				
Vinyl chloride	ND	ug/l	10.				
Chloroethane	ND	ug/l	10.				
1,1-Dichloroethene	ND	ug/l	5.0				
trans-1,2-Dichloroethene	ND	ug/l	7.5				
cis-1,2-Dichloroethene	ND	ug/l	5.0				
Trichloroethene	ND	ug/l	5.0				
1,2-Dichlorobenzene	ND	ug/l	25.				
1,3-Dichlorobenzene	ND	ug/l	25.				
1,4-Dichlorobenzene	ND	ug/l	25.				
p/m-Xylene	ND	ug/l	10.				
o-xylene	ND	ug/l	5.0				
Xylene (Total)	ND	ug/l	10.				
Styrene	ND	ug/l	5.0				
Acetone	ND	ug/l	50.				
Carbon disulfide	ND	ug/l	25.				
2-Butanone	ND	ug/l	50.				
Vinyl acetate	ND	ug/l	100				
4-Methyl-2-pentanone	ND	ug/l	50.				
2-Hexanone	ND	ug/l	50.				
Acrolein	ND	ug/l	40.				
Acrylonitrile	ND	ug/l	50.				
Methyl tert butyl ether	ND	ug/l	100				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-01
SB-2/ (TMW-2)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624	1202 10:32 MM	
1,4-Dioxane	ND	ug/l	10000			
Tert-Butyl Alcohol	ND	ug/l	500			
Tertiary-Amyl Methyl Ether	ND	ug/l	100			
Surrogate(s)	Recovery		QC Criteria			
Pentafluorobenzene	105.	%	80-120			
Fluorobenzene	105.	%	80-120			
4-Bromofluorobenzene	106.	%	80-120			
SVOC's by GC/MS 8270				1 8270C	1201 11:00 1203 03:07 RL	
Acenaphthene	71.	ug/l	5.0			
Benzidine	ND	ug/l	50.			
1,2,4-Trichlorobenzene	ND	ug/l	5.0			
Hexachlorobenzene	ND	ug/l	5.0			
Bis(2-chloroethyl)ether	ND	ug/l	5.0			
1-Chloronaphthalene	ND	ug/l	5.0			
2-Chloronaphthalene	ND	ug/l	6.0			
1,2-Dichlorobenzene	ND	ug/l	5.0			
1,3-Dichlorobenzene	ND	ug/l	5.0			
1,4-Dichlorobenzene	ND	ug/l	5.0			
3,3'-Dichlorobenzidine	ND	ug/l	50.			
2,4-Dinitrotoluene	ND	ug/l	6.0			
2,6-Dinitrotoluene	ND	ug/l	5.0			
Azobenzene	ND	ug/l	5.0			
Fluoranthene	8.4	ug/l	5.0			
4-Chlorophenyl phenyl ether	ND	ug/l	5.0			
4-Bromophenyl phenyl ether	ND	ug/l	5.0			
Bis(2-chloroisopropyl)ether	ND	ug/l	5.0			
Bis(2-chloroethoxy)methane	ND	ug/l	5.0			
Hexachlorobutadiene	ND	ug/l	10.			
Hexachlorocyclopentadiene	ND	ug/l	10.			
Hexachloroethane	ND	ug/l	5.0			
Isophorone	ND	ug/l	5.0			
Naphthalene	>200	ug/l	5			
Nitrobenzene	ND	ug/l	5.0			
NDPA/DPA	ND	ug/l	15.			
n-Nitrosodi-n-propylamine	ND	ug/l	5.0			
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.			
Butyl benzyl phthalate	ND	ug/l	5.0			
Di-n-butylphthalate	ND	ug/l	5.0			
Di-n-octylphthalate	6.0	ug/l	5.0			
Diethyl phthalate	ND	ug/l	5.0			
Dimethyl phthalate	ND	ug/l	5.0			
Benzo(a)anthracene	ND	ug/l	5.0			
Benzo(a)pyrene	ND	ug/l	5.0			
Benzo(b)fluoranthene	ND	ug/l	5.0			
Benzo(k)fluoranthene	ND	ug/l	5.0			
Chrysene	ND	ug/l	5.0			
Acenaphthylene	ND	ug/l	5.0			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-01
SB-2/ (TMW-2)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd				1	8270C	1201 11:00	1203 03:07 RL
Anthracene	11.	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	38.	ug/l	5.0				
Phenanthrene	57.	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)pyrene	ND	ug/l	7.0				
Pyrene	8.5	ug/l	5.0				
Benzo(e)pyrene	ND	ug/l	5.0				
Biphenyl	ND	ug/l	5.0				
Perylene	ND	ug/l	5.0				
Aniline	ND	ug/l	10.				
4-Chloroaniline	ND	ug/l	5.0				
1-Methylnaphthalene	170	ug/l	5.0				
2-Nitroaniline	ND	ug/l	5.0				
3-Nitroaniline	ND	ug/l	5.0				
4-Nitroaniline	ND	ug/l	7.0				
Dibenzofuran	14.	ug/l	5.0				
a,a-Dimethylphenethylamine	ND	ug/l	50.				
Hexachloropropene	ND	ug/l	10.				
Nitrosodi-n-butylamine	ND	ug/l	10.				
2-Methylnaphthalene	150	ug/l	5.0				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	20.				
Pentachlorobenzene	ND	ug/l	20.				
a-Naphthylamine	ND	ug/l	20.				
b-Naphthylamine	ND	ug/l	20.				
Phenacetin	ND	ug/l	10.				
Dimethoate	ND	ug/l	20.				
4-Aminobiphenyl	ND	ug/l	10.				
Pentachloronitrobenzene	ND	ug/l	10.				
Isodrin	ND	ug/l	10.				
p-Dimethylaminoazobenzene	ND	ug/l	10.				
Chlorobenzilate	ND	ug/l	20.				
3-Methylcholanthrene	ND	ug/l	20.				
Ethyl Methanesulfonate	ND	ug/l	15.				
Acetophenone	ND	ug/l	20.				
Nitrosodipiperidine	ND	ug/l	20.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	10.				
n-Nitrosodimethylamine	ND	ug/l	50.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
p-Chloro-m-cresol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	10.				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	20.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	20.				
Phenol	ND	ug/l	7.0				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-01
SB-2/ (TMW-2)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
SVOC's by GC/MS 8270 cont'd				1 8270C	1201 11:00 1203 03:07 RL	
2-Methylphenol	ND	ug/l	6.0			
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0			
2,4,5-Trichlorophenol	ND	ug/l	5.0			
2,6-Dichlorophenol	ND	ug/l	10.			
Benzoic Acid	ND	ug/l	50.			
Benzyl Alcohol	ND	ug/l	10.			
Carbazole	ND	ug/l	5.0			
Pyridine	ND	ug/l	50.			
2-Picoline	ND	ug/l	20.			
Pronamide	ND	ug/l	20.			
Methyl methanesulfonate	ND	ug/l	20.			
Surrogate(s)	Recovery		QC Criteria			
2-Fluorophenol	40.0	%	21-120			
Phenol-d6	33.0	%	10-120			
Nitrobenzene-d5	79.0	%	23-120			
2-Fluorobiphenyl	78.0	%	43-120			
2,4,6-Tribromophenol	102.	%	10-120			
4-Terphenyl-d14	90.0	%	33-120			
SVOC's by GC/MS 8270				1 8270C	1201 11:00 1203 11:53 RL	
Naphthalene	420	ug/l	25.			
PAH by GC/MS SIM 8270M				1 8270C-M	1201 11:00 1206 11:29 RL	
Acenaphthene	78.	ug/l	5.0			
2-Chloronaphthalene	ND	ug/l	5.0			
Fluoranthene	11.	ug/l	5.0			
Hexachlorobutadiene	ND	ug/l	12.			
Naphthalene	450	ug/l	5.0			
Benzo(a)anthracene	ND	ug/l	5.0			
Benzo(a)pyrene	ND	ug/l	5.0			
Benzo(b)fluoranthene	ND	ug/l	5.0			
Benzo(k)fluoranthene	ND	ug/l	5.0			
Chrysene	ND	ug/l	5.0			
Acenaphthylene	ND	ug/l	5.0			
Anthracene	12.	ug/l	5.0			
Benzo(ghi)perylene	ND	ug/l	5.0			
Fluorene	45.	ug/l	5.0			
Phenanthrene	64.	ug/l	5.0			
Dibenzo(a,h)anthracene	ND	ug/l	5.0			
Indeno(1,2,3-cd)Pyrene	ND	ug/l	5.0			
Pyrene	12.	ug/l	5.0			
1-Methylnaphthalene	220	ug/l	5.0			
2-Methylnaphthalene	190	ug/l	5.0			
Pentachlorophenol	ND	ug/l	20.			
Hexachlorobenzene	ND	ug/l	20.			
Perylene	ND	ug/l	5.0			
Biphenyl	ND	ug/l	5.0			
2,6-Dimethylnaphthalene	34.	ug/l	5.0			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-01
 SB-2/ (TMW-2)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
PAH by GC/MS SIM 8270M cont'd				1 8270C-M	1201 11:00 1206 11:29	RL
1-Methylphenanthrene	5.3	ug/l	5.0			
Benzo(e)Pyrene	ND	ug/l	5.0			
Hexachloroethane	ND	ug/l	20.			
Surrogate(s)	Recovery		QC Criteria			
2-Fluorophenol	51.0	%	21-120			
Phenol-d6	40.0	%	10-120			
Nitrobenzene-d5	97.0	%	23-120			
2-Fluorobiphenyl	105.	%	43-120			
2,4,6-Tribromophenol	95.0	%	10-120			
4-Terphenyl-d14	115.	%	33-120			
Polychlorinated Biphenyls				5 608	1201 16:00 1205 17:40	JB
Aroclor 1221	ND	ug/l	0.266			
Aroclor 1232	ND	ug/l	0.266			
Aroclor 1242/1016	ND	ug/l	0.266			
Aroclor 1248	ND	ug/l	0.266			
Aroclor 1254	ND	ug/l	0.266			
Aroclor 1260	ND	ug/l	0.266			
Surrogate(s)	Recovery		QC Criteria			
2,4,5,6-Tetrachloro-m-xylene	71.0	%	30-150			
Decachlorobiphenyl	86.0	%	30-150			

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0514542-02
SB-7/ (TMW-7)
Sample Matrix: WATER

Date Collected: 29-NOV-2005 12:00
Date Received : 30-NOV-2005
Date Reported : 08-DEC-2005

Condition of Sample: Satisfactory

Field Prep: Field Filtered

Number & Type of Containers: 5-Amber,5-Plastic,4-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Solids, Total Suspended	130	mg/l	5.0	4 160.2		1205 15:30	DT
Cyanide, Total	ND	mg/l	0.005	4 335.2	1203 12:40	1205 17:11	DD
Chlorine, Total Residual	ND	mg/l	0.05	4 330.1		1130 21:05	DP
TPH	ND	mg/l	4.00	74 1664A	1205 11:30	1206 08:30	AT
Phenolics, Total	0.13	mg/l	0.03	4 420.1		1207 09:00	AT
Chromium, Hexavalent	ND	mg/l	0.02	30 3500CR-D	1130 19:00	1130 19:00	HS
Total Metals				19 200.7			
Antimony, Total	ND	mg/l	0.005	3 200.9	1201 13:30	1205 13:20	PY
Arsenic, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:42	MG
Cadmium, Total	0.0002	mg/l	0.0002	4 213.2	1201 13:30	1205 19:07	PY
Chromium, Total	ND	mg/l	0.01	19 200.7	1201 13:30	1202 12:42	MG
Iron, Total	0.66	mg/l	0.05	19 200.7	1201 13:30	1202 12:42	MG
Lead, Total	ND	mg/l	0.003	3 200.9	1201 13:30	1207 12:06	PY
Mercury, Total	ND	mg/l	0.0002	4 245.2	1201 16:50	1202 14:38	DM
Nickel, Total	ND	mg/l	0.025	19 200.7	1201 13:30	1202 12:42	MG
Selenium, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:42	MG
Silver, Total	ND	mg/l	0.0004	4 272.2	1201 13:30	1206 20:15	PY
Zinc, Total	ND	mg/l	0.050	19 200.7	1201 13:30	1202 12:42	MG
Dissolved Metals							
Antimony, Dissolved	ND	mg/l	0.005	4 204.2	1201 13:30	1205 11:52	PY
Arsenic, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 11:34	MG
Cadmium, Dissolved	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 16:52	PY
Chromium, Dissolved	ND	mg/l	0.01	19 200.7	1201 13:30	1202 11:34	MG
Iron, Dissolved	ND	mg/l	0.05	19 200.7	1201 13:30	1205 13:34	RW
Lead, Dissolved	ND	mg/l	0.002	4 239.2	1201 13:30	1207 11:39	PY
Mercury, Dissolved	ND	mg/l	0.0002	3 245.1	1201 16:50	1202 14:14	DM
Nickel, Dissolved	ND	mg/l	0.025	19 200.7	1201 13:30	1202 11:34	MG
Selenium, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 11:34	MG
Silver, Dissolved	ND	mg/l	0	4 272.2	1201 13:30	1206 14:11	PY
Zinc, Dissolved	ND	mg/l	0.050	19 200.7	1201 13:30	1202 11:34	MG

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-02
SB-7/ (TMW-7)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Pesticides by GC 504				14 504.1	1206 15:00 1206 18:19	JB
1,2-Dibromoethane	ND	ug/l	0.019			
1,2-Dibromo-3-chloropropane	ND	ug/l	0.019			
Volatile Organics by GC/MS 624				5 624	1202 11:08	MM
Methylene chloride	ND	ug/l	25.			
1,1-Dichloroethane	ND	ug/l	7.5			
Chloroform	ND	ug/l	7.5			
Carbon tetrachloride	ND	ug/l	5.0			
1,2-Dichloropropane	ND	ug/l	18.			
Dibromochloromethane	ND	ug/l	5.0			
1,1,2-Trichloroethane	ND	ug/l	7.5			
2-Chloroethylvinyl ether	ND	ug/l	50.			
Tetrachloroethene	ND	ug/l	7.5			
Chlorobenzene	ND	ug/l	18.			
Trichlorofluoromethane	ND	ug/l	25.			
1,2-Dichloroethane	ND	ug/l	7.5			
1,1,1-Trichloroethane	ND	ug/l	10.			
Bromodichloromethane	ND	ug/l	5.0			
trans-1,3-Dichloropropene	ND	ug/l	7.5			
cis-1,3-Dichloropropene	ND	ug/l	7.5			
Bromoform	ND	ug/l	5.0			
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0			
Benzene	ND	ug/l	5.0			
Toluene	ND	ug/l	5.0			
Ethylbenzene	ND	ug/l	5.0			
Chloromethane	ND	ug/l	50.			
Bromomethane	ND	ug/l	25.			
Vinyl chloride	ND	ug/l	10.			
Chloroethane	ND	ug/l	10.			
1,1-Dichloroethene	ND	ug/l	5.0			
trans-1,2-Dichloroethene	ND	ug/l	7.5			
cis-1,2-Dichloroethene	ND	ug/l	5.0			
Trichloroethene	ND	ug/l	5.0			
1,2-Dichlorobenzene	ND	ug/l	25.			
1,3-Dichlorobenzene	ND	ug/l	25.			
1,4-Dichlorobenzene	ND	ug/l	25.			
p/m-Xylene	ND	ug/l	10.			
o-xylene	ND	ug/l	5.0			
Xylene (Total)	ND	ug/l	10.			
Styrene	ND	ug/l	5.0			
Acetone	ND	ug/l	50.			
Carbon disulfide	ND	ug/l	25.			
2-Butanone	ND	ug/l	50.			
Vinyl acetate	ND	ug/l	100			
4-Methyl-2-pentanone	ND	ug/l	50.			
2-Hexanone	ND	ug/l	50.			
Acrolein	ND	ug/l	40.			
Acrylonitrile	ND	ug/l	50.			
Methyl tert butyl ether	ND	ug/l	100			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-02
SB-7/ (TMW-7)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624	1202 11:08 MM	
1,4-Dioxane	ND	ug/l	10000			
Tert-Butyl Alcohol	ND	ug/l	500			
Tertiary-Amyl Methyl Ether	ND	ug/l	100			
Surrogate(s)	Recovery		QC Criteria			
Pentafluorobenzene	94.0	%	80-120			
Fluorobenzene	100.	%	80-120			
4-Bromofluorobenzene	108.	%	80-120			
SVOC's by GC/MS 8270				1 8270C	1201 11:00 1203 03:32 RL	
Acenaphthene	ND	ug/l	5.0			
Benzidine	ND	ug/l	50.			
1,2,4-Trichlorobenzene	ND	ug/l	5.0			
Hexachlorobenzene	ND	ug/l	5.0			
Bis(2-chloroethyl)ether	ND	ug/l	5.0			
1-Chloronaphthalene	ND	ug/l	5.0			
2-Chloronaphthalene	ND	ug/l	6.0			
1,2-Dichlorobenzene	ND	ug/l	5.0			
1,3-Dichlorobenzene	ND	ug/l	5.0			
1,4-Dichlorobenzene	ND	ug/l	5.0			
3,3'-Dichlorobenzidine	ND	ug/l	50.			
2,4-Dinitrotoluene	ND	ug/l	6.0			
2,6-Dinitrotoluene	ND	ug/l	5.0			
Azobenzene	ND	ug/l	5.0			
Fluoranthene	ND	ug/l	5.0			
4-Chlorophenyl phenyl ether	ND	ug/l	5.0			
4-Bromophenyl phenyl ether	ND	ug/l	5.0			
Bis(2-chloroisopropyl)ether	ND	ug/l	5.0			
Bis(2-chloroethoxy)methane	ND	ug/l	5.0			
Hexachlorobutadiene	ND	ug/l	10.			
Hexachlorocyclopentadiene	ND	ug/l	10.			
Hexachloroethane	ND	ug/l	5.0			
Isophorone	ND	ug/l	5.0			
Naphthalene	ND	ug/l	5.0			
Nitrobenzene	ND	ug/l	5.0			
NDPA/DPA	ND	ug/l	15.			
n-Nitrosodi-n-propylamine	ND	ug/l	5.0			
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.			
Butyl benzyl phthalate	ND	ug/l	5.0			
Di-n-butylphthalate	ND	ug/l	5.0			
Di-n-octylphthalate	ND	ug/l	5.0			
Diethyl phthalate	ND	ug/l	5.0			
Dimethyl phthalate	ND	ug/l	5.0			
Benzo(a)anthracene	ND	ug/l	5.0			
Benzo(a)pyrene	ND	ug/l	5.0			
Benzo(b)fluoranthene	ND	ug/l	5.0			
Benzo(k)fluoranthene	ND	ug/l	5.0			
Chrysene	ND	ug/l	5.0			
Acenaphthylene	ND	ug/l	5.0			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-02
SB-7/ (TMW-7)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd				1	8270C	1201 11:00	1203 03:32 RL
Anthracene	ND	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)pyrene	ND	ug/l	7.0				
Pyrene	ND	ug/l	5.0				
Benzo(e)pyrene	ND	ug/l	5.0				
Biphenyl	ND	ug/l	5.0				
Perylene	ND	ug/l	5.0				
Aniline	ND	ug/l	10.				
4-Chloroaniline	ND	ug/l	5.0				
1-Methylnaphthalene	ND	ug/l	5.0				
2-Nitroaniline	ND	ug/l	5.0				
3-Nitroaniline	ND	ug/l	5.0				
4-Nitroaniline	ND	ug/l	7.0				
Dibenzofuran	ND	ug/l	5.0				
a,a-Dimethylphenethylamine	ND	ug/l	50.				
Hexachloropropene	ND	ug/l	10.				
Nitrosodi-n-butylamine	ND	ug/l	10.				
2-Methylnaphthalene	ND	ug/l	5.0				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	20.				
Pentachlorobenzene	ND	ug/l	20.				
a-Naphthylamine	ND	ug/l	20.				
b-Naphthylamine	ND	ug/l	20.				
Phenacetin	ND	ug/l	10.				
Dimethoate	ND	ug/l	20.				
4-Aminobiphenyl	ND	ug/l	10.				
Pentachloronitrobenzene	ND	ug/l	10.				
Isodrin	ND	ug/l	10.				
p-Dimethylaminoazobenzene	ND	ug/l	10.				
Chlorobenzilate	ND	ug/l	20.				
3-Methylcholanthrene	ND	ug/l	20.				
Ethyl Methanesulfonate	ND	ug/l	15.				
Acetophenone	ND	ug/l	20.				
Nitrosodipiperidine	ND	ug/l	20.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	10.				
n-Nitrosodimethylamine	ND	ug/l	50.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
p-Chloro-m-cresol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	10.				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	20.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	20.				
Phenol	ND	ug/l	7.0				

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0514542-02
SB-7/ (TMW-7)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd					1 8270C	1201 11:00 1203 03:32	RL
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	6.5	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
2,6-Dichlorophenol	ND	ug/l	10.				
Benzoic Acid	ND	ug/l	50.				
Benzyl Alcohol	ND	ug/l	10.				
Carbazole	ND	ug/l	5.0				
Pyridine	ND	ug/l	50.				
2-Picoline	ND	ug/l	20.				
Pronamide	ND	ug/l	20.				
Methyl methanesulfonate	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	32.0	%	21-120				
Phenol-d6	28.0	%	10-120				
Nitrobenzene-d5	59.0	%	23-120				
2-Fluorobiphenyl	61.0	%	43-120				
2,4,6-Tribromophenol	103.	%	10-120				
4-Terphenyl-d14	100.	%	33-120				
PAH by GC/MS SIM 8270M					1 8270C-M	1201 11:00 1202 17:10	RL
Acenaphthene	ND	ug/l	0.20				
2-Chloronaphthalene	ND	ug/l	0.20				
Fluoranthene	ND	ug/l	0.20				
Hexachlorobutadiene	ND	ug/l	0.50				
Naphthalene	ND	ug/l	0.20				
Benzo(a)anthracene	ND	ug/l	0.20				
Benzo(a)pyrene	ND	ug/l	0.20				
Benzo(b)fluoranthene	ND	ug/l	0.20				
Benzo(k)fluoranthene	ND	ug/l	0.20				
Chrysene	ND	ug/l	0.20				
Acenaphthylene	ND	ug/l	0.20				
Anthracene	ND	ug/l	0.20				
Benzo(ghi)perylene	ND	ug/l	0.20				
Fluorene	ND	ug/l	0.20				
Phenanthrene	ND	ug/l	0.20				
Dibenzo(a,h)anthracene	ND	ug/l	0.20				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20				
Pyrene	ND	ug/l	0.20				
1-Methylnaphthalene	0.24	ug/l	0.20				
2-Methylnaphthalene	0.36	ug/l	0.20				
Pentachlorophenol	ND	ug/l	0.80				
Hexachlorobenzene	ND	ug/l	0.80				
Perylene	ND	ug/l	0.20				
Biphenyl	ND	ug/l	0.20				
2,6-Dimethylnaphthalene	ND	ug/l	0.20				
1-Methylphenanthrene	ND	ug/l	0.20				
Benzo(e)Pyrene	ND	ug/l	0.20				
Hexachloroethane	ND	ug/l	0.80				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-02
SB-7/ (TMW-7)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
PAH by GC/MS SIM 8270M cont'd				1 8270C-M	1201 11:00	1202 17:10	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	38.0	%	21-120				
Phenol-d6	32.0	%	10-120				
Nitrobenzene-d5	60.0	%	23-120				
2-Fluorobiphenyl	57.0	%	43-120				
2,4,6-Tribromophenol	65.0	%	10-120				
4-Terphenyl-d14	74.0	%	33-120				
Polychlorinated Biphenyls				5 608	1201 16:00	1205 18:09	JB
Aroclor 1221	ND	ug/l	0.255				
Aroclor 1232	ND	ug/l	0.255				
Aroclor 1242/1016	ND	ug/l	0.255				
Aroclor 1248	ND	ug/l	0.255				
Aroclor 1254	ND	ug/l	0.255				
Aroclor 1260	ND	ug/l	0.255				
Surrogate(s)	Recovery		QC Criteria				
2,4,5,6-Tetrachloro-m-xylene	47.0	%	30-150				
Decachlorobiphenyl	62.0	%	30-150				

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0514542-03	Date Collected: 29-NOV-2005 15:00
Sample Matrix: SB-11/ (TMW-11)	Date Received : 30-NOV-2005
Condition of Sample: Satisfactory	Date Reported : 08-DEC-2005
Field Prep: Field Filtered	
Number & Type of Containers: 5-Amber,5-Plastic,4-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Solids, Total Suspended	200	mg/l	10.	4 160.2		1205 15:30	DT
Cyanide, Total	0.006	mg/l	0.005	4 335.2	1203 12:40	1205 17:12	DD
Chlorine, Total Residual	ND	mg/l	0.05	4 330.1		1130 21:05	DP
TPH	ND	mg/l	4.00	74 1664A	1205 11:30	1206 08:30	AT
Phenolics, Total	ND	mg/l	0.03	4 420.1		1207 09:00	AT
Chromium, Hexavalent	ND	mg/l	0.02	30 3500CR-D	1130 19:00	1130 19:00	HS
Total Metals				19 200.7			
Antimony, Total	ND	mg/l	0.005	3 200.9	1201 13:30	1205 13:27	PY
Arsenic, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1205 13:40	RW
Cadmium, Total	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 18:19	PY
Chromium, Total	ND	mg/l	0.01	19 200.7	1201 13:30	1202 12:48	MG
Iron, Total	4.0	mg/l	0.05	19 200.7	1201 13:30	1202 12:48	MG
Lead, Total	0.008	mg/l	0.001	3 200.9	1201 13:30	1207 00:34	PY
Mercury, Total	ND	mg/l	0.0002	4 245.2	1201 16:50	1202 14:40	DM
Nickel, Total	ND	mg/l	0.025	19 200.7	1201 13:30	1202 12:48	MG
Selenium, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:48	MG
Silver, Total	ND	mg/l	0.0004	4 272.2	1201 13:30	1206 20:22	PY
Zinc, Total	ND	mg/l	0.050	19 200.7	1201 13:30	1202 12:48	MG
Dissolved Metals							
Antimony, Dissolved	ND	mg/l	0.005	4 204.2	1201 13:30	1205 11:58	PY
Arsenic, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1205 13:37	RW
Cadmium, Dissolved	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 16:57	PY
Chromium, Dissolved	ND	mg/l	0.01	19 200.7	1201 13:30	1202 11:38	MG
Iron, Dissolved	2.1	mg/l	0.05	19 200.7	1201 13:30	1202 11:38	MG
Lead, Dissolved	ND	mg/l	0.015	4 239.2	1201 13:30	1207 12:37	PY
Mercury, Dissolved	ND	mg/l	0.0002	3 245.1	1201 16:50	1202 14:16	DM
Nickel, Dissolved	ND	mg/l	0.025	19 200.7	1201 13:30	1202 11:38	MG
Selenium, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 11:38	MG
Silver, Dissolved	ND	mg/l	0	4 272.2	1201 13:30	1206 14:17	PY
Zinc, Dissolved	ND	mg/l	0.050	19 200.7	1201 13:30	1202 11:38	MG

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0514542-03
SB-11/ (TMW-11)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Pesticides by GC 504				14 504.1	1206 15:00 1206 18:41	JB
1,2-Dibromoethane	ND	ug/l	0.019			
1,2-Dibromo-3-chloropropane	ND	ug/l	0.019			
Volatile Organics by GC/MS 624				5 624	1202 11:44	MM
Methylene chloride	ND	ug/l	25.			
1,1-Dichloroethane	ND	ug/l	7.5			
Chloroform	ND	ug/l	7.5			
Carbon tetrachloride	ND	ug/l	5.0			
1,2-Dichloropropane	ND	ug/l	18.			
Dibromochloromethane	ND	ug/l	5.0			
1,1,2-Trichloroethane	ND	ug/l	7.5			
2-Chloroethylvinyl ether	ND	ug/l	50.			
Tetrachloroethene	ND	ug/l	7.5			
Chlorobenzene	ND	ug/l	18.			
Trichlorofluoromethane	ND	ug/l	25.			
1,2-Dichloroethane	ND	ug/l	7.5			
1,1,1-Trichloroethane	ND	ug/l	10.			
Bromodichloromethane	ND	ug/l	5.0			
trans-1,3-Dichloropropene	ND	ug/l	7.5			
cis-1,3-Dichloropropene	ND	ug/l	7.5			
Bromoform	ND	ug/l	5.0			
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0			
Benzene	ND	ug/l	5.0			
Toluene	ND	ug/l	5.0			
Ethylbenzene	ND	ug/l	5.0			
Chloromethane	ND	ug/l	50.			
Bromomethane	ND	ug/l	25.			
Vinyl chloride	ND	ug/l	10.			
Chloroethane	ND	ug/l	10.			
1,1-Dichloroethene	ND	ug/l	5.0			
trans-1,2-Dichloroethene	ND	ug/l	7.5			
cis-1,2-Dichloroethene	ND	ug/l	5.0			
Trichloroethene	ND	ug/l	5.0			
1,2-Dichlorobenzene	ND	ug/l	25.			
1,3-Dichlorobenzene	ND	ug/l	25.			
1,4-Dichlorobenzene	ND	ug/l	25.			
p/m-Xylene	ND	ug/l	10.			
o-xylene	ND	ug/l	5.0			
Xylene (Total)	ND	ug/l	10.			
Styrene	ND	ug/l	5.0			
Acetone	ND	ug/l	50.			
Carbon disulfide	ND	ug/l	25.			
2-Butanone	ND	ug/l	50.			
Vinyl acetate	ND	ug/l	100			
4-Methyl-2-pentanone	ND	ug/l	50.			
2-Hexanone	ND	ug/l	50.			
Acrolein	ND	ug/l	40.			
Acrylonitrile	ND	ug/l	50.			
Methyl tert butyl ether	ND	ug/l	100			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-03
SB-11/ (TMW-11)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624	1202 11:44 MM	
1,4-Dioxane	ND	ug/l	10000			
Tert-Butyl Alcohol	ND	ug/l	500			
Tertiary-Amyl Methyl Ether	ND	ug/l	100			
Surrogate(s)	Recovery		QC Criteria			
Pentafluorobenzene	102.	%	80-120			
Fluorobenzene	104.	%	80-120			
4-Bromofluorobenzene	105.	%	80-120			
SVOC's by GC/MS 8270				1 8270C	1201 11:00 1203 03:57 RL	
Acenaphthene	ND	ug/l	4.8			
Benzidine	ND	ug/l	48.			
1,2,4-Trichlorobenzene	ND	ug/l	4.8			
Hexachlorobenzene	ND	ug/l	4.8			
Bis(2-chloroethyl)ether	ND	ug/l	4.8			
1-Chloronaphthalene	ND	ug/l	4.8			
2-Chloronaphthalene	ND	ug/l	5.8			
1,2-Dichlorobenzene	ND	ug/l	4.8			
1,3-Dichlorobenzene	ND	ug/l	4.8			
1,4-Dichlorobenzene	ND	ug/l	4.8			
3,3'-Dichlorobenzidine	ND	ug/l	48.			
2,4-Dinitrotoluene	ND	ug/l	5.8			
2,6-Dinitrotoluene	ND	ug/l	4.8			
Azobenzene	ND	ug/l	4.8			
Fluoranthene	ND	ug/l	4.8			
4-Chlorophenyl phenyl ether	ND	ug/l	4.8			
4-Bromophenyl phenyl ether	ND	ug/l	4.8			
Bis(2-chloroisopropyl)ether	ND	ug/l	4.8			
Bis(2-chloroethoxy)methane	ND	ug/l	4.8			
Hexachlorobutadiene	ND	ug/l	9.7			
Hexachlorocyclopentadiene	ND	ug/l	9.7			
Hexachloroethane	ND	ug/l	4.8			
Isophorone	ND	ug/l	4.8			
Naphthalene	ND	ug/l	4.8			
Nitrobenzene	ND	ug/l	4.8			
NDPA/DPA	ND	ug/l	14.			
n-Nitrosodi-n-propylamine	ND	ug/l	4.8			
Bis(2-ethylhexyl)phthalate	ND	ug/l	9.7			
Butyl benzyl phthalate	ND	ug/l	4.8			
Di-n-butylphthalate	ND	ug/l	4.8			
Di-n-octylphthalate	ND	ug/l	4.8			
Diethyl phthalate	ND	ug/l	4.8			
Dimethyl phthalate	ND	ug/l	4.8			
Benzo(a)anthracene	ND	ug/l	4.8			
Benzo(a)pyrene	ND	ug/l	4.8			
Benzo(b)fluoranthene	ND	ug/l	4.8			
Benzo(k)fluoranthene	ND	ug/l	4.8			
Chrysene	ND	ug/l	4.8			
Acenaphthylene	ND	ug/l	4.8			

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0514542-03
SB-11/ (TMW-11)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd				1	8270C	1201 11:00	1203 03:57 RL
Anthracene	ND	ug/l	4.8				
Benzo(ghi)perylene	ND	ug/l	4.8				
Fluorene	ND	ug/l	4.8				
Phenanthrene	ND	ug/l	4.8				
Dibenzo(a,h)anthracene	ND	ug/l	4.8				
Indeno(1,2,3-cd)pyrene	ND	ug/l	6.8				
Pyrene	ND	ug/l	4.8				
Benzo(e)pyrene	ND	ug/l	4.8				
Biphenyl	ND	ug/l	4.8				
Perylene	ND	ug/l	4.8				
Aniline	ND	ug/l	9.7				
4-Chloroaniline	ND	ug/l	4.8				
1-Methylnaphthalene	ND	ug/l	4.8				
2-Nitroaniline	ND	ug/l	4.8				
3-Nitroaniline	ND	ug/l	4.8				
4-Nitroaniline	ND	ug/l	6.8				
Dibenzofuran	ND	ug/l	4.8				
a,a-Dimethylphenethylamine	ND	ug/l	48.				
Hexachloropropene	ND	ug/l	9.7				
Nitrosodi-n-butylamine	ND	ug/l	9.7				
2-Methylnaphthalene	ND	ug/l	4.8				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	19.				
Pentachlorobenzene	ND	ug/l	19.				
a-Naphthylamine	ND	ug/l	19.				
b-Naphthylamine	ND	ug/l	19.				
Phenacetin	ND	ug/l	9.7				
Dimethoate	ND	ug/l	19.				
4-Aminobiphenyl	ND	ug/l	9.7				
Pentachloronitrobenzene	ND	ug/l	9.7				
Isodrin	ND	ug/l	9.7				
p-Dimethylaminoazobenzene	ND	ug/l	9.7				
Chlorobenzilate	ND	ug/l	19.				
3-Methylcholanthrene	ND	ug/l	19.				
Ethyl Methanesulfonate	ND	ug/l	14.				
Acetophenone	ND	ug/l	19.				
Nitrosodipiperidine	ND	ug/l	19.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	9.7				
n-Nitrosodimethylamine	ND	ug/l	48.				
2,4,6-Trichlorophenol	ND	ug/l	4.8				
p-Chloro-m-cresol	ND	ug/l	4.8				
2-Chlorophenol	ND	ug/l	5.8				
2,4-Dichlorophenol	ND	ug/l	9.7				
2,4-Dimethylphenol	ND	ug/l	9.7				
2-Nitrophenol	ND	ug/l	19.				
4-Nitrophenol	ND	ug/l	9.7				
2,4-Dinitrophenol	ND	ug/l	19.				
4,6-Dinitro-o-cresol	ND	ug/l	19.				
Pentachlorophenol	ND	ug/l	19.				
Phenol	ND	ug/l	6.8				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-03
SB-11/ (TMW-11)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
SVOC's by GC/MS 8270 cont'd				1 8270C	1201 11:00 1203 03:57 RL	
2-Methylphenol	ND	ug/l	5.8			
3-Methylphenol/4-Methylphenol	ND	ug/l	5.8			
2,4,5-Trichlorophenol	ND	ug/l	4.8			
2,6-Dichlorophenol	ND	ug/l	9.7			
Benzoic Acid	ND	ug/l	48.			
Benzyl Alcohol	ND	ug/l	9.7			
Carbazole	ND	ug/l	4.8			
Pyridine	ND	ug/l	48.			
2-Picoline	ND	ug/l	19.			
Pronamide	ND	ug/l	19.			
Methyl methanesulfonate	ND	ug/l	19.			
Surrogate(s)	Recovery		QC Criteria			
2-Fluorophenol	32.0	%	21-120			
Phenol-d6	27.0	%	10-120			
Nitrobenzene-d5	60.0	%	23-120			
2-Fluorobiphenyl	64.0	%	43-120			
2,4,6-Tribromophenol	99.0	%	10-120			
4-Terphenyl-d14	101.	%	33-120			
PAH by GC/MS SIM 8270M				1 8270C-M	1201 11:00 1202 17:55 RL	
Acenaphthene	ND	ug/l	0.19			
2-Chloronaphthalene	ND	ug/l	0.19			
Fluoranthene	ND	ug/l	0.19			
Hexachlorobutadiene	ND	ug/l	0.48			
Naphthalene	ND	ug/l	0.19			
Benzo(a)anthracene	ND	ug/l	0.19			
Benzo(a)pyrene	ND	ug/l	0.19			
Benzo(b)fluoranthene	ND	ug/l	0.19			
Benzo(k)fluoranthene	ND	ug/l	0.19			
Chrysene	ND	ug/l	0.19			
Acenaphthylene	ND	ug/l	0.19			
Anthracene	ND	ug/l	0.19			
Benzo(ghi)perylene	ND	ug/l	0.19			
Fluorene	ND	ug/l	0.19			
Phenanthrene	ND	ug/l	0.19			
Dibenzo(a,h)anthracene	ND	ug/l	0.19			
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.19			
Pyrene	ND	ug/l	0.19			
1-Methylnaphthalene	0.22	ug/l	0.19			
2-Methylnaphthalene	0.21	ug/l	0.19			
Pentachlorophenol	ND	ug/l	0.78			
Hexachlorobenzene	ND	ug/l	0.78			
Perylene	ND	ug/l	0.19			
Biphenyl	ND	ug/l	0.19			
2,6-Dimethylnaphthalene	ND	ug/l	0.19			
1-Methylphenanthrene	ND	ug/l	0.19			
Benzo(e)Pyrene	ND	ug/l	0.19			
Hexachloroethane	ND	ug/l	0.78			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-03
SB-11/ (TMW-11)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
PAH by GC/MS SIM 8270M cont'd				1 8270C-M	1201 11:00	1202 17:55	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	35.0	%	21-120				
Phenol-d6	29.0	%	10-120				
Nitrobenzene-d5	55.0	%	23-120				
2-Fluorobiphenyl	56.0	%	43-120				
2,4,6-Tribromophenol	60.0	%	10-120				
4-Terphenyl-d14	75.0	%	33-120				
Polychlorinated Biphenyls				5 608	1201 16:00	1205 18:37	JB
Aroclor 1221	ND	ug/l	0.263				
Aroclor 1232	ND	ug/l	0.263				
Aroclor 1242/1016	ND	ug/l	0.263				
Aroclor 1248	ND	ug/l	0.263				
Aroclor 1254	ND	ug/l	0.263				
Aroclor 1260	ND	ug/l	0.263				
Surrogate(s)	Recovery		QC Criteria				
2,4,5,6-Tetrachloro-m-xylene	67.0	%	30-150				
Decachlorobiphenyl	61.0	%	30-150				

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0514542-04	Date Collected: 29-NOV-2005 12:00
Sample Matrix: SB-14/ (TMW-14)	Date Received : 30-NOV-2005
Condition of Sample: Satisfactory	Date Reported : 08-DEC-2005
Field Prep: Field Filtered	
Number & Type of Containers: 10-Amber,5-Plastic,4-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Solids, Total Suspended	630	mg/l	15.	4 160.2		1205 15:30	DT
Cyanide, Total	ND	mg/l	0.005	4 335.2	1203 12:40	1205 17:13	DD
Chlorine, Total Residual	ND	mg/l	0.05	4 330.1		1130 21:05	DP
TPH	ND	mg/l	4.00	74 1664A	1205 11:30	1206 08:30	AT
Phenolics, Total	ND	mg/l	0.03	4 420.1		1207 09:00	AT
Chromium, Hexavalent	ND	mg/l	0.02	30 3500CR-D	1130 19:00	1130 19:00	HS
Total Metals				19 200.7			
Antimony, Total	ND	mg/l	0.005	3 200.9	1201 13:30	1205 13:34	PY
Arsenic, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:51	MG
Cadmium, Total	0.0002	mg/l	0.0002	4 213.2	1201 13:30	1205 18:25	PY
Chromium, Total	0.08	mg/l	0.01	19 200.7	1201 13:30	1202 12:51	MG
Iron, Total	59.	mg/l	0.05	19 200.7	1201 13:30	1202 12:51	MG
Lead, Total	0.039	mg/l	0.001	3 200.9	1201 13:30	1207 00:41	PY
Mercury, Total	ND	mg/l	0.0002	4 245.2	1201 16:50	1202 14:45	DM
Nickel, Total	0.063	mg/l	0.025	19 200.7	1201 13:30	1202 12:51	MG
Selenium, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:51	MG
Silver, Total	ND	mg/l	0.0002	4 272.2	1201 13:30	1206 15:26	PY
Zinc, Total	0.178	mg/l	0.050	19 200.7	1201 13:30	1202 12:51	MG
Dissolved Metals							
Antimony, Dissolved	ND	mg/l	0.005	4 204.2	1201 13:30	1205 12:05	PY
Arsenic, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 13:44	MG
Cadmium, Dissolved	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 17:02	PY
Chromium, Dissolved	ND	mg/l	0.01	19 200.7	1201 13:30	1202 13:44	MG
Iron, Dissolved	1.4	mg/l	0.05	19 200.7	1201 13:30	1202 13:44	MG
Lead, Dissolved	ND	mg/l	0.001	4 239.2	1201 13:30	1206 23:02	PY
Mercury, Dissolved	ND	mg/l	0.0002	3 245.1	1201 16:50	1202 14:22	DM
Nickel, Dissolved	ND	mg/l	0.025	19 200.7	1201 13:30	1202 13:44	MG
Selenium, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 13:44	MG
Silver, Dissolved	ND	mg/l	0	4 272.2	1201 13:30	1206 12:43	PY
Zinc, Dissolved	ND	mg/l	0.050	19 200.7	1201 13:30	1202 13:44	MG

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-04
SB-14/ (TMW-14)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Pesticides by GC 504				14 504.1	1206 15:00 1206 19:03	JB
1,2-Dibromoethane	ND	ug/l	0.020			
1,2-Dibromo-3-chloropropane	ND	ug/l	0.020			
Volatile Organics by GC/MS 624				5 624	1202 12:20	MM
Methylene chloride	ND	ug/l	25.			
1,1-Dichloroethane	ND	ug/l	7.5			
Chloroform	ND	ug/l	7.5			
Carbon tetrachloride	ND	ug/l	5.0			
1,2-Dichloropropane	ND	ug/l	18.			
Dibromochloromethane	ND	ug/l	5.0			
1,1,2-Trichloroethane	ND	ug/l	7.5			
2-Chloroethylvinyl ether	ND	ug/l	50.			
Tetrachloroethene	ND	ug/l	7.5			
Chlorobenzene	ND	ug/l	18.			
Trichlorofluoromethane	ND	ug/l	25.			
1,2-Dichloroethane	ND	ug/l	7.5			
1,1,1-Trichloroethane	ND	ug/l	10.			
Bromodichloromethane	ND	ug/l	5.0			
trans-1,3-Dichloropropene	ND	ug/l	7.5			
cis-1,3-Dichloropropene	ND	ug/l	7.5			
Bromoform	ND	ug/l	5.0			
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0			
Benzene	ND	ug/l	5.0			
Toluene	ND	ug/l	5.0			
Ethylbenzene	ND	ug/l	5.0			
Chloromethane	ND	ug/l	50.			
Bromomethane	ND	ug/l	25.			
Vinyl chloride	ND	ug/l	10.			
Chloroethane	ND	ug/l	10.			
1,1-Dichloroethene	ND	ug/l	5.0			
trans-1,2-Dichloroethene	ND	ug/l	7.5			
cis-1,2-Dichloroethene	ND	ug/l	5.0			
Trichloroethene	ND	ug/l	5.0			
1,2-Dichlorobenzene	ND	ug/l	25.			
1,3-Dichlorobenzene	ND	ug/l	25.			
1,4-Dichlorobenzene	ND	ug/l	25.			
p/m-Xylene	ND	ug/l	10.			
o-xylene	ND	ug/l	5.0			
Xylene (Total)	ND	ug/l	10.			
Styrene	ND	ug/l	5.0			
Acetone	ND	ug/l	50.			
Carbon disulfide	ND	ug/l	25.			
2-Butanone	ND	ug/l	50.			
Vinyl acetate	ND	ug/l	100			
4-Methyl-2-pentanone	ND	ug/l	50.			
2-Hexanone	ND	ug/l	50.			
Acrolein	ND	ug/l	40.			
Acrylonitrile	ND	ug/l	50.			
Methyl tert butyl ether	ND	ug/l	100			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-04
SB-14/ (TMW-14)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624	1202 12:20 MM	
1,4-Dioxane	ND	ug/l	10000			
Tert-Butyl Alcohol	ND	ug/l	500			
Tertiary-Amyl Methyl Ether	ND	ug/l	100			
Surrogate(s)	Recovery		QC Criteria			
Pentafluorobenzene	106.	%	80-120			
Fluorobenzene	107.	%	80-120			
4-Bromofluorobenzene	105.	%	80-120			
SVOC's by GC/MS 8270				1 8270C	1205 17:30 1206 14:41 RL	
Acenaphthene	ND	ug/l	4.9			
Benzidine	ND	ug/l	49.			
1,2,4-Trichlorobenzene	ND	ug/l	4.9			
Hexachlorobenzene	ND	ug/l	4.9			
Bis(2-chloroethyl)ether	ND	ug/l	4.9			
1-Chloronaphthalene	ND	ug/l	4.9			
2-Chloronaphthalene	ND	ug/l	5.9			
1,2-Dichlorobenzene	ND	ug/l	4.9			
1,3-Dichlorobenzene	ND	ug/l	4.9			
1,4-Dichlorobenzene	ND	ug/l	4.9			
3,3'-Dichlorobenzidine	ND	ug/l	49.			
2,4-Dinitrotoluene	ND	ug/l	5.9			
2,6-Dinitrotoluene	ND	ug/l	4.9			
Azobenzene	ND	ug/l	4.9			
Fluoranthene	ND	ug/l	4.9			
4-Chlorophenyl phenyl ether	ND	ug/l	4.9			
4-Bromophenyl phenyl ether	ND	ug/l	4.9			
Bis(2-chloroisopropyl)ether	ND	ug/l	4.9			
Bis(2-chloroethoxy)methane	ND	ug/l	4.9			
Hexachlorobutadiene	ND	ug/l	9.8			
Hexachlorocyclopentadiene	ND	ug/l	9.8			
Hexachloroethane	ND	ug/l	4.9			
Isophorone	ND	ug/l	4.9			
Naphthalene	ND	ug/l	4.9			
Nitrobenzene	ND	ug/l	4.9			
NDPA/DPA	ND	ug/l	15.			
n-Nitrosodi-n-propylamine	ND	ug/l	4.9			
Bis(2-ethylhexyl)phthalate	ND	ug/l	9.8			
Butyl benzyl phthalate	ND	ug/l	4.9			
Di-n-butylphthalate	ND	ug/l	4.9			
Di-n-octylphthalate	ND	ug/l	4.9			
Diethyl phthalate	ND	ug/l	4.9			
Dimethyl phthalate	ND	ug/l	4.9			
Benzo(a)anthracene	ND	ug/l	4.9			
Benzo(a)pyrene	ND	ug/l	4.9			
Benzo(b)fluoranthene	ND	ug/l	4.9			
Benzo(k)fluoranthene	ND	ug/l	4.9			
Chrysene	ND	ug/l	4.9			
Acenaphthylene	ND	ug/l	4.9			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-04
SB-14/ (TMW-14)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd				1	8270C	1205 17:30	1206 14:41 RL
Anthracene	ND	ug/l	4.9				
Benzo(ghi)perylene	ND	ug/l	4.9				
Fluorene	ND	ug/l	4.9				
Phenanthrene	ND	ug/l	4.9				
Dibenzo(a,h)anthracene	ND	ug/l	4.9				
Indeno(1,2,3-cd)pyrene	ND	ug/l	6.8				
Pyrene	ND	ug/l	4.9				
Benzo(e)pyrene	ND	ug/l	4.9				
Biphenyl	ND	ug/l	4.9				
Perylene	ND	ug/l	4.9				
Aniline	ND	ug/l	9.8				
4-Chloroaniline	ND	ug/l	4.9				
1-Methylnaphthalene	ND	ug/l	4.9				
2-Nitroaniline	ND	ug/l	4.9				
3-Nitroaniline	ND	ug/l	4.9				
4-Nitroaniline	ND	ug/l	6.8				
Dibenzofuran	ND	ug/l	4.9				
a,a-Dimethylphenethylamine	ND	ug/l	49.				
Hexachloropropene	ND	ug/l	9.8				
Nitrosodi-n-butylamine	ND	ug/l	9.8				
2-Methylnaphthalene	ND	ug/l	4.9				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	20.				
Pentachlorobenzene	ND	ug/l	20.				
a-Naphthylamine	ND	ug/l	20.				
b-Naphthylamine	ND	ug/l	20.				
Phenacetin	ND	ug/l	9.8				
Dimethoate	ND	ug/l	20.				
4-Aminobiphenyl	ND	ug/l	9.8				
Pentachloronitrobenzene	ND	ug/l	9.8				
Isodrin	ND	ug/l	9.8				
p-Dimethylaminoazobenzene	ND	ug/l	9.8				
Chlorobenzilate	ND	ug/l	20.				
3-Methylcholanthrene	ND	ug/l	20.				
Ethyl Methanesulfonate	ND	ug/l	15.				
Acetophenone	ND	ug/l	20.				
Nitrosodipiperidine	ND	ug/l	20.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	9.8				
n-Nitrosodimethylamine	ND	ug/l	49.				
2,4,6-Trichlorophenol	ND	ug/l	4.9				
p-Chloro-m-cresol	ND	ug/l	4.9				
2-Chlorophenol	ND	ug/l	5.9				
2,4-Dichlorophenol	ND	ug/l	9.8				
2,4-Dimethylphenol	ND	ug/l	9.8				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	9.8				
2,4-Dinitrophenol	ND	ug/l	20.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	20.				
Phenol	ND	ug/l	6.8				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-04
SB-14/ (TMW-14)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
SVOC's by GC/MS 8270 cont'd				1 8270C	1205 17:30 1206 14:41 RL	
2-Methylphenol	ND	ug/l	5.9			
3-Methylphenol/4-Methylphenol	ND	ug/l	5.9			
2,4,5-Trichlorophenol	ND	ug/l	4.9			
2,6-Dichlorophenol	ND	ug/l	9.8			
Benzoic Acid	ND	ug/l	49.			
Benzyl Alcohol	ND	ug/l	9.8			
Carbazole	ND	ug/l	4.9			
Pyridine	ND	ug/l	49.			
2-Picoline	ND	ug/l	20.			
Pronamide	ND	ug/l	20.			
Methyl methanesulfonate	ND	ug/l	20.			
Surrogate(s)	Recovery		QC Criteria			
2-Fluorophenol	35.0	%	21-120			
Phenol-d6	30.0	%	10-120			
Nitrobenzene-d5	68.0	%	23-120			
2-Fluorobiphenyl	78.0	%	43-120			
2,4,6-Tribromophenol	109.	%	10-120			
4-Terphenyl-d14	96.0	%	33-120			
PAH by GC/MS SIM 8270M				1 8270C-M	1205 17:30 1206 12:59 RL	
Acenaphthene	0.31	ug/l	0.20			
2-Chloronaphthalene	ND	ug/l	0.20			
Fluoranthene	0.52	ug/l	0.20			
Hexachlorobutadiene	ND	ug/l	0.49			
Naphthalene	0.48	ug/l	0.20			
Benzo(a)anthracene	ND	ug/l	0.20			
Benzo(a)pyrene	ND	ug/l	0.20			
Benzo(b)fluoranthene	ND	ug/l	0.20			
Benzo(k)fluoranthene	ND	ug/l	0.20			
Chrysene	ND	ug/l	0.20			
Acenaphthylene	ND	ug/l	0.20			
Anthracene	0.32	ug/l	0.20			
Benzo(ghi)perylene	ND	ug/l	0.20			
Fluorene	0.46	ug/l	0.20			
Phenanthrene	0.94	ug/l	0.20			
Dibenzo(a,h)anthracene	ND	ug/l	0.20			
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20			
Pyrene	0.48	ug/l	0.20			
1-Methylnaphthalene	1.0	ug/l	0.20			
2-Methylnaphthalene	0.67	ug/l	0.20			
Pentachlorophenol	ND	ug/l	0.78			
Hexachlorobenzene	ND	ug/l	0.78			
Perylene	ND	ug/l	0.20			
Biphenyl	ND	ug/l	0.20			
2,6-Dimethylnaphthalene	ND	ug/l	0.20			
1-Methylphenanthrene	ND	ug/l	0.20			
Benzo(e)Pyrene	ND	ug/l	0.20			
Hexachloroethane	ND	ug/l	0.78			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-04
 SB-14/ (TMW-14)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
PAH by GC/MS SIM 8270M cont'd				1 8270C-M	1205 17:30	1206 12:59	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	46.0	%	21-120				
Phenol-d6	38.0	%	10-120				
Nitrobenzene-d5	73.0	%	23-120				
2-Fluorobiphenyl	71.0	%	43-120				
2,4,6-Tribromophenol	81.0	%	10-120				
4-Terphenyl-d14	66.0	%	33-120				
Polychlorinated Biphenyls				5 608	1201 16:00	1205 19:06	JB
Aroclor 1221	ND	ug/l	0.269				
Aroclor 1232	ND	ug/l	0.269				
Aroclor 1242/1016	ND	ug/l	0.269				
Aroclor 1248	ND	ug/l	0.269				
Aroclor 1254	ND	ug/l	0.269				
Aroclor 1260	ND	ug/l	0.269				
Surrogate(s)	Recovery		QC Criteria				
2,4,5,6-Tetrachloro-m-xylene	61.0	%	30-150				
Decachlorobiphenyl	71.0	%	30-150				

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0514542-05	Date Collected: 29-NOV-2005 13:00
SB-17/ (TMW-17)	Date Received : 30-NOV-2005
Sample Matrix: WATER	Date Reported : 08-DEC-2005
Condition of Sample: Satisfactory	Field Prep: Field Filtered
Number & Type of Containers: 5-Amber,5-Plastic,4-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Solids, Total Suspended	120	mg/l	5.0	4 160.2		1205 15:30	DT
Cyanide, Total	0.016	mg/l	0.005	4 335.2	1203 12:40	1205 17:16	DD
Chlorine, Total Residual	ND	mg/l	0.05	4 330.1		1130 21:05	DP
TPH	ND	mg/l	4.00	74 1664A	1205 11:30	1206 08:30	AT
Phenolics, Total	ND	mg/l	0.03	4 420.1		1207 09:00	AT
Chromium, Hexavalent	ND	mg/l	0.02	30 3500CR-D	1130 19:00	1130 19:00	HS
Total Metals				19 200.7			
Antimony, Total	ND	mg/l	0.005	3 200.9	1201 13:30	1205 13:40	PY
Arsenic, Total	0.006	mg/l	0.005	19 200.7	1201 13:30	1202 12:54	MG
Cadmium, Total	0.0002	mg/l	0.0002	4 213.2	1201 13:30	1205 18:30	PY
Chromium, Total	0.02	mg/l	0.01	19 200.7	1201 13:30	1202 12:54	MG
Iron, Total	15.	mg/l	0.05	19 200.7	1201 13:30	1202 12:54	MG
Lead, Total	0.054	mg/l	0.002	3 200.9	1201 13:30	1207 12:13	PY
Mercury, Total	ND	mg/l	0.0002	4 245.2	1201 16:50	1202 14:47	DM
Nickel, Total	ND	mg/l	0.025	19 200.7	1201 13:30	1202 12:54	MG
Selenium, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:54	MG
Silver, Total	ND	mg/l	0.0002	4 272.2	1201 13:30	1206 15:32	PY
Zinc, Total	0.058	mg/l	0.050	19 200.7	1201 13:30	1202 12:54	MG
Dissolved Metals							
Antimony, Dissolved	ND	mg/l	0.005	4 204.2	1201 13:30	1205 12:12	PY
Arsenic, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 11:52	MG
Cadmium, Dissolved	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 17:07	PY
Chromium, Dissolved	ND	mg/l	0.01	19 200.7	1201 13:30	1202 11:52	MG
Iron, Dissolved	3.2	mg/l	0.05	19 200.7	1201 13:30	1202 11:52	MG
Lead, Dissolved	ND	mg/l	0.001	4 239.2	1201 13:30	1207 12:28	PY
Mercury, Dissolved	ND	mg/l	0.0002	3 245.1	1201 16:50	1202 14:23	DM
Nickel, Dissolved	ND	mg/l	0.025	19 200.7	1201 13:30	1202 11:52	MG
Selenium, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 11:52	MG
Silver, Dissolved	ND	mg/l	0	4 272.2	1201 13:30	1206 12:50	PY
Zinc, Dissolved	ND	mg/l	0.050	19 200.7	1201 13:30	1202 11:52	MG

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-05
SB-17/ (TMW-17)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Pesticides by GC 504				14 504.1	1206 15:00 1206 19:25	JB
1,2-Dibromoethane	ND	ug/l	0.019			
1,2-Dibromo-3-chloropropane	ND	ug/l	0.019			
Volatile Organics by GC/MS 624				5 624	1202 12:56	MM
Methylene chloride	ND	ug/l	25.			
1,1-Dichloroethane	ND	ug/l	7.5			
Chloroform	ND	ug/l	7.5			
Carbon tetrachloride	ND	ug/l	5.0			
1,2-Dichloropropane	ND	ug/l	18.			
Dibromochloromethane	ND	ug/l	5.0			
1,1,2-Trichloroethane	ND	ug/l	7.5			
2-Chloroethylvinyl ether	ND	ug/l	50.			
Tetrachloroethene	ND	ug/l	7.5			
Chlorobenzene	ND	ug/l	18.			
Trichlorofluoromethane	ND	ug/l	25.			
1,2-Dichloroethane	ND	ug/l	7.5			
1,1,1-Trichloroethane	ND	ug/l	10.			
Bromodichloromethane	ND	ug/l	5.0			
trans-1,3-Dichloropropene	ND	ug/l	7.5			
cis-1,3-Dichloropropene	ND	ug/l	7.5			
Bromoform	ND	ug/l	5.0			
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0			
Benzene	ND	ug/l	5.0			
Toluene	ND	ug/l	5.0			
Ethylbenzene	ND	ug/l	5.0			
Chloromethane	ND	ug/l	50.			
Bromomethane	ND	ug/l	25.			
Vinyl chloride	ND	ug/l	10.			
Chloroethane	ND	ug/l	10.			
1,1-Dichloroethene	ND	ug/l	5.0			
trans-1,2-Dichloroethene	ND	ug/l	7.5			
cis-1,2-Dichloroethene	ND	ug/l	5.0			
Trichloroethene	ND	ug/l	5.0			
1,2-Dichlorobenzene	ND	ug/l	25.			
1,3-Dichlorobenzene	ND	ug/l	25.			
1,4-Dichlorobenzene	ND	ug/l	25.			
p/m-Xylene	ND	ug/l	10.			
o-xylene	ND	ug/l	5.0			
Xylene (Total)	ND	ug/l	10.			
Styrene	ND	ug/l	5.0			
Acetone	ND	ug/l	50.			
Carbon disulfide	ND	ug/l	25.			
2-Butanone	ND	ug/l	50.			
Vinyl acetate	ND	ug/l	100			
4-Methyl-2-pentanone	ND	ug/l	50.			
2-Hexanone	ND	ug/l	50.			
Acrolein	ND	ug/l	40.			
Acrylonitrile	ND	ug/l	50.			
Methyl tert butyl ether	ND	ug/l	100			

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0514542-05
SB-17/ (TMW-17)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624	1202 12:56 MM	
1,4-Dioxane	ND	ug/l	10000			
Tert-Butyl Alcohol	ND	ug/l	500			
Tertiary-Amyl Methyl Ether	ND	ug/l	100			
Surrogate(s)	Recovery		QC Criteria			
Pentafluorobenzene	97.0	%	80-120			
Fluorobenzene	101.	%	80-120			
4-Bromofluorobenzene	106.	%	80-120			
SVOC's by GC/MS 8270				1 8270C	1201 11:00 1203 04:47 RL	
Acenaphthene	8.3	ug/l	4.9			
Benzidine	ND	ug/l	49.			
1,2,4-Trichlorobenzene	ND	ug/l	4.9			
Hexachlorobenzene	ND	ug/l	4.9			
Bis(2-chloroethyl)ether	ND	ug/l	4.9			
1-Chloronaphthalene	ND	ug/l	4.9			
2-Chloronaphthalene	ND	ug/l	5.9			
1,2-Dichlorobenzene	ND	ug/l	4.9			
1,3-Dichlorobenzene	ND	ug/l	4.9			
1,4-Dichlorobenzene	ND	ug/l	4.9			
3,3'-Dichlorobenzidine	ND	ug/l	49.			
2,4-Dinitrotoluene	ND	ug/l	5.9			
2,6-Dinitrotoluene	ND	ug/l	4.9			
Azobenzene	ND	ug/l	4.9			
Fluoranthene	8.5	ug/l	4.9			
4-Chlorophenyl phenyl ether	ND	ug/l	4.9			
4-Bromophenyl phenyl ether	ND	ug/l	4.9			
Bis(2-chloroisopropyl)ether	ND	ug/l	4.9			
Bis(2-chloroethoxy)methane	ND	ug/l	4.9			
Hexachlorobutadiene	ND	ug/l	9.9			
Hexachlorocyclopentadiene	ND	ug/l	9.9			
Hexachloroethane	ND	ug/l	4.9			
Isophorone	ND	ug/l	4.9			
Naphthalene	ND	ug/l	4.9			
Nitrobenzene	ND	ug/l	4.9			
NDPA/DPA	ND	ug/l	15.			
n-Nitrosodi-n-propylamine	ND	ug/l	4.9			
Bis(2-ethylhexyl)phthalate	ND	ug/l	9.9			
Butyl benzyl phthalate	ND	ug/l	4.9			
Di-n-butylphthalate	ND	ug/l	4.9			
Di-n-octylphthalate	ND	ug/l	4.9			
Diethyl phthalate	ND	ug/l	4.9			
Dimethyl phthalate	ND	ug/l	4.9			
Benzo(a)anthracene	ND	ug/l	4.9			
Benzo(a)pyrene	ND	ug/l	4.9			
Benzo(b)fluoranthene	ND	ug/l	4.9			
Benzo(k)fluoranthene	ND	ug/l	4.9			
Chrysene	ND	ug/l	4.9			
Acenaphthylene	ND	ug/l	4.9			

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0514542-05
SB-17/ (TMW-17)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd				1	8270C	1201 11:00	1203 04:47 RL
Anthracene	ND	ug/l	4.9				
Benzo(ghi)perylene	ND	ug/l	4.9				
Fluorene	7.6	ug/l	4.9				
Phenanthrene	15.	ug/l	4.9				
Dibenzo(a,h)anthracene	ND	ug/l	4.9				
Indeno(1,2,3-cd)pyrene	ND	ug/l	6.9				
Pyrene	7.2	ug/l	4.9				
Benzo(e)pyrene	ND	ug/l	4.9				
Biphenyl	ND	ug/l	4.9				
Perylene	ND	ug/l	4.9				
Aniline	ND	ug/l	9.9				
4-Chloroaniline	ND	ug/l	4.9				
1-Methylnaphthalene	5.1	ug/l	4.9				
2-Nitroaniline	ND	ug/l	4.9				
3-Nitroaniline	ND	ug/l	4.9				
4-Nitroaniline	ND	ug/l	6.9				
Dibenzofuran	6.3	ug/l	4.9				
a,a-Dimethylphenethylamine	ND	ug/l	49.				
Hexachloropropene	ND	ug/l	9.9				
Nitrosodi-n-butylamine	ND	ug/l	9.9				
2-Methylnaphthalene	ND	ug/l	4.9				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	20.				
Pentachlorobenzene	ND	ug/l	20.				
a-Naphthylamine	ND	ug/l	20.				
b-Naphthylamine	ND	ug/l	20.				
Phenacetin	ND	ug/l	9.9				
Dimethoate	ND	ug/l	20.				
4-Aminobiphenyl	ND	ug/l	9.9				
Pentachloronitrobenzene	ND	ug/l	9.9				
Isodrin	ND	ug/l	9.9				
p-Dimethylaminoazobenzene	ND	ug/l	9.9				
Chlorobenzilate	ND	ug/l	20.				
3-Methylcholanthrene	ND	ug/l	20.				
Ethyl Methanesulfonate	ND	ug/l	15.				
Acetophenone	ND	ug/l	20.				
Nitrosodipiperidine	ND	ug/l	20.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	9.9				
n-Nitrosodimethylamine	ND	ug/l	49.				
2,4,6-Trichlorophenol	ND	ug/l	4.9				
p-Chloro-m-cresol	ND	ug/l	4.9				
2-Chlorophenol	ND	ug/l	5.9				
2,4-Dichlorophenol	ND	ug/l	9.9				
2,4-Dimethylphenol	ND	ug/l	9.9				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	9.9				
2,4-Dinitrophenol	ND	ug/l	20.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	20.				
Phenol	ND	ug/l	6.9				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-05
SB-17/ (TMW-17)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
SVOC's by GC/MS 8270 cont'd						
				1 8270C	1201 11:00 1203 04:47 RL	
2-Methylphenol	ND	ug/l	5.9			
3-Methylphenol/4-Methylphenol	ND	ug/l	5.9			
2,4,5-Trichlorophenol	ND	ug/l	4.9			
2,6-Dichlorophenol	ND	ug/l	9.9			
Benzoic Acid	ND	ug/l	49.			
Benzyl Alcohol	ND	ug/l	9.9			
Carbazole	6.6	ug/l	4.9			
Pyridine	ND	ug/l	49.			
2-Picoline	ND	ug/l	20.			
Pronamide	ND	ug/l	20.			
Methyl methanesulfonate	ND	ug/l	20.			
Surrogate(s)	Recovery		QC Criteria			
2-Fluorophenol	33.0	%	21-120			
Phenol-d6	29.0	%	10-120			
Nitrobenzene-d5	63.0	%	23-120			
2-Fluorobiphenyl	68.0	%	43-120			
2,4,6-Tribromophenol	103.	%	10-120			
4-Terphenyl-d14	89.0	%	33-120			
PAH by GC/MS SIM 8270M						
				1 8270C-M	1201 11:00 1202 15:00 RL	
Acenaphthene	8.0	ug/l	0.20			
2-Chloronaphthalene	ND	ug/l	0.20			
Fluoranthene	11.	ug/l	0.20			
Hexachlorobutadiene	ND	ug/l	0.49			
Naphthalene	2.5	ug/l	0.20			
Benzo(a)anthracene	2.7	ug/l	0.20			
Benzo(a)pyrene	1.5	ug/l	0.20			
Benzo(b)fluoranthene	2.2	ug/l	0.20			
Benzo(k)fluoranthene	1.2	ug/l	0.20			
Chrysene	2.6	ug/l	0.20			
Acenaphthylene	0.70	ug/l	0.20			
Anthracene	5.2	ug/l	0.20			
Benzo(ghi)perylene	0.83	ug/l	0.20			
Fluorene	7.9	ug/l	0.20			
Phenanthrene	14.	ug/l	0.20			
Dibenzo(a,h)anthracene	0.27	ug/l	0.20			
Indeno(1,2,3-cd)Pyrene	0.90	ug/l	0.20			
Pyrene	9.5	ug/l	0.20			
1-Methylnaphthalene	3.3	ug/l	0.20			
2-Methylnaphthalene	0.60	ug/l	0.20			
Pentachlorophenol	ND	ug/l	0.79			
Hexachlorobenzene	ND	ug/l	0.79			
Perylene	0.34	ug/l	0.20			
Biphenyl	ND	ug/l	0.20			
2,6-Dimethylnaphthalene	ND	ug/l	0.20			
1-Methylphenanthrene	1.1	ug/l	0.20			
Benzo(e)Pyrene	1.0	ug/l	0.20			
Hexachloroethane	ND	ug/l	0.79			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-05
SB-17/ (TMW-17)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
PAH by GC/MS SIM 8270M cont'd				1 8270C-M	1201 11:00	1202 15:00	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	41.0	%	21-120				
Phenol-d6	35.0	%	10-120				
Nitrobenzene-d5	69.0	%	23-120				
2-Fluorobiphenyl	67.0	%	43-120				
2,4,6-Tribromophenol	67.0	%	10-120				
4-Terphenyl-d14	82.0	%	33-120				
Polychlorinated Biphenyls				5 608	1201 16:00	1205 19:34	JB
Aroclor 1221	ND	ug/l	0.263				
Aroclor 1232	ND	ug/l	0.263				
Aroclor 1242/1016	ND	ug/l	0.263				
Aroclor 1248	ND	ug/l	0.263				
Aroclor 1254	ND	ug/l	0.263				
Aroclor 1260	ND	ug/l	0.263				
Surrogate(s)	Recovery		QC Criteria				
2,4,5,6-Tetrachloro-m-xylene	60.0	%	30-150				
Decachlorobiphenyl	53.0	%	30-150				

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0514542-06	Date Collected: 30-NOV-2005 11:00
Sample Matrix: SB-19/ (TMW-19)	Date Received : 30-NOV-2005
Condition of Sample: Satisfactory	Date Reported : 08-DEC-2005
Field Prep: Field Filtered	
Number & Type of Containers: 10-Amber,5-Plastic,4-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Solids, Total Suspended	98.	mg/l	10.	4 160.2		1205 15:30	DT
Cyanide, Total	ND	mg/l	0.005	4 335.2	1203 12:40	1205 17:16	DD
Chlorine, Total Residual	ND	mg/l	0.05	4 330.1		1130 21:05	DP
TPH	ND	mg/l	4.00	74 1664A	1205 11:30	1206 08:30	AT
Phenolics, Total	ND	mg/l	0.03	4 420.1		1207 09:00	AT
Chromium, Hexavalent	ND	mg/l	0.02	30 3500CR-D	1130 19:00	1130 19:00	HS
Total Metals				19 200.7			
Antimony, Total	ND	mg/l	0.005	3 200.9	1201 13:30	1205 14:00	PY
Arsenic, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:58	MG
Cadmium, Total	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 18:35	PY
Chromium, Total	ND	mg/l	0.01	19 200.7	1201 13:30	1202 12:58	MG
Iron, Total	3.6	mg/l	0.05	19 200.7	1201 13:30	1202 12:58	MG
Lead, Total	0.012	mg/l	0.001	3 200.9	1201 13:30	1207 01:15	PY
Mercury, Total	ND	mg/l	0.0002	4 245.2	1201 16:50	1202 14:53	DM
Nickel, Total	ND	mg/l	0.025	19 200.7	1201 13:30	1202 12:58	MG
Selenium, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:58	MG
Silver, Total	ND	mg/l	0.0002	4 272.2	1201 13:30	1206 20:28	PY
Zinc, Total	ND	mg/l	0.050	19 200.7	1201 13:30	1202 12:58	MG
Dissolved Metals							
Antimony, Dissolved	ND	mg/l	0.005	4 204.2	1201 13:30	1205 12:19	PY
Arsenic, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:06	MG
Cadmium, Dissolved	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 17:13	PY
Chromium, Dissolved	ND	mg/l	0.01	19 200.7	1201 13:30	1202 12:06	MG
Iron, Dissolved	0.05	mg/l	0.05	19 200.7	1201 13:30	1202 12:06	MG
Lead, Dissolved	ND	mg/l	0.001	4 239.2	1201 13:30	1206 23:16	PY
Mercury, Dissolved	ND	mg/l	0.0002	3 245.1	1201 16:50	1202 14:25	DM
Nickel, Dissolved	ND	mg/l	0.025	19 200.7	1201 13:30	1202 12:06	MG
Selenium, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:06	MG
Silver, Dissolved	ND	mg/l	0	4 272.2	1201 13:30	1206 12:56	PY
Zinc, Dissolved	ND	mg/l	0.050	19 200.7	1201 13:30	1202 12:06	MG

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-06
SB-19/ (TMW-19)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Pesticides by GC 504				14 504.1	1206 15:00 1206 20:10	JB
1,2-Dibromoethane	ND	ug/l	0.020			
1,2-Dibromo-3-chloropropane	ND	ug/l	0.020			
Volatile Organics by GC/MS 624				5 624	1202 13:32	MM
Methylene chloride	ND	ug/l	25.			
1,1-Dichloroethane	ND	ug/l	7.5			
Chloroform	ND	ug/l	7.5			
Carbon tetrachloride	ND	ug/l	5.0			
1,2-Dichloropropane	ND	ug/l	18.			
Dibromochloromethane	ND	ug/l	5.0			
1,1,2-Trichloroethane	ND	ug/l	7.5			
2-Chloroethylvinyl ether	ND	ug/l	50.			
Tetrachloroethene	ND	ug/l	7.5			
Chlorobenzene	ND	ug/l	18.			
Trichlorofluoromethane	ND	ug/l	25.			
1,2-Dichloroethane	ND	ug/l	7.5			
1,1,1-Trichloroethane	ND	ug/l	10.			
Bromodichloromethane	ND	ug/l	5.0			
trans-1,3-Dichloropropene	ND	ug/l	7.5			
cis-1,3-Dichloropropene	ND	ug/l	7.5			
Bromoform	ND	ug/l	5.0			
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0			
Benzene	ND	ug/l	5.0			
Toluene	ND	ug/l	5.0			
Ethylbenzene	ND	ug/l	5.0			
Chloromethane	ND	ug/l	50.			
Bromomethane	ND	ug/l	25.			
Vinyl chloride	ND	ug/l	10.			
Chloroethane	ND	ug/l	10.			
1,1-Dichloroethene	ND	ug/l	5.0			
trans-1,2-Dichloroethene	ND	ug/l	7.5			
cis-1,2-Dichloroethene	ND	ug/l	5.0			
Trichloroethene	ND	ug/l	5.0			
1,2-Dichlorobenzene	ND	ug/l	25.			
1,3-Dichlorobenzene	ND	ug/l	25.			
1,4-Dichlorobenzene	ND	ug/l	25.			
p/m-Xylene	ND	ug/l	10.			
o-xylene	ND	ug/l	5.0			
Xylene (Total)	ND	ug/l	10.			
Styrene	ND	ug/l	5.0			
Acetone	ND	ug/l	50.			
Carbon disulfide	ND	ug/l	25.			
2-Butanone	ND	ug/l	50.			
Vinyl acetate	ND	ug/l	100			
4-Methyl-2-pentanone	ND	ug/l	50.			
2-Hexanone	ND	ug/l	50.			
Acrolein	ND	ug/l	40.			
Acrylonitrile	ND	ug/l	50.			
Methyl tert butyl ether	ND	ug/l	100			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-06
SB-19/ (TMW-19)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624	1202 13:32 MM	
1,4-Dioxane	ND	ug/l	10000			
Tert-Butyl Alcohol	ND	ug/l	500			
Tertiary-Amyl Methyl Ether	ND	ug/l	100			
Surrogate(s)	Recovery		QC Criteria			
Pentafluorobenzene	100.	%	80-120			
Fluorobenzene	103.	%	80-120			
4-Bromofluorobenzene	108.	%	80-120			
SVOC's by GC/MS 8270				1 8270C	1201 11:00 1203 05:13 RL	
Acenaphthene	ND	ug/l	4.8			
Benzidine	ND	ug/l	48.			
1,2,4-Trichlorobenzene	ND	ug/l	4.8			
Hexachlorobenzene	ND	ug/l	4.8			
Bis(2-chloroethyl)ether	ND	ug/l	4.8			
1-Chloronaphthalene	ND	ug/l	4.8			
2-Chloronaphthalene	ND	ug/l	5.8			
1,2-Dichlorobenzene	ND	ug/l	4.8			
1,3-Dichlorobenzene	ND	ug/l	4.8			
1,4-Dichlorobenzene	ND	ug/l	4.8			
3,3'-Dichlorobenzidine	ND	ug/l	48.			
2,4-Dinitrotoluene	ND	ug/l	5.8			
2,6-Dinitrotoluene	ND	ug/l	4.8			
Azobenzene	ND	ug/l	4.8			
Fluoranthene	5.0	ug/l	4.8			
4-Chlorophenyl phenyl ether	ND	ug/l	4.8			
4-Bromophenyl phenyl ether	ND	ug/l	4.8			
Bis(2-chloroisopropyl)ether	ND	ug/l	4.8			
Bis(2-chloroethoxy)methane	ND	ug/l	4.8			
Hexachlorobutadiene	ND	ug/l	9.7			
Hexachlorocyclopentadiene	ND	ug/l	9.7			
Hexachloroethane	ND	ug/l	4.8			
Isophorone	ND	ug/l	4.8			
Naphthalene	ND	ug/l	4.8			
Nitrobenzene	ND	ug/l	4.8			
NDPA/DPA	ND	ug/l	14.			
n-Nitrosodi-n-propylamine	ND	ug/l	4.8			
Bis(2-ethylhexyl)phthalate	ND	ug/l	9.7			
Butyl benzyl phthalate	ND	ug/l	4.8			
Di-n-butylphthalate	ND	ug/l	4.8			
Di-n-octylphthalate	ND	ug/l	4.8			
Diethyl phthalate	ND	ug/l	4.8			
Dimethyl phthalate	ND	ug/l	4.8			
Benzo(a)anthracene	ND	ug/l	4.8			
Benzo(a)pyrene	ND	ug/l	4.8			
Benzo(b)fluoranthene	ND	ug/l	4.8			
Benzo(k)fluoranthene	ND	ug/l	4.8			
Chrysene	ND	ug/l	4.8			
Acenaphthylene	ND	ug/l	4.8			

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0514542-06
SB-19/ (TMW-19)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd				1	8270C	1201 11:00	1203 05:13 RL
Anthracene	ND	ug/l	4.8				
Benzo(ghi)perylene	ND	ug/l	4.8				
Fluorene	ND	ug/l	4.8				
Phenanthrene	ND	ug/l	4.8				
Dibenzo(a,h)anthracene	ND	ug/l	4.8				
Indeno(1,2,3-cd)pyrene	ND	ug/l	6.8				
Pyrene	ND	ug/l	4.8				
Benzo(e)pyrene	ND	ug/l	4.8				
Biphenyl	ND	ug/l	4.8				
Perylene	ND	ug/l	4.8				
Aniline	ND	ug/l	9.7				
4-Chloroaniline	ND	ug/l	4.8				
1-Methylnaphthalene	5.9	ug/l	4.8				
2-Nitroaniline	ND	ug/l	4.8				
3-Nitroaniline	ND	ug/l	4.8				
4-Nitroaniline	ND	ug/l	6.8				
Dibenzofuran	ND	ug/l	4.8				
a,a-Dimethylphenethylamine	ND	ug/l	48.				
Hexachloropropene	ND	ug/l	9.7				
Nitrosodi-n-butylamine	ND	ug/l	9.7				
2-Methylnaphthalene	5.0	ug/l	4.8				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	19.				
Pentachlorobenzene	ND	ug/l	19.				
a-Naphthylamine	ND	ug/l	19.				
b-Naphthylamine	ND	ug/l	19.				
Phenacetin	ND	ug/l	9.7				
Dimethoate	ND	ug/l	19.				
4-Aminobiphenyl	ND	ug/l	9.7				
Pentachloronitrobenzene	ND	ug/l	9.7				
Isodrin	ND	ug/l	9.7				
p-Dimethylaminoazobenzene	ND	ug/l	9.7				
Chlorobenzilate	ND	ug/l	19.				
3-Methylcholanthrene	ND	ug/l	19.				
Ethyl Methanesulfonate	ND	ug/l	14.				
Acetophenone	ND	ug/l	19.				
Nitrosodipiperidine	ND	ug/l	19.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	9.7				
n-Nitrosodimethylamine	ND	ug/l	48.				
2,4,6-Trichlorophenol	ND	ug/l	4.8				
p-Chloro-m-cresol	ND	ug/l	4.8				
2-Chlorophenol	ND	ug/l	5.8				
2,4-Dichlorophenol	ND	ug/l	9.7				
2,4-Dimethylphenol	ND	ug/l	9.7				
2-Nitrophenol	ND	ug/l	19.				
4-Nitrophenol	ND	ug/l	9.7				
2,4-Dinitrophenol	ND	ug/l	19.				
4,6-Dinitro-o-cresol	ND	ug/l	19.				
Pentachlorophenol	ND	ug/l	19.				
Phenol	ND	ug/l	6.8				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-06
SB-19/ (TMW-19)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
SVOC's by GC/MS 8270 cont'd				1 8270C	1201 11:00 1203 05:13 RL	
2-Methylphenol	ND	ug/l	5.8			
3-Methylphenol/4-Methylphenol	ND	ug/l	5.8			
2,4,5-Trichlorophenol	ND	ug/l	4.8			
2,6-Dichlorophenol	ND	ug/l	9.7			
Benzoic Acid	ND	ug/l	48.			
Benzyl Alcohol	ND	ug/l	9.7			
Carbazole	ND	ug/l	4.8			
Pyridine	ND	ug/l	48.			
2-Picoline	ND	ug/l	19.			
Pronamide	ND	ug/l	19.			
Methyl methanesulfonate	ND	ug/l	19.			
Surrogate(s)	Recovery		QC Criteria			
2-Fluorophenol	36.0	%	21-120			
Phenol-d6	31.0	%	10-120			
Nitrobenzene-d5	66.0	%	23-120			
2-Fluorobiphenyl	69.0	%	43-120			
2,4,6-Tribromophenol	104.	%	10-120			
4-Terphenyl-d14	93.0	%	33-120			
PAH by GC/MS SIM 8270M				1 8270C-M	1201 11:00 1202 15:45 RL	
Acenaphthene	1.0	ug/l	0.19			
2-Chloronaphthalene	ND	ug/l	0.19			
Fluoranthene	6.5	ug/l	0.19			
Hexachlorobutadiene	ND	ug/l	0.48			
Naphthalene	3.6	ug/l	0.19			
Benzo(a)anthracene	2.1	ug/l	0.19			
Benzo(a)pyrene	1.9	ug/l	0.19			
Benzo(b)fluoranthene	2.7	ug/l	0.19			
Benzo(k)fluoranthene	1.3	ug/l	0.19			
Chrysene	2.0	ug/l	0.19			
Acenaphthylene	0.29	ug/l	0.19			
Anthracene	1.4	ug/l	0.19			
Benzo(ghi)perylene	1.2	ug/l	0.19			
Fluorene	0.80	ug/l	0.19			
Phenanthrene	3.0	ug/l	0.19			
Dibenzo(a,h)anthracene	0.39	ug/l	0.19			
Indeno(1,2,3-cd)Pyrene	1.4	ug/l	0.19			
Pyrene	5.7	ug/l	0.19			
1-Methylnaphthalene	4.5	ug/l	0.19			
2-Methylnaphthalene	5.5	ug/l	0.19			
Pentachlorophenol	ND	ug/l	0.78			
Hexachlorobenzene	ND	ug/l	0.78			
Perylene	0.51	ug/l	0.19			
Biphenyl	ND	ug/l	0.19			
2,6-Dimethylnaphthalene	1.0	ug/l	0.19			
1-Methylphenanthrene	0.58	ug/l	0.19			
Benzo(e)Pyrene	1.3	ug/l	0.19			
Hexachloroethane	ND	ug/l	0.78			

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0514542-06
SB-19/ (TMW-19)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
PAH by GC/MS SIM 8270M cont'd				1 8270C-M	1201 11:00	1202 15:45	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	42.0	%	21-120				
Phenol-d6	36.0	%	10-120				
Nitrobenzene-d5	70.0	%	23-120				
2-Fluorobiphenyl	68.0	%	43-120				
2,4,6-Tribromophenol	67.0	%	10-120				
4-Terphenyl-d14	84.0	%	33-120				
Polychlorinated Biphenyls				5 608	1201 16:00	1205 20:03	JB
Aroclor 1221	ND	ug/l	0.252				
Aroclor 1232	ND	ug/l	0.252				
Aroclor 1242/1016	ND	ug/l	0.252				
Aroclor 1248	ND	ug/l	0.252				
Aroclor 1254	ND	ug/l	0.252				
Aroclor 1260	ND	ug/l	0.252				
Surrogate(s)	Recovery		QC Criteria				
2,4,5,6-Tetrachloro-m-xylene	75.0	%	30-150				
Decachlorobiphenyl	54.0	%	30-150				

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0514542-07	Date Collected: 30-NOV-2005 12:00
SB-21/ (TMW-21)	Date Received : 30-NOV-2005
Sample Matrix: WATER	Date Reported : 08-DEC-2005
Condition of Sample: Satisfactory	Field Prep: Field Filtered
Number & Type of Containers: 5-Amber,5-Plastic,4-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Solids, Total Suspended	750	mg/l	25.	4 160.2		1205 15:30	DT
Cyanide, Total	ND	mg/l	0.005	4 335.2	1203 12:40	1205 17:25	DD
Chlorine, Total Residual	ND	mg/l	0.05	4 330.1		1130 21:05	DP
TPH	ND	mg/l	4.00	74 1664A	1205 11:30	1206 08:30	AT
Phenolics, Total	ND	mg/l	0.03	4 420.1		1207 09:00	AT
Chromium, Hexavalent	ND	mg/l	0.02	30 3500CR-D	1130 19:00	1130 19:00	HS
Total Metals				19 200.7			
Antimony, Total	ND	mg/l	0.005	3 200.9	1201 13:30	1205 14:21	PY
Arsenic, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 13:32	MG
Cadmium, Total	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 19:23	PY
Chromium, Total	ND	mg/l	0.01	19 200.7	1201 13:30	1202 13:32	MG
Iron, Total	2.5	mg/l	0.05	19 200.7	1201 13:30	1202 13:32	MG
Lead, Total	0.016	mg/l	0.001	3 200.9	1201 13:30	1207 01:36	PY
Mercury, Total	ND	mg/l	0.0002	4 245.2	1201 16:50	1202 14:54	DM
Nickel, Total	ND	mg/l	0.025	19 200.7	1201 13:30	1202 13:32	MG
Selenium, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 13:32	MG
Silver, Total	ND	mg/l	0.0002	4 272.2	1201 13:30	1206 16:06	PY
Zinc, Total	ND	mg/l	0.050	19 200.7	1201 13:30	1202 13:32	MG
Dissolved Metals							
Antimony, Dissolved	ND	mg/l	0.005	4 204.2	1201 13:30	1205 12:53	PY
Arsenic, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:27	MG
Cadmium, Dissolved	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 17:47	PY
Chromium, Dissolved	ND	mg/l	0.01	19 200.7	1201 13:30	1202 12:27	MG
Iron, Dissolved	0.08	mg/l	0.05	19 200.7	1201 13:30	1202 12:27	MG
Lead, Dissolved	ND	mg/l	0.001	4 239.2	1201 13:30	1206 23:51	PY
Mercury, Dissolved	ND	mg/l	0.0002	3 245.1	1201 16:50	1202 14:31	DM
Nickel, Dissolved	ND	mg/l	0.025	19 200.7	1201 13:30	1202 12:27	MG
Selenium, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:27	MG
Silver, Dissolved	ND	mg/l	0.0002	4 272.2	1201 13:30	1206 14:24	PY
Zinc, Dissolved	ND	mg/l	0.050	19 200.7	1201 13:30	1202 12:27	MG

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-07
SB-21/ (TMW-21)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Pesticides by GC 504				14 504.1	1206 15:00 1206 20:32	JB
1,2-Dibromoethane	ND	ug/l	0.020			
1,2-Dibromo-3-chloropropane	ND	ug/l	0.020			
Volatile Organics by GC/MS 624				5 624	1202 14:08	MM
Methylene chloride	ND	ug/l	25.			
1,1-Dichloroethane	ND	ug/l	7.5			
Chloroform	ND	ug/l	7.5			
Carbon tetrachloride	ND	ug/l	5.0			
1,2-Dichloropropane	ND	ug/l	18.			
Dibromochloromethane	ND	ug/l	5.0			
1,1,2-Trichloroethane	ND	ug/l	7.5			
2-Chloroethylvinyl ether	ND	ug/l	50.			
Tetrachloroethene	ND	ug/l	7.5			
Chlorobenzene	ND	ug/l	18.			
Trichlorofluoromethane	ND	ug/l	25.			
1,2-Dichloroethane	ND	ug/l	7.5			
1,1,1-Trichloroethane	ND	ug/l	10.			
Bromodichloromethane	ND	ug/l	5.0			
trans-1,3-Dichloropropene	ND	ug/l	7.5			
cis-1,3-Dichloropropene	ND	ug/l	7.5			
Bromoform	ND	ug/l	5.0			
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0			
Benzene	ND	ug/l	5.0			
Toluene	ND	ug/l	5.0			
Ethylbenzene	ND	ug/l	5.0			
Chloromethane	ND	ug/l	50.			
Bromomethane	ND	ug/l	25.			
Vinyl chloride	ND	ug/l	10.			
Chloroethane	ND	ug/l	10.			
1,1-Dichloroethene	ND	ug/l	5.0			
trans-1,2-Dichloroethene	ND	ug/l	7.5			
cis-1,2-Dichloroethene	ND	ug/l	5.0			
Trichloroethene	ND	ug/l	5.0			
1,2-Dichlorobenzene	ND	ug/l	25.			
1,3-Dichlorobenzene	ND	ug/l	25.			
1,4-Dichlorobenzene	ND	ug/l	25.			
p/m-Xylene	ND	ug/l	10.			
o-xylene	ND	ug/l	5.0			
Xylene (Total)	ND	ug/l	10.			
Styrene	ND	ug/l	5.0			
Acetone	ND	ug/l	50.			
Carbon disulfide	ND	ug/l	25.			
2-Butanone	ND	ug/l	50.			
Vinyl acetate	ND	ug/l	100			
4-Methyl-2-pentanone	ND	ug/l	50.			
2-Hexanone	ND	ug/l	50.			
Acrolein	ND	ug/l	40.			
Acrylonitrile	ND	ug/l	50.			
Methyl tert butyl ether	ND	ug/l	100			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-07
SB-21/ (TMW-21)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624	1202 14:08 MM	
1,4-Dioxane	ND	ug/l	10000			
Tert-Butyl Alcohol	ND	ug/l	500			
Tertiary-Amyl Methyl Ether	ND	ug/l	100			
Surrogate(s)	Recovery		QC Criteria			
Pentafluorobenzene	101.	%	80-120			
Fluorobenzene	104.	%	80-120			
4-Bromofluorobenzene	108.	%	80-120			
SVOC's by GC/MS 8270				1 8270C	1201 11:00 1203 05:38 RL	
Acenaphthene	ND	ug/l	5.0			
Benzidine	ND	ug/l	50.			
1,2,4-Trichlorobenzene	ND	ug/l	5.0			
Hexachlorobenzene	ND	ug/l	5.0			
Bis(2-chloroethyl)ether	ND	ug/l	5.0			
1-Chloronaphthalene	ND	ug/l	5.0			
2-Chloronaphthalene	ND	ug/l	6.0			
1,2-Dichlorobenzene	ND	ug/l	5.0			
1,3-Dichlorobenzene	ND	ug/l	5.0			
1,4-Dichlorobenzene	ND	ug/l	5.0			
3,3'-Dichlorobenzidine	ND	ug/l	50.			
2,4-Dinitrotoluene	ND	ug/l	6.0			
2,6-Dinitrotoluene	ND	ug/l	5.0			
Azobenzene	ND	ug/l	5.0			
Fluoranthene	ND	ug/l	5.0			
4-Chlorophenyl phenyl ether	ND	ug/l	5.0			
4-Bromophenyl phenyl ether	ND	ug/l	5.0			
Bis(2-chloroisopropyl)ether	ND	ug/l	5.0			
Bis(2-chloroethoxy)methane	ND	ug/l	5.0			
Hexachlorobutadiene	ND	ug/l	10.			
Hexachlorocyclopentadiene	ND	ug/l	10.			
Hexachloroethane	ND	ug/l	5.0			
Isophorone	ND	ug/l	5.0			
Naphthalene	ND	ug/l	5.0			
Nitrobenzene	ND	ug/l	5.0			
NDPA/DPA	ND	ug/l	15.			
n-Nitrosodi-n-propylamine	ND	ug/l	5.0			
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.			
Butyl benzyl phthalate	ND	ug/l	5.0			
Di-n-butylphthalate	ND	ug/l	5.0			
Di-n-octylphthalate	ND	ug/l	5.0			
Diethyl phthalate	ND	ug/l	5.0			
Dimethyl phthalate	ND	ug/l	5.0			
Benzo(a)anthracene	ND	ug/l	5.0			
Benzo(a)pyrene	ND	ug/l	5.0			
Benzo(b)fluoranthene	ND	ug/l	5.0			
Benzo(k)fluoranthene	ND	ug/l	5.0			
Chrysene	ND	ug/l	5.0			
Acenaphthylene	ND	ug/l	5.0			

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-07
SB-21/ (TMW-21)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd				1	8270C	1201 11:00 1203 05:38	RL
Anthracene	ND	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)pyrene	ND	ug/l	7.0				
Pyrene	ND	ug/l	5.0				
Benzo(e)pyrene	ND	ug/l	5.0				
Biphenyl	ND	ug/l	5.0				
Perylene	ND	ug/l	5.0				
Aniline	ND	ug/l	10.				
4-Chloroaniline	ND	ug/l	5.0				
1-Methylnaphthalene	6.0	ug/l	5.0				
2-Nitroaniline	ND	ug/l	5.0				
3-Nitroaniline	ND	ug/l	5.0				
4-Nitroaniline	ND	ug/l	7.0				
Dibenzofuran	ND	ug/l	5.0				
a,a-Dimethylphenethylamine	ND	ug/l	50.				
Hexachloropropene	ND	ug/l	10.				
Nitrosodi-n-butylamine	ND	ug/l	10.				
2-Methylnaphthalene	6.2	ug/l	5.0				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	20.				
Pentachlorobenzene	ND	ug/l	20.				
a-Naphthylamine	ND	ug/l	20.				
b-Naphthylamine	ND	ug/l	20.				
Phenacetin	ND	ug/l	10.				
Dimethoate	ND	ug/l	20.				
4-Aminobiphenyl	ND	ug/l	10.				
Pentachloronitrobenzene	ND	ug/l	10.				
Isodrin	ND	ug/l	10.				
p-Dimethylaminoazobenzene	ND	ug/l	10.				
Chlorobenzilate	ND	ug/l	20.				
3-Methylcholanthrene	ND	ug/l	20.				
Ethyl Methanesulfonate	ND	ug/l	15.				
Acetophenone	ND	ug/l	20.				
Nitrosodipiperidine	ND	ug/l	20.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	10.				
n-Nitrosodimethylamine	ND	ug/l	50.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
p-Chloro-m-cresol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	10.				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	20.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	20.				
Phenol	ND	ug/l	7.0				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-07
SB-21/ (TMW-21)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
SVOC's by GC/MS 8270 cont'd				1	8270C	1201 11:00 1203 05:38	RL
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
2,6-Dichlorophenol	ND	ug/l	10.				
Benzoic Acid	ND	ug/l	50.				
Benzyl Alcohol	ND	ug/l	10.				
Carbazole	ND	ug/l	5.0				
Pyridine	ND	ug/l	50.				
2-Picoline	ND	ug/l	20.				
Pronamide	ND	ug/l	20.				
Methyl methanesulfonate	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	36.0	%	21-120				
Phenol-d6	31.0	%	10-120				
Nitrobenzene-d5	67.0	%	23-120				
2-Fluorobiphenyl	72.0	%	43-120				
2,4,6-Tribromophenol	109.	%	10-120				
4-Terphenyl-d14	99.0	%	33-120				
PAH by GC/MS SIM 8270M				1	8270C-M	1201 11:00 1202 16:29	RL
Acenaphthene	0.38	ug/l	0.20				
2-Chloronaphthalene	ND	ug/l	0.20				
Fluoranthene	0.87	ug/l	0.20				
Hexachlorobutadiene	ND	ug/l	0.50				
Naphthalene	4.6	ug/l	0.20				
Benzo(a)anthracene	0.26	ug/l	0.20				
Benzo(a)pyrene	0.26	ug/l	0.20				
Benzo(b)fluoranthene	0.38	ug/l	0.20				
Benzo(k)fluoranthene	0.22	ug/l	0.20				
Chrysene	0.32	ug/l	0.20				
Acenaphthylene	0.29	ug/l	0.20				
Anthracene	0.39	ug/l	0.20				
Benzo(ghi)perylene	0.20	ug/l	0.20				
Fluorene	0.39	ug/l	0.20				
Phenanthrene	0.77	ug/l	0.20				
Dibenzo(a,h)anthracene	ND	ug/l	0.20				
Indeno(1,2,3-cd)Pyrene	0.22	ug/l	0.20				
Pyrene	0.76	ug/l	0.20				
1-Methylnaphthalene	5.2	ug/l	0.20				
2-Methylnaphthalene	6.9	ug/l	0.20				
Pentachlorophenol	2.5	ug/l	0.80				
Hexachlorobenzene	ND	ug/l	0.80				
Perylene	ND	ug/l	0.20				
Biphenyl	ND	ug/l	0.20				
2,6-Dimethylnaphthalene	1.4	ug/l	0.20				
1-Methylphenanthrene	ND	ug/l	0.20				
Benzo(e)Pyrene	0.22	ug/l	0.20				
Hexachloroethane	ND	ug/l	0.80				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0514542-07
SB-21/ (TMW-21)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
PAH by GC/MS SIM 8270M cont'd				1 8270C-M	1201 11:00	1202 16:29	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	44.0	%	21-120				
Phenol-d6	37.0	%	10-120				
Nitrobenzene-d5	70.0	%	23-120				
2-Fluorobiphenyl	64.0	%	43-120				
2,4,6-Tribromophenol	78.0	%	10-120				
4-Terphenyl-d14	72.0	%	33-120				
Polychlorinated Biphenyls				5 608	1201 16:00	1205 20:32	JB
Aroclor 1221	ND	ug/l	0.252				
Aroclor 1232	ND	ug/l	0.252				
Aroclor 1242/1016	ND	ug/l	0.252				
Aroclor 1248	ND	ug/l	0.252				
Aroclor 1254	ND	ug/l	0.252				
Aroclor 1260	ND	ug/l	0.252				
Surrogate(s)	Recovery		QC Criteria				
2,4,5,6-Tetrachloro-m-xylene	68.0	%	30-150				
Decachlorobiphenyl	40.0	%	30-150				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0514542

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Solids, Total Suspended for sample(s) 01-07 (L0514562-07, WG222764-2)					
Solids, Total Suspended	ND	ND	mg/l	NC	20
Cyanide, Total for sample(s) 01-07 (L0514542-01, WG222707-4)					
Cyanide, Total	0.008	0.008	mg/l	1	30
Chlorine, Total Residual for sample(s) 01-07 (L0514542-06, WG222551-3)					
Chlorine, Total Residual	ND	ND	mg/l	NC	
TPH for sample(s) 01-07 (L0514542-06, WG222816-4)					
TPH	ND	ND	mg/l	NC	34
Phenolics, Total for sample(s) 01-07 (L0514815-01, WG223110-4)					
Phenolics, Total	0.05	0.05	mg/l	8	
Chromium, Hexavalent for sample(s) 01-07 (L0514542-04, WG222404-9)					
Chromium, Hexavalent	ND	ND	mg/l	NC	
Total Metals for sample(s) 01-07 (L0514542-06, WG222531-1)					
Antimony, Total	ND	ND	mg/l	NC	
Arsenic, Total	ND	ND	mg/l	NC	
Cadmium, Total	ND	ND	mg/l	NC	
Chromium, Total	ND	ND	mg/l	NC	
Iron, Total	3.6	3.6	mg/l	0	
Lead, Total	0.012	0.012	mg/l	3	
Nickel, Total	ND	ND	mg/l	NC	
Selenium, Total	ND	ND	mg/l	NC	
Silver, Total	ND	ND	mg/l	NC	
Zinc, Total	ND	ND	mg/l	NC	
Total Metals for sample(s) 01-07 (L0514542-03, WG222505-3)					
Mercury, Total	ND	ND	mg/l	NC	
Dissolved Metals for sample(s) 01-07 (L0514542-06, WG222530-1)					
Antimony, Dissolved	ND	ND	mg/l	NC	
Arsenic, Dissolved	ND	ND	mg/l	NC	
Cadmium, Dissolved	ND	ND	mg/l	NC	
Chromium, Dissolved	ND	ND	mg/l	NC	
Iron, Dissolved	0.05	0.06	mg/l	7	
Lead, Dissolved	ND	ND	mg/l	NC	
Nickel, Dissolved	ND	ND	mg/l	NC	
Selenium, Dissolved	ND	ND	mg/l	NC	
Silver, Dissolved	ND	ND	mg/l	NC	
Zinc, Dissolved	ND	ND	mg/l	NC	
Dissolved Metals for sample(s) 01-07 (L0514542-03, WG222504-3)					
Mercury, Dissolved	ND	ND	mg/l	NC	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0514542

Continued

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Volatile Organics by GC/MS 624 for sample(s) 01-07 (L0514498-02, WG222596-2)					
Acetone	16.	13.	ug/l	21	30
Surrogate(s)	Recovery				QC Criteria
Pentafluorobenzene	99.0	99.0	%	0	80-120
Fluorobenzene	101.	100.	%	1	80-120
4-Bromofluorobenzene	110.	105.	%	5	80-120
Polychlorinated Biphenyls for sample(s) 01-07 (L0514542-04, WG222511-4)					
Aroclor 1221	ND	ND	ug/l	NC	30
Aroclor 1232	ND	ND	ug/l	NC	30
Aroclor 1242/1016	ND	ND	ug/l	NC	30
Aroclor 1248	ND	ND	ug/l	NC	30
Aroclor 1254	ND	ND	ug/l	NC	30
Aroclor 1260	ND	ND	ug/l	NC	30
Surrogate(s)	Recovery				QC Criteria
2,4,5,6-Tetrachloro-m-xylene	61.0	64.0	%	5	30-150
Decachlorobiphenyl	71.0	70.0	%	1	30-150

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0514542

Parameter	% Recovery	QC Criteria
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Cyanide, Total LCS for sample(s) 01-07 (WG222707-2)		
Cyanide, Total	100	90-110

Chlorine, Total Residual LCS for sample(s) 01-07 (WG222551-2)		
Chlorine, Total Residual	100	

TPH LCS for sample(s) 01-07 (WG222816-2)		
TPH	85	64-132

Phenolics, Total LCS for sample(s) 01-07 (WG223110-2)		
Phenolics, Total	89	

Chromium, Hexavalent LCS for sample(s) 01-07 (WG222404-7)		
Chromium, Hexavalent	101	

Total Metals LCS for sample(s) 01-07 (WG222531-4)		
Antimony, Total	91	
Arsenic, Total	102	
Cadmium, Total	105	
Chromium, Total	95	
Iron, Total	89	
Lead, Total	111	
Nickel, Total	100	
Selenium, Total	115	
Silver, Total	106	
Zinc, Total	102	

Total Metals LCS for sample(s) 01-07 (WG222505-1)		
Mercury, Total	102	

Dissolved Metals LCS for sample(s) 01-07 (WG222530-4)		
Antimony, Dissolved	99	
Arsenic, Dissolved	103	
Cadmium, Dissolved	106	
Chromium, Dissolved	95	
Iron, Dissolved	92	
Lead, Dissolved	107	
Nickel, Dissolved	101	
Selenium, Dissolved	112	
Silver, Dissolved	102	
Zinc, Dissolved	103	

Dissolved Metals LCS for sample(s) 01-07 (WG222504-1)		
Mercury, Dissolved	98	

Pesticides by GC 504 LCS for sample(s) 01-07 (WG223054-2)		
1,2-Dibromoethane	94	
1,2-Dibromo-3-chloropropane	107	

**ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES**

Laboratory Job Number: L0514542

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS 624 LCS for sample(s) 01-07 (WG222596-5)		
Methylene chloride	101	10-221
1,1-Dichloroethane	104	59-155
Chloroform	103	51-138
Carbon tetrachloride	108	70-140
1,2-Dichloropropane	101	10-210
Dibromochloromethane	100	53-149
1,1,2-Trichloroethane	106	52-150
2-Chloroethylvinyl ether	80	10-305
Tetrachloroethene	106	64-148
Chlorobenzene	111	37-160
Trichlorofluoromethane	118	17-181
1,2-Dichloroethane	106	49-155
1,1,1-Trichloroethane	103	52-162
Bromodichloromethane	106	35-155
trans-1,3-Dichloropropene	80	17-183
cis-1,3-Dichloropropene	96	10-227
Bromoform	100	45-169
1,1,2,2-Tetrachloroethane	107	46-157
Benzene	105	37-151
Toluene	102	47-150
Ethylbenzene	117	37-162
Chloromethane	88	10-273
Bromomethane	113	10-242
Vinyl chloride	122	10-251
Chloroethane	114	14-230
1,1-Dichloroethene	105	10-234
trans-1,2-Dichloroethene	102	54-156
cis-1,2-Dichloroethene	102	60-140
Trichloroethene	101	71-157
1,2-Dichlorobenzene	115	18-190
1,3-Dichlorobenzene	113	59-156
1,4-Dichlorobenzene	117	18-190
p/m-Xylene	119	40-160
o-Xylene	120	40-160
XYLENE (TOTAL)	120	40-160
Styrene	106	40-160
Acetone	88	40-160
Carbon disulfide	95	40-160
2-Butanone	95	40-160
Vinyl acetate	105	40-160
4-Methyl-2-pentanone	101	40-160
2-Hexanone	101	40-160
Acrolein	69	40-160
Acrylonitrile	86	40-160
Surrogate(s)		
Pentafluorobenzene	107	80-120
Fluorobenzene	102	80-120

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0514542

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS 624 LCS for sample(s) 01-07 (WG222596-5)		
4-Bromofluorobenzene	111	80-120
SVOC's by GC/MS 8270 LCS for sample(s) 01-03,05-07 (WG222490-2)		
Acenaphthene	80	46-118
1,2,4-Trichlorobenzene	62	39-98
2-Chloronaphthalene	76	40-140
1,2-Dichlorobenzene	53	40-140
1,4-Dichlorobenzene	51	36-97
2,4-Dinitrotoluene	103	24-96
2,6-Dinitrotoluene	106	40-140
Fluoranthene	103	40-140
4-Chlorophenyl phenyl ether	90	40-140
n-Nitrosodi-n-propylamine	63	41-116
Butyl benzyl phthalate	103	40-140
Anthracene	70	40-140
Pyrene	97	26-127
Hexachloropropene	62	40-140
P-Chloro-M-Cresol	84	23-97
2-Chlorophenol	58	27-123
2-Nitrophenol	69	30-130
4-Nitrophenol	44	10-80
2,4-Dinitrophenol	98	30-130
Pentachlorophenol	92	9-103
Phenol	26	12-110
Surrogate(s)		
2-Fluorophenol	39	21-120
Phenol-d6	34	10-120
Nitrobenzene-d5	63	23-120
2-Fluorobiphenyl	76	43-120
2,4,6-Tribromophenol	108	10-120
4-Terphenyl-d14	108	33-120
SVOC's by GC/MS 8270 LCS for sample(s) 04 (WG223032-2)		
Acenaphthene	77	46-118
1,2,4-Trichlorobenzene	68	39-98
2-Chloronaphthalene	75	40-140
1,2-Dichlorobenzene	56	40-140
1,4-Dichlorobenzene	55	36-97
2,4-Dinitrotoluene	92	24-96
2,6-Dinitrotoluene	102	40-140
Fluoranthene	105	40-140
4-Chlorophenyl phenyl ether	80	40-140
n-Nitrosodi-n-propylamine	56	41-116
Butyl benzyl phthalate	104	40-140
Anthracene	75	40-140
Pyrene	98	26-127
Hexachloropropene	76	40-140

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0514542

Continued

Parameter	% Recovery	QC Criteria
SVOC's by GC/MS 8270 LCS for sample(s) 04 (WG223032-2)		
P-Chloro-M-Cresol	79	23-97
2-Chlorophenol	60	27-123
2-Nitrophenol	73	30-130
4-Nitrophenol	39	10-80
2,4-Dinitrophenol	81	30-130
Pentachlorophenol	114	9-103
Phenol	22	12-110
Surrogate(s)		
2-Fluorophenol	34	21-120
Phenol-d6	28	10-120
Nitrobenzene-d5	70	23-120
2-Fluorobiphenyl	77	43-120
2,4,6-Tribromophenol	115	10-120
4-Terphenyl-d14	108	33-120
PAH by GC/MS SIM 8270M LCS for sample(s) 01-03,05-07 (WG222491-2)		
Acenaphthene	52	46-118
2-Chloronaphthalene	56	
Fluoranthene	80	
Anthracene	68	
Pyrene	83	26-127
Pentachlorophenol	72	9-103
Surrogate(s)		
2-Fluorophenol	44	21-120
Phenol-d6	35	10-120
Nitrobenzene-d5	61	23-120
2-Fluorobiphenyl	58	43-120
2,4,6-Tribromophenol	69	10-120
4-Terphenyl-d14	76	33-120
PAH by GC/MS SIM 8270M LCS for sample(s) 04 (WG223034-2)		
Acenaphthene	52	46-118
2-Chloronaphthalene	62	
Fluoranthene	80	
Anthracene	66	
Pyrene	78	26-127
Pentachlorophenol	64	9-103
Surrogate(s)		
2-Fluorophenol	42	21-120
Phenol-d6	32	10-120
Nitrobenzene-d5	68	23-120
2-Fluorobiphenyl	61	43-120
2,4,6-Tribromophenol	58	10-120
4-Terphenyl-d14	77	33-120

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0514542

Continued

Parameter	% Recovery	QC Criteria
Polychlorinated Biphenyls LCS for sample(s) 01-07 (WG222511-2)		
Aroclor 1242/1016	85	30-150
Aroclor 1260	93	30-150
Surrogate(s)		
2,4,5,6-Tetrachloro-m-xylene	57	30-150
Decachlorobiphenyl	60	30-150
Cyanide, Total SPIKE for sample(s) 01-07 (L0514209-02, WG222707-3)		
Cyanide, Total	98	80-120
TPH SPIKE for sample(s) 01-07 (L0514549-06, WG222816-3)		
TPH	81	64-132
Phenolics, Total SPIKE for sample(s) 01-07 (L0514542-03, WG223110-3)		
Phenolics, Total	91	
Chromium, Hexavalent SPIKE for sample(s) 01-07 (L0514542-01, WG222404-8)		
Chromium, Hexavalent	99	
Total Metals SPIKE for sample(s) 01-07 (L0514542-06, WG222531-2)		
Antimony, Total	91	
Arsenic, Total	104	
Cadmium, Total	108	
Chromium, Total	90	
Iron, Total	80	
Lead, Total	116	
Nickel, Total	96	
Selenium, Total	117	
Silver, Total	108	
Zinc, Total	105	
Total Metals SPIKE for sample(s) 01-07 (L0514542-03, WG222505-2)		
Mercury, Total	111	
Dissolved Metals SPIKE for sample(s) 01-07 (L0514542-06, WG222530-2)		
Antimony, Dissolved	89	
Arsenic, Dissolved	103	
Cadmium, Dissolved	105	
Chromium, Dissolved	90	
Iron, Dissolved	85	
Lead, Dissolved	110	
Nickel, Dissolved	96	
Selenium, Dissolved	115	
Silver, Dissolved	115	
Zinc, Dissolved	104	

**ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES**

Laboratory Job Number: L0514542

Continued

Parameter	% Recovery	QC Criteria
Dissolved Metals SPIKE for sample(s) 01-07 (L0514542-03, WG222504-2)		
Mercury, Dissolved	102	
Pesticides by GC 504 SPIKE for sample(s) 01-07 (L0514542-01, WG223054-3)		
1,2-Dibromoethane	90	
1,2-Dibromo-3-chloropropane	97	
Volatile Organics by GC/MS 624 SPIKE for sample(s) 01-07 (L0514498-02, WG222596-1)		
Methylene chloride	103	10-221
1,1-Dichloroethane	107	59-155
Chloroform	103	51-138
Carbon tetrachloride	107	70-140
1,2-Dichloropropane	108	10-210
Dibromochloromethane	113	53-149
1,1,2-Trichloroethane	120	52-150
2-Chloroethylvinyl ether	104	10-305
Tetrachloroethene	111	64-148
Chlorobenzene	112	37-160
Trichlorofluoromethane	119	17-181
1,2-Dichloroethane	117	49-155
1,1,1-Trichloroethane	108	52-162
Bromodichloromethane	110	35-155
trans-1,3-Dichloropropene	121	17-183
cis-1,3-Dichloropropene	105	10-227
Bromoform	114	45-169
1,1,2,2-Tetrachloroethane	122	46-157
Benzene	110	35-151
Toluene	105	47-150
Ethylbenzene	116	37-162
Chloromethane	108	10-273
Bromomethane	99	10-242
Vinyl chloride	116	10-251
Chloroethane	113	14-230
1,1-Dichloroethene	110	10-234
trans-1,2-Dichloroethene	110	54-156
cis-1,2-Dichloroethene	108	60-140
Trichloroethene	104	71-157
1,2-Dichlorobenzene	115	18-190
1,3-Dichlorobenzene	113	59-156
1,4-Dichlorobenzene	116	18-190
p/m-Xylene	119	40-160
o-Xylene	117	40-160
XYLENE (TOTAL)	119	40-160
Styrene	106	40-160
Acetone	105	40-160
Carbon disulfide	95	40-160
2-Butanone	120	40-160
Vinyl acetate	110	40-160
4-Methyl-2-pentanone	128	40-160

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0514542

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS 624 SPIKE for sample(s) 01-07 (L0514498-02, WG222596-1)		
2-Hexanone	124	40-160
Acrolein	113	40-160
Acrylonitrile	111	40-160
Surrogate(s)		
Pentafluorobenzene	99	80-120
Fluorobenzene	98	80-120
4-Bromofluorobenzene	98	80-120
Polychlorinated Biphenyls SPIKE for sample(s) 01-07 (L0514542-04, WG222511-3)		
Aroclor 1242/1016	85	30-150
Aroclor 1260	89	30-150
Surrogate(s)		
2,4,5,6-Tetrachloro-m-xylene	62	30-150
Decachlorobiphenyl	73	30-150

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L0514542

Parameter	MS %	MSD %	RPD	RPD Limit	MS/MSD Limits
SVOC's by GC/MS 8270 for sample(s) 01-03,05-07 (L0514542-07, WG222490-4)					
Acenaphthene	81	77	5	30	46-118
1,2,4-Trichlorobenzene	77	68	12	30	39-98
2-Chloronaphthalene	85	77	10	30	40-140
1,2-Dichlorobenzene	60	60	0	30	40-140
1,4-Dichlorobenzene	60	55	9	30	36-97
2,4-Dinitrotoluene	94	94	0	30	24-96
2,6-Dinitrotoluene	98	94	4	30	40-140
Fluoranthene	94	94	0	30	40-140
4-Chlorophenyl phenyl ether	85	81	5	30	40-140
n-Nitrosodi-n-propylamine	68	60	13	30	41-116
Butyl benzyl phthalate	94	89	5	30	40-140
Anthracene	64	60	6	30	40-140
Pyrene	89	89	0	30	26-127
Hexachloropropene	77	68	12	30	40-140
P-Chloro-M-Cresol	87	85	2	30	23-97
2-Chlorophenol	66	62	6	30	27-123
2-Nitrophenol	74	72	3	30	30-130
4-Nitrophenol	79	79	0	30	10-80
2,4-Dinitrophenol	94	94	0	30	30-130
Pentachlorophenol	98	94	4	30	9-103
Phenol	49	45	9	30	12-110
Surrogate(s)					
2-Fluorophenol	54	51	6		21-120
Phenol-d6	60	56	7		10-120
Nitrobenzene-d5	67	63	6		23-120
2-Fluorobiphenyl	77	70	10		43-120
2,4,6-Tribromophenol	106	101	5		10-120
4-Terphenyl-d14	92	93	1		33-120
SVOC's by GC/MS 8270 for sample(s) 04 (L0514542-04, WG223032-4)					
Acenaphthene	61	66	8	30	46-118
1,2,4-Trichlorobenzene	52	56	7	30	39-98
2-Chloronaphthalene	56	61	9	30	40-140
1,2-Dichlorobenzene	47	52	10	30	40-140
1,4-Dichlorobenzene	47	47	0	30	36-97
2,4-Dinitrotoluene	75	85	13	30	24-96
2,6-Dinitrotoluene	85	89	5	30	40-140
Fluoranthene	85	94	10	30	40-140
4-Chlorophenyl phenyl ether	66	71	7	30	40-140
n-Nitrosodi-n-propylamine	45	46	2	30	41-116
Butyl benzyl phthalate	85	94	10	30	40-140
Anthracene	56	66	16	30	40-140
Pyrene	80	89	11	30	26-127
Hexachloropropene	66	66	0	30	40-140
P-Chloro-M-Cresol	71	75	5	30	23-97
2-Chlorophenol	49	54	10	30	27-123
2-Nitrophenol	56	61	9	30	30-130

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L0514542

Continued

Parameter	MS %	MSD %	RPD	RPD Limit	MS/MSD Limits
SVOC's by GC/MS 8270 for sample(s) 04 (L0514542-04, WG223032-4)					
4-Nitrophenol	59	63	7	30	10-80
2,4-Dinitrophenol	80	89	11	30	30-130
Pentachlorophenol	92	110	18	30	9-103
Phenol	31	33	6	30	12-110
Surrogate(s)					
2-Fluorophenol	41	44	7		21-120
Phenol-d6	42	45	7		10-120
Nitrobenzene-d5	54	59	9		23-120
2-Fluorobiphenyl	59	65	10		43-120
2,4,6-Tribromophenol	92	111	19		10-120
4-Terphenyl-d14	85	96	12		33-120
PAH by GC/MS SIM 8270M for sample(s) 01-03,05-07 (L0514542-07, WG222491-4)					
Acenaphthene	59	59	0	40	46-118
2-Chloronaphthalene	64	64	0	40	
Fluoranthene	89	89	0	40	
Anthracene	55	59	7	40	
Pyrene	85	89	5	40	26-127
Pentachlorophenol	84	91	8	40	9-103
Surrogate(s)					
2-Fluorophenol	68	67	1		21-120
Phenol-d6	71	69	3		10-120
Nitrobenzene-d5	81	78	4		23-120
2-Fluorobiphenyl	70	65	7		43-120
2,4,6-Tribromophenol	72	77	7		10-120
4-Terphenyl-d14	62	65	5		33-120
PAH by GC/MS SIM 8270M for sample(s) 04 (L0514542-04, WG223034-4)					
Acenaphthene	56	47	17	40	46-118
2-Chloronaphthalene	61	52	16	40	
Fluoranthene	75	70	7	40	
Anthracene	61	61	0	40	
Pyrene	94	89	5	40	26-127
Pentachlorophenol	80	75	6	40	9-103
Surrogate(s)					
2-Fluorophenol	65	56	15		21-120
Phenol-d6	61	53	14		10-120
Nitrobenzene-d5	72	65	10		23-120
2-Fluorobiphenyl	62	58	7		43-120
2,4,6-Tribromophenol	85	77	10		10-120
4-Terphenyl-d14	72	68	6		33-120

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 01-07 (WG222764-1)							
Solids, Total Suspended	ND	mg/l	5.0	4 160.2		1205 15:30	DT
Blank Analysis for sample(s) 01-07 (WG222707-1)							
Cyanide, Total	ND	mg/l	0.005	4 335.2	1203 12:40	1205 16:59	DD
Blank Analysis for sample(s) 01-07 (WG222551-1)							
Chlorine, Total Residual	ND	mg/l	0.05	4 330.1		1130 21:05	DP
Blank Analysis for sample(s) 01-07 (WG222816-1)							
TPH	ND	mg/l	4.00	74 1664A	1205 11:30	1206 08:30	AT
Blank Analysis for sample(s) 01-07 (WG223110-1)							
Phenolics, Total	ND	mg/l	0.03	4 420.1		1207 09:00	AT
Blank Analysis for sample(s) 01-07 (WG222404-6)							
Chromium, Hexavalent	ND	mg/l	0.02	30 3500CR-D	1130 19:00	1130 19:00	HS
Blank Analysis for sample(s) 01-07 (WG222531-3)							
Total Metals				19 200.7			
Antimony, Total	ND	mg/l	0.005	3 200.9	1201 13:30	1205 12:59	PY
Arsenic, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:32	MG
Cadmium, Total	ND	mg/l	0.0002	4 213.2	1201 13:30	1205 17:52	PY
Chromium, Total	ND	mg/l	0.01	19 200.7	1201 13:30	1202 12:32	MG
Iron, Total	ND	mg/l	0.05	19 200.7	1201 13:30	1202 12:32	MG
Lead, Total	ND	mg/l	0.001	3 200.9	1201 13:30	1206 23:58	PY
Nickel, Total	ND	mg/l	0.025	19 200.7	1201 13:30	1202 12:32	MG
Selenium, Total	ND	mg/l	0.005	19 200.7	1201 13:30	1202 12:32	MG
Silver, Total	ND	mg/l	0.0002	4 272.2	1201 13:30	1206 14:31	PY
Zinc, Total	ND	mg/l	0.050	19 200.7	1201 13:30	1202 12:32	MG
Blank Analysis for sample(s) 01-07 (WG222505-4)							
Total Metals							
Mercury, Total	ND	mg/l	0.0002	4 245.2	1201 16:50	1202 14:32	DM

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Blank Analysis for sample(s) 01-07 (WG222530-3)						
Dissolved Metals						
Antimony, Dissolved	ND	mg/l	0.005	4 204.2	1201 13:30 1205 11:32	PY
Arsenic, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30 1202 11:22	MG
Cadmium, Dissolved	ND	mg/l	0.0002	4 213.2	1201 13:30 1205 16:37	PY
Chromium, Dissolved	ND	mg/l	0.01	19 200.7	1201 13:30 1202 11:22	MG
Iron, Dissolved	ND	mg/l	0.05	19 200.7	1201 13:30 1202 11:22	MG
Lead, Dissolved	ND	mg/l	0.001	4 239.2	1201 13:30 1206 22:28	PY
Nickel, Dissolved	ND	mg/l	0.025	19 200.7	1201 13:30 1202 11:22	MG
Selenium, Dissolved	ND	mg/l	0.005	19 200.7	1201 13:30 1202 11:22	MG
Silver, Dissolved	0.000	mg/l	0	4 272.2	1201 13:30 1206 12:10	PY
Zinc, Dissolved	ND	mg/l	0.050	19 200.7	1201 13:30 1202 11:22	MG
Blank Analysis for sample(s) 01-07 (WG222504-4)						
Dissolved Metals						
Mercury, Dissolved	ND	mg/l	0.0002	3 245.1	1201 16:50 1202 14:09	DM
Blank Analysis for sample(s) 01-07 (WG223054-1)						
Pesticides by GC 504				14 504.1	1206 15:00 1206 16:51	JB
1,2-Dibromoethane	ND	ug/l	0.020			
1,2-Dibromo-3-chloropropane	ND	ug/l	0.020			
Blank Analysis for sample(s) 01-07 (WG222596-6)						
Volatile Organics by GC/MS 624				5 624	1202 09:19	MM
Methylene chloride	ND	ug/l	5.0			
1,1-Dichloroethane	ND	ug/l	1.5			
Chloroform	ND	ug/l	1.5			
Carbon tetrachloride	ND	ug/l	1.0			
1,2-Dichloropropane	ND	ug/l	3.5			
Dibromochloromethane	ND	ug/l	1.0			
1,1,2-Trichloroethane	ND	ug/l	1.5			
2-Chloroethylvinyl ether	ND	ug/l	10.			
Tetrachloroethene	ND	ug/l	1.5			
Chlorobenzene	ND	ug/l	3.5			
Trichlorofluoromethane	ND	ug/l	5.0			
1,2-Dichloroethane	ND	ug/l	1.5			
1,1,1-Trichloroethane	ND	ug/l	2.0			
Bromodichloromethane	ND	ug/l	1.0			
trans-1,3-Dichloropropene	ND	ug/l	1.5			
cis-1,3-Dichloropropene	ND	ug/l	1.5			
Bromoform	ND	ug/l	1.0			
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0			
Benzene	ND	ug/l	1.0			
Toluene	ND	ug/l	1.0			
Ethylbenzene	ND	ug/l	1.0			
Chloromethane	ND	ug/l	10.			

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	ANAL	ID
Blank Analysis for sample(s) 01-07 (WG222596-6)							
Volatile Organics by GC/MS 624 cont'd				5 624		1202 09:19 MM	
Bromomethane	ND	ug/l	5.0				
Vinyl chloride	ND	ug/l	2.0				
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	ND	ug/l	1.0				
Trichloroethene	ND	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	2.0				
Styrene	ND	ug/l	1.0				
Acetone	ND	ug/l	10.				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	8.0				
Acrylonitrile	ND	ug/l	10.				
Surrogate(s)	Recovery		QC Criteria				
Pentafluorobenzene	100.	%	80-120				
Fluorobenzene	100.	%	80-120				
4-Bromofluorobenzene	106.	%	80-120				
Blank Analysis for sample(s) 01-03,05-07 (WG222490-1)							
SVOC's by GC/MS 8270				1 8270C		1201 11:00 1202 23:36 RL	
Acenaphthene	ND	ug/l	5.0				
Benzidine	ND	ug/l	50.				
1,2,4-Trichlorobenzene	ND	ug/l	5.0				
Hexachlorobenzene	ND	ug/l	5.0				
Bis(2-chloroethyl)ether	ND	ug/l	5.0				
1-Chloronaphthalene	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	6.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
3,3'-Dichlorobenzidine	ND	ug/l	50.				
2,4-Dinitrotoluene	ND	ug/l	6.0				
2,6-Dinitrotoluene	ND	ug/l	5.0				
Azobenzene	ND	ug/l	5.0				
Fluoranthene	ND	ug/l	5.0				
4-Chlorophenyl phenyl ether	ND	ug/l	5.0				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-03,05-07 (WG222490-1)							
SVOC's by GC/MS 8270 cont'd				1 8270C	1201 11:00	1202 23:36	RL
4-Bromophenyl phenyl ether	ND	ug/l	5.0				
Bis(2-chloroisopropyl)ether	ND	ug/l	5.0				
Bis(2-chloroethoxy)methane	ND	ug/l	5.0				
Hexachlorobutadiene	ND	ug/l	10.				
Hexachlorocyclopentadiene	ND	ug/l	10.				
Hexachloroethane	ND	ug/l	5.0				
Isophorone	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Nitrobenzene	ND	ug/l	5.0				
NDPA/DPA	ND	ug/l	15.				
n-Nitrosodi-n-propylamine	ND	ug/l	5.0				
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.				
Butyl benzyl phthalate	ND	ug/l	5.0				
Di-n-butylphthalate	ND	ug/l	5.0				
Di-n-octylphthalate	ND	ug/l	5.0				
Diethyl phthalate	ND	ug/l	5.0				
Dimethyl phthalate	ND	ug/l	5.0				
Benzo(a)anthracene	ND	ug/l	5.0				
Benzo(a)pyrene	ND	ug/l	5.0				
Benzo(b)fluoranthene	ND	ug/l	5.0				
Benzo(k)fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				
Anthracene	ND	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)pyrene	ND	ug/l	7.0				
Pyrene	ND	ug/l	5.0				
Benzo(e)pyrene	ND	ug/l	5.0				
Biphenyl	ND	ug/l	5.0				
Perylene	ND	ug/l	5.0				
Aniline	ND	ug/l	10.				
4-Chloroaniline	ND	ug/l	5.0				
1-Methylnaphthalene	ND	ug/l	5.0				
2-Nitroaniline	ND	ug/l	5.0				
3-Nitroaniline	ND	ug/l	5.0				
4-Nitroaniline	ND	ug/l	7.0				
Dibenzofuran	ND	ug/l	5.0				
a,a-Dimethylphenethylamine	ND	ug/l	50.				
Hexachloropropene	ND	ug/l	10.				
Nitrosodi-n-butylamine	ND	ug/l	10.				
2-Methylnaphthalene	ND	ug/l	5.0				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	20.				
Pentachlorobenzene	ND	ug/l	20.				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	ANAL	ID
Blank Analysis for sample(s) 01-03,05-07 (WG222490-1)							
SVOC's by GC/MS 8270 cont'd				1 8270C	1201 11:00	1202 23:36	RL
a-Naphthylamine	ND	ug/l	20.				
b-Naphthylamine	ND	ug/l	20.				
Phenacetin	ND	ug/l	10.				
Dimethoate	ND	ug/l	20.				
4-Aminobiphenyl	ND	ug/l	10.				
Pentachloronitrobenzene	ND	ug/l	10.				
Isodrin	ND	ug/l	10.				
p-Dimethylaminoazobenzene	ND	ug/l	10.				
Chlorobenzilate	ND	ug/l	20.				
3-Methylcholanthrene	ND	ug/l	20.				
Ethyl Methanesulfonate	ND	ug/l	15.				
Acetophenone	ND	ug/l	20.				
Nitrosodipiperidine	ND	ug/l	20.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	10.				
n-Nitrosodimethylamine	ND	ug/l	50.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
p-Chloro-m-cresol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	10.				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	20.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	20.				
Phenol	ND	ug/l	7.0				
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
2,6-Dichlorophenol	ND	ug/l	10.				
Benzoic Acid	ND	ug/l	50.				
Benzyl Alcohol	ND	ug/l	10.				
Carbazole	ND	ug/l	5.0				
Pyridine	ND	ug/l	50.				
2-Picoline	ND	ug/l	20.				
Pronamide	ND	ug/l	20.				
Methyl methanesulfonate	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	32.0	%	21-120				
Phenol-d6	25.0	%	10-120				
Nitrobenzene-d5	55.0	%	23-120				
2-Fluorobiphenyl	56.0	%	43-120				
2,4,6-Tribromophenol	77.0	%	10-120				
4-Terphenyl-d14	91.0	%	33-120				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 04 (WG223032-1)							
SVOC's by GC/MS 8270				1 8270C	1205 17:30	1206 14:16	RL
Acenaphthene	ND	ug/l	5.0				
Benzidine	ND	ug/l	50.				
1,2,4-Trichlorobenzene	ND	ug/l	5.0				
Hexachlorobenzene	ND	ug/l	5.0				
Bis(2-chloroethyl)ether	ND	ug/l	5.0				
1-Chloronaphthalene	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	6.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
3,3'-Dichlorobenzidine	ND	ug/l	50.				
2,4-Dinitrotoluene	ND	ug/l	6.0				
2,6-Dinitrotoluene	ND	ug/l	5.0				
Azobenzene	ND	ug/l	5.0				
Fluoranthene	ND	ug/l	5.0				
4-Chlorophenyl phenyl ether	ND	ug/l	5.0				
4-Bromophenyl phenyl ether	ND	ug/l	5.0				
Bis(2-chloroisopropyl)ether	ND	ug/l	5.0				
Bis(2-chloroethoxy)methane	ND	ug/l	5.0				
Hexachlorobutadiene	ND	ug/l	10.				
Hexachlorocyclopentadiene	ND	ug/l	10.				
Hexachloroethane	ND	ug/l	5.0				
Isophorone	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Nitrobenzene	ND	ug/l	5.0				
NDPA/DPA	ND	ug/l	15.				
n-Nitrosodi-n-propylamine	ND	ug/l	5.0				
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.				
Butyl benzyl phthalate	ND	ug/l	5.0				
Di-n-butylphthalate	ND	ug/l	5.0				
Di-n-octylphthalate	ND	ug/l	5.0				
Diethyl phthalate	ND	ug/l	5.0				
Dimethyl phthalate	ND	ug/l	5.0				
Benzo(a)anthracene	ND	ug/l	5.0				
Benzo(a)pyrene	ND	ug/l	5.0				
Benzo(b)fluoranthene	ND	ug/l	5.0				
Benzo(k)fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				
Anthracene	ND	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)pyrene	ND	ug/l	7.0				
Pyrene	ND	ug/l	5.0				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 04 (WG223032-1)							
SVOC's by GC/MS 8270 cont'd				1 8270C	1205 17:30	1206 14:16	RL
Benzo(e)pyrene	ND	ug/l	5.0				
Biphenyl	ND	ug/l	5.0				
Perylene	ND	ug/l	5.0				
Aniline	ND	ug/l	10.				
4-Chloroaniline	ND	ug/l	5.0				
1-Methylnaphthalene	ND	ug/l	5.0				
2-Nitroaniline	ND	ug/l	5.0				
3-Nitroaniline	ND	ug/l	5.0				
4-Nitroaniline	ND	ug/l	7.0				
Dibenzofuran	ND	ug/l	5.0				
a,a-Dimethylphenethylamine	ND	ug/l	50.				
Hexachloropropene	ND	ug/l	10.				
Nitrosodi-n-butylamine	ND	ug/l	10.				
2-Methylnaphthalene	ND	ug/l	5.0				
1,2,4,5-Tetrachlorobenzene	ND	ug/l	20.				
Pentachlorobenzene	ND	ug/l	20.				
a-Naphthylamine	ND	ug/l	20.				
b-Naphthylamine	ND	ug/l	20.				
Phenacetin	ND	ug/l	10.				
Dimethoate	ND	ug/l	20.				
4-Aminobiphenyl	ND	ug/l	10.				
Pentachloronitrobenzene	ND	ug/l	10.				
Isodrin	ND	ug/l	10.				
p-Dimethylaminoazobenzene	ND	ug/l	10.				
Chlorobenzilate	ND	ug/l	20.				
3-Methylcholanthrene	ND	ug/l	20.				
Ethyl Methanesulfonate	ND	ug/l	15.				
Acetophenone	ND	ug/l	20.				
Nitrosodipiperidine	ND	ug/l	20.				
7,12-Dimethylbenz(a)anthracene	ND	ug/l	10.				
n-Nitrosodimethylamine	ND	ug/l	50.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
p-Chloro-m-cresol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	10.				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	20.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	20.				
Phenol	ND	ug/l	7.0				
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
2,6-Dichlorophenol	ND	ug/l	10.				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 04 (WG223032-1)							
SVOC's by GC/MS 8270 cont'd				1 8270C	1205 17:30	1206 14:16	RL
Benzoic Acid	ND	ug/l	50.				
Benzyl Alcohol	ND	ug/l	10.				
Carbazole	ND	ug/l	5.0				
Pyridine	ND	ug/l	50.				
2-Picoline	ND	ug/l	20.				
Pronamide	ND	ug/l	20.				
Methyl methanesulfonate	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	37.0	%	21-120				
Phenol-d6	29.0	%	10-120				
Nitrobenzene-d5	66.0	%	23-120				
2-Fluorobiphenyl	62.0	%	43-120				
2,4,6-Tribromophenol	81.0	%	10-120				
4-Terphenyl-d14	90.0	%	33-120				
Blank Analysis for sample(s) 01-03,05-07 (WG222491-1)							
PAH by GC/MS SIM 8270M				1 8270C-M	1201 11:00	1202 19:25	RL
Acenaphthene	ND	ug/l	0.20				
2-Chloronaphthalene	ND	ug/l	0.20				
Fluoranthene	ND	ug/l	0.20				
Hexachlorobutadiene	ND	ug/l	0.50				
Naphthalene	ND	ug/l	0.20				
Benzo(a)anthracene	ND	ug/l	0.20				
Benzo(a)pyrene	ND	ug/l	0.20				
Benzo(b)fluoranthene	ND	ug/l	0.20				
Benzo(k)fluoranthene	ND	ug/l	0.20				
Chrysene	ND	ug/l	0.20				
Acenaphthylene	ND	ug/l	0.20				
Anthracene	ND	ug/l	0.20				
Benzo(ghi)perylene	ND	ug/l	0.20				
Fluorene	ND	ug/l	0.20				
Phenanthrene	ND	ug/l	0.20				
Dibenzo(a,h)anthracene	ND	ug/l	0.20				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20				
Pyrene	ND	ug/l	0.20				
1-Methylnaphthalene	ND	ug/l	0.20				
2-Methylnaphthalene	ND	ug/l	0.20				
Pentachlorophenol	ND	ug/l	0.80				
Hexachlorobenzene	ND	ug/l	0.80				
Perylene	ND	ug/l	0.20				
Biphenyl	ND	ug/l	0.20				
2,6-Dimethylnaphthalene	ND	ug/l	0.20				
1-Methylphenanthrene	ND	ug/l	0.20				
Benzo(e)Pyrene	ND	ug/l	0.20				
Hexachloroethane	ND	ug/l	0.80				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 01-03,05-07 (WG222491-1)							
PAH by GC/MS SIM 8270M cont'd				1 8270C-M	1201 11:00	1202 19:25	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	37.0	%	21-120				
Phenol-d6	29.0	%	10-120				
Nitrobenzene-d5	58.0	%	23-120				
2-Fluorobiphenyl	51.0	%	43-120				
2,4,6-Tribromophenol	54.0	%	10-120				
4-Terphenyl-d14	76.0	%	33-120				
Blank Analysis for sample(s) 04 (WG223034-1)							
PAH by GC/MS SIM 8270M				1 8270C-M	1205 17:30	1206 12:14	RL
Acenaphthene	ND	ug/l	0.20				
2-Chloronaphthalene	ND	ug/l	0.20				
Fluoranthene	ND	ug/l	0.20				
Hexachlorobutadiene	ND	ug/l	0.50				
Naphthalene	ND	ug/l	0.20				
Benzo(a)anthracene	ND	ug/l	0.20				
Benzo(a)pyrene	ND	ug/l	0.20				
Benzo(b)fluoranthene	ND	ug/l	0.20				
Benzo(k)fluoranthene	ND	ug/l	0.20				
Chrysene	ND	ug/l	0.20				
Acenaphthylene	ND	ug/l	0.20				
Anthracene	ND	ug/l	0.20				
Benzo(ghi)perylene	ND	ug/l	0.20				
Fluorene	ND	ug/l	0.20				
Phenanthrene	ND	ug/l	0.20				
Dibenzo(a,h)anthracene	ND	ug/l	0.20				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20				
Pyrene	ND	ug/l	0.20				
1-Methylnaphthalene	ND	ug/l	0.20				
2-Methylnaphthalene	ND	ug/l	0.20				
Pentachlorophenol	ND	ug/l	0.80				
Hexachlorobenzene	ND	ug/l	0.80				
Perylene	ND	ug/l	0.20				
Biphenyl	ND	ug/l	0.20				
2,6-Dimethylnaphthalene	ND	ug/l	0.20				
1-Methylphenanthrene	ND	ug/l	0.20				
Benzo(e)Pyrene	ND	ug/l	0.20				
Hexachloroethane	ND	ug/l	0.80				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	48.0	%	21-120				
Phenol-d6	37.0	%	10-120				
Nitrobenzene-d5	75.0	%	23-120				
2-Fluorobiphenyl	65.0	%	43-120				
2,4,6-Tribromophenol	60.0	%	10-120				
4-Terphenyl-d14	75.0	%	33-120				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0514542

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-07 (WG222511-1)							
Polychlorinated Biphenyls				5 608	1201 16:00	1205 15:46	JB
Aroclor 1221	ND	ug/l	0.250				
Aroclor 1232	ND	ug/l	0.250				
Aroclor 1242/1016	ND	ug/l	0.250				
Aroclor 1248	ND	ug/l	0.250				
Aroclor 1254	ND	ug/l	0.250				
Aroclor 1260	ND	ug/l	0.250				
Surrogate(s)	Recovery		QC Criteria				
2,4,5,6-Tetrachloro-m-xylene	51.0	%	30-150				
Decachlorobiphenyl	63.0	%	30-150				

**ALPHA ANALYTICAL LABORATORIES
ADDENDUM I**

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.
3. Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
4. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.
5. Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).
14. Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.
19. Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
74. Method 1664, Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
ug/cart	Micrograms per Cartridge.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.



CHAIN OF CUSTODY

PAGE 1 OF 1

Eight Walkup Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Client Information

Client: Lightship Greenery

Address: 30 Cottage Park

Phone: 508 830 3344

Fax: 3360

Email: Twalsh@---

Other Project Specific Requirements/Comments/Detection Limits:

Report as listed on C.O.C.

Metals (Sb, As, Cd, Cr, Pb, Hg, Ni, Se, Ag, Zn, Fe)

ALPHA Lab ID (Lab Use Only)

Sample ID

Collection Date

Time

Sample Matrix

Sampler's Initials

Container Type

Preservative

Received By:

Date/Time

Relinquished By:

Date/Time

Container Type

Preservative

Received By:

Date/Time

Relinquished By:

Date/Time

Date Rec'd in Lab: 11/30

ALPHA Job #: 6014742

Report Information - Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEX ☐ Add'l Deliverables

Regulatory Requirements/Report Limits

State Fed Program

Criteria

MCP PRESUMPTIVE CERTAINTY - THESE QUESTIONS MUST BE ANSWERED

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☒ No Are Drinking Water Samples Submitted?

☒ Yes ☐ No Have you met minimum field QC requirements?

ANALYSIS

624

504

TSS

TRC, Hex Cr

8270

PAH-16w

TPH 1664

TCN

T Phenol

PCB

Total Metals

Diss. Metals

SAMPLE HANDLING

☒ Filtration

☐ Done

☐ Not needed

☐ Lab to do

☐ Preservation

Billing Information

Same as Client info

PO #:

Sample Specific Comments

(Please specify below)

Sample Specific Comments

Sample Specific Comments

Sample Specific Comments

Sample Specific Comments

Sample Specific Comments

Sample Specific Comments

Sample Specific Comments

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Sample Specific Comments

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Sample Specific Comments

Sample Specific Comments

Sample Specific Comments

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

ATTACHMENT C

Dilution Factor Calculation

Dilution Factor Calculations for Eastern Avenue and Marginal Street NPDES Dewatering General Permit

Equation used to calculate the dilution factor at the outfall

$$\text{Dilution Factor} = (Q_d + Q_s) / Q_d$$

where:

Q_d = Maximum flow rate of the discharge in cubic feet per second (cfs) (100 gpm = 0.223 cfs)

Q_s = Receiving water 7Q10 flow (cfs) where 7Q10 is the minimum flow (cfs) for 7 consecutive days with a recurrence interval of 10 years

Eastern Avenue and Marginal Street Dilution Calculations

The United States Geological Survey program StreamStats was used to obtain 7Q10 data using a process known as regionalization. This process is used to develop equations that can be used to estimate streamflow statistics for ungaged sites. Regionalization involves use of regression analysis to relate streamflow statistics computed for a group of selected streamgaging stations (usually within a State) and basin characteristics measured for the stations. Basin characteristics measured for ungaged sites can be entered into the resulting equations to obtain estimates of the streamflow statistics. StreamStats estimated a 7Q10 flow rate of 0.0824cfs.

$$Q_d = 0.223 \text{ cfs}$$

$$Q_s = 0.0824 \text{ cfs}$$

$$\text{Dilution Factor} = (Q_d + Q_s) / Q_d = (0.223 \text{ cfs} + 0.0824 \text{ cfs}) / 0.223 \text{ cfs} = 1.369$$

ATTACHMENT D

StreamStats Ungaged Site Report



Massachusetts StreamStats

Streamstats Ungaged Site Report

Date: Tue Aug 21 2012 14:59:25 Mountain Daylight Time

Site Location: Massachusetts

NAD27 Latitude: 42.4025 (42 24 09)

NAD27 Longitude: -71.0177 (-71 01 04)

NAD83 Latitude: 42.4026 (42 24 10)

NAD83 Longitude: -71.0172 (-71 01 02)

ReachCode: 01090001022810

Measure: 37.52

Drainage Area: 1.07 mi²

Low Flows Basin Characteristics			
100% Statewide Low Flow (1.07 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	1.07 (below min value 1.61)	1.61	149
Mean Basin Slope from 250K DEM (percent)	4.07	0.32	24.6
Stratified Drift per Stream Length (square mile per mile)	0.42	0	1.29
Massachusetts Region (dimensionless)	0	0	1

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Probability of Perennial Flow Basin Characteristics			
100% Perennial Flow Probability (1.07 mi ²)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	1.07	0.01	1.99
Percent Underlain By Sand And Gravel (percent)	31.42	0	100
Percent Forest (percent)	0.65	0	100
Massachusetts Region (dimensionless)	0	0	1

Low Flows Streamflow Statistics					
Statistic	Flow (ft ³ /s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D50	1.02				
D60	0.76				
D70	0.52				
D75	0.41				
D80	0.45				
D85	0.34				
D90	0.32				
D95	0.18				
D98	0.11				
D99	0.0813				
M7D2Y	0.16				
AUGD50	0.35				
M7D10Y	0.0824				

The equation for estimating the probability of perennial flow is applicable for most areas of Massachusetts except eastern Buzzards Bay, Cape Cod, and the Island regions. The estimate obtained from the equation assumes natural flow conditions at the site. The equation also is best used for sites with drainage areas between 0.01 to 1.99 mi², as errors beyond for basins beyond these bounds are unknown.

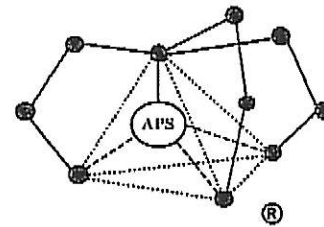
Probability of Perennial Flow Statistics		
Statistic	Value	Standard Error (percent)
PROBPEREN	0.96	0.6

ATTACHMENT E

Material Safety Data Sheets

Floc Blocks

Applied Polymer Systems, Inc.



Material Safety Data Sheet

1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY

Product Name: APS 706b Floe Log[®]
 Supplied: 519 Industrial Drive
 Woodstock, GA 30189
 Tel. 678-494-5998
 Fax. 678-494-5298
www.sillsap.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Identification of the preparation: Anionic water-soluble Co-polymer gel mix

3. HAZARD IDENTIFICATION

Placement of these materials on wet walking surface will create extreme slipping hazard.

4. FIRST AID MEASURES

Inhalation: None
 Skin contact: Contact with wet skin can cause dryness and chapping. Wash with water and soap.
 Eye contact: Rinse thoroughly with plenty of water, also under the eyelids, seek medical attention in case of persistent irritation.
 Ingestion: Consult a physician

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water, water spray, foam, carbon dioxide, dry powder.
 Special fire-fighting precautions: Floe Logs that become wet render surfaces extremely slippery.
 Protective equipment for firefighters: No special equipment required.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: No special precautions required.
 Methods for cleaning up: Dry wipe as well as possible. Keep in suitable and closed containers for disposal.
After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Wash hands after handling.
 Storage: Keep in a cool, dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Specializing in the Optimization of Water Treatment Systems, Flocculents, and Drill Fluids. Polymer Characterization and Application for: Erosion Control, Acid Rock Drainage Mitigation, Solubilized Metal Control, and Dredging.

Engineering controls: Use dry handling areas only.

Personal protection equipment

Respiratory Protection: None
 Hand protection: Dry cloth, leather or rubber gloves.
 Eye Protection: Safety glasses with side shields. Do not wear contact lenses.
 Skin protection: No special protective clothing required.
 Hygiene measures: Wash hands before breaks and at end of work day.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Granular semi-solid gel
 Color: White to Brown
 Odor: None
 pH: 3-10
 Melting point: N/A
 Flash point: N/A
 Vapor density: N/A

10. STABILITY AND REACTIVITY

Stability: Product is stable, no hazardous polymerization will occur.
 Materials to avoid: Oxidizing agents may cause exothermic reactions.
 Hazardous decomposition products: Thermal decomposition may produce nitrogen oxides (NOx), carbon oxides.

11. TOXICOLOGICAL / ECOLOGICAL INFORMATION

Acute toxicity

LC 50 / *Daphnia magna* / 48h / >420mg/L
 LC 50 / *Oncorhynchus mykiss* / 96h / 637 ppm

Chronic toxicity

IC 25 (Survival) / <i>P. promelas</i> / 7 day / >1680 ppm	IC 25 (Survival) / <i>C. dubia</i> / 7 day / 257.3 ppm
NOEC (Survival) / <i>P. promelas</i> / 7 day / 1680 ppm	NOEC (Survival) / <i>C. dubia</i> / 7 day / 210 ppm
IC 25 (Growth) / <i>P. promelas</i> / 7 day / >1680 ppm	IC 25 (Reproduction) / <i>C. dubia</i> / 7 day / 91.6 ppm
NOEC (Survival) / <i>P. promelas</i> / 7 day / 1680 ppm	NOEC (Reproduction) / <i>C. dubia</i> / 7 day / 105 ppm

Bioaccumulation: The product is not expected to bioaccumulate.

Persistence / degradability: Not readily biodegradable: (85% after 180 days).

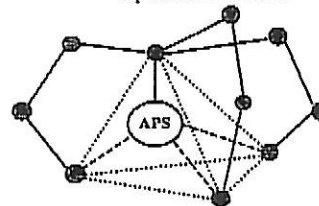
12. TRANSPORT AND REGULATORY INFORMATION

Not regulated by DOT, RCRA status-Not a hazardous waste

NFPA and HMIS ratings:

NFPA Health:	1	Flammability:	0	Reactivity:	1
HMIS Health:	1	Flammability:	0	Reactivity:	1

Updated 10/23/06



Applied Polymer Systems, Inc.

Material Safety Data Sheet

1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY

Product Name: APS 703d #3 Floe Lug[®]
Supplied: Applied Polymer Systems, Inc.
519 Industrial Drive
Woodstock, GA 30189
Tel. 678-494-5998
Fax. 678-494-5298
www.siltstop.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Identification of the preparation: Anionic water-soluble Co-polymer gel

3. HAZARD IDENTIFICATION

Placement of these materials on wet walking surface will create extreme slipping hazard.

4. FIRST AID MEASURES

Inhalation: None
Skin contact: Contact with wet skin could cause dryness and chapping. Wash with water and soap. Use of gloves recommended.
Eye contact: Rinse thoroughly with plenty of water, also under the eyelids, seek medical attention in case of persistent irritation.
Ingestion: Consult a physician

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water, water spray, foam, carbon dioxide, dry powder.
Special fire-fighting precautions: Floe Logs that become wet render surfaces extremely slippery.
Protective equipment for firefighters: No special equipment required.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: No special precautions required.
Methods for cleaning up: Dry wipe as well as possible. Keep in suitable and closed containers for disposal.
After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Wash hands after handling.
Storage: Keep in a cool, dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Specializing in the Optimization of Water Treatment Systems, Flocculents, and Drill Fluids. Polymer Characterization and Application for: Erosion Control, Acid Rock Drainage Mitigation, Solidified Metal Control, and Dredging.

1

Engineering controls: Use dry handling areas only.

Personal protection equipment

Respiratory Protection: None
 Hand protection: Dry cloth, leather or rubber gloves.
 Eye Protection: Safety glasses with side shields. Do not wear contact lenses.
 Skin protection: No special protective clothing required.
 Hygiene measures: Wash hands before breaks and at end of work day.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Granular semi-solid gel
 Color: White to Brown
 Odor: None
 pH: 3-10
 Melting point: N/A
 Flash point: N/A
 Vapor density: N/A

10. STABILITY AND REACTIVITY

Stability: Product is stable, no hazardous polymerization will occur.
 Materials to avoid: Oxidizing agents may cause exothermic reactions.
 Hazardous decomposition products: Thermal decomposition may produce nitrogen oxides (NOx), carbon oxides.

11. TOXICOLOGICAL / ECOLOGICAL INFORMATION

Acute toxicity (EPA-821-R-02-012)

LC 50 (Survival) / *Ceriodaphnia dubia* / 48h / 673 ppm
 NOAEC (Survival) / *Ceriodaphnia dubia* / 48h / 420 ppm
 LC 50 / *Oncorhynchus mykiss* / 96h / 2928 ppm

Chronic toxicity (EPA-821-R-02-013)

IC 25 (Survival) / <i>P. promelas</i> / 7 day / 77.8 ppm	IC 25 (Survival) / <i>C. dubia</i> / 7 day / 78.7 ppm
NOEC (Survival) / <i>P. promelas</i> / 7 day / 52.5 ppm	NOEC (Survival) / <i>C. dubia</i> / 7 day / 52.7 ppm
IC 25 (Growth) / <i>P. promelas</i> / 7 day / 50.1 ppm	IC 25 (Reproduction) / <i>C. dubia</i> / 7 day / 66.8 ppm
NOEC (Growth) / <i>P. promelas</i> / 7 day / 52.5 ppm	NOEC (Reproduction) / <i>C. dubia</i> / 7 day / 52.5 ppm

Bioaccumulation: The product is not expected to bioaccumulate.
 Persistence / degradability: Not readily biodegradable: (~85% after 180 days).

13. TRANSPORT AND REGULATORY INFORMATION

Not regulated by DOT, RCRA status-Not a hazardous waste

NFPA and HMIS ratings:

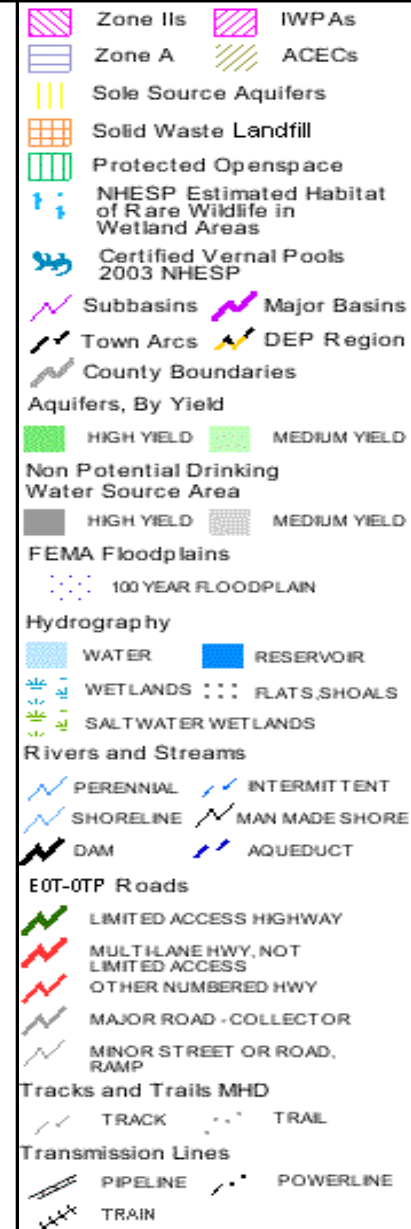
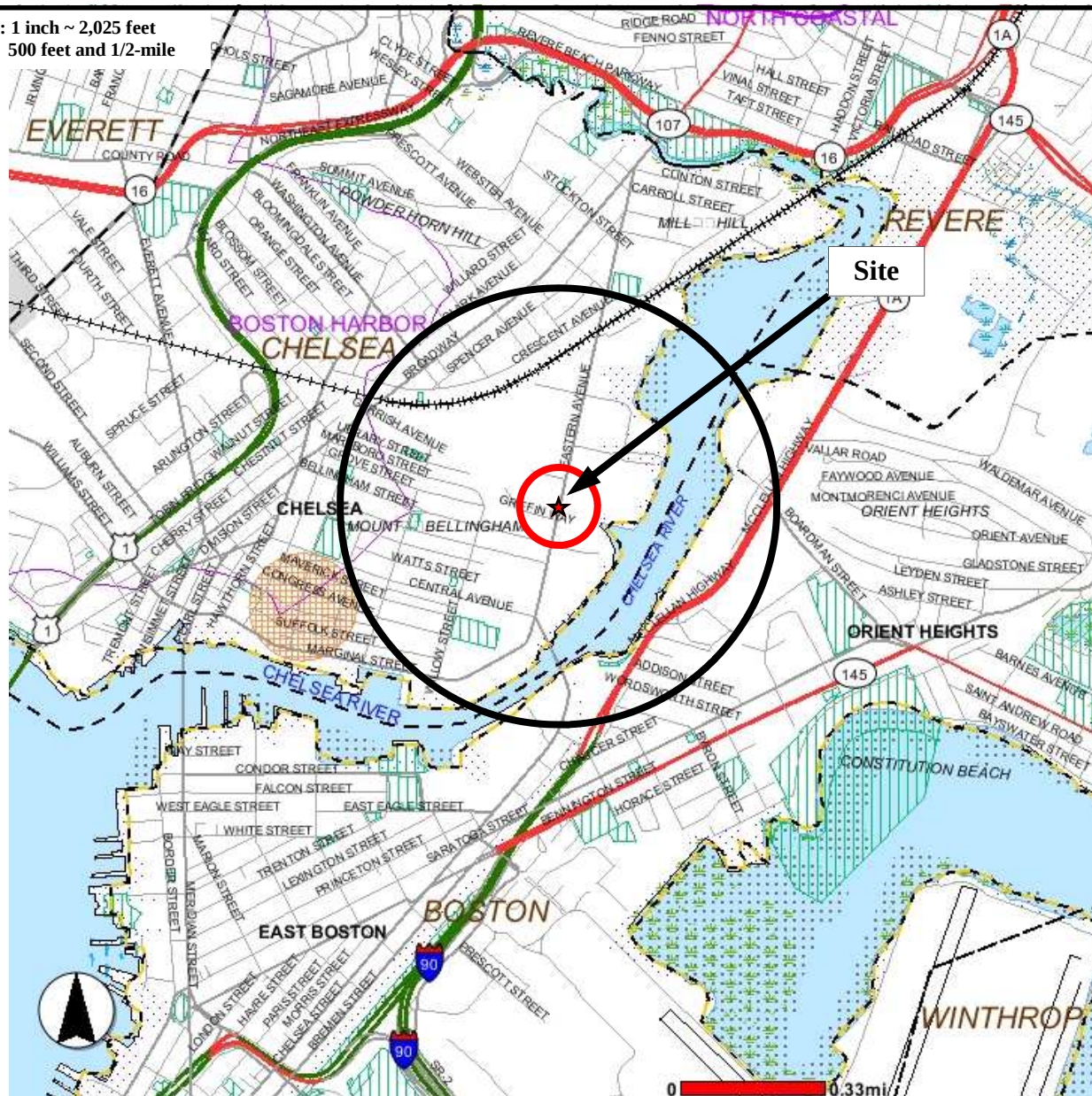
NFPA Health:	3	Flammability:	0	Reactivity:	1
HMIS Health	2	Flammability	0	Reactivity	1

ATTACHMENT F

Areas of Critical Environmental Concern

Lightship Engineering reviewed the most recent listing of Areas of Critical Environmental Concern (“ACEC”) published in November 2010 by the Massachusetts Department of Conservation and Recreation. As indicated on the MassGIS Map, there are no ACEC at the Site in the vicinity of the Site or at the discharge to the Chelsea River.

SCALE: 1 inch ~ 2,025 feet
 RADII: 500 feet and 1/2-mile



PREPARED FOR	PROJECT	FIGURE MassGIS Map	 
NSTAR Electric One NSTAR Way, SE-250 Westwood, Massachusetts 02090	Proposed New Duct Bank Installation Eastern Avenue Chelsea, Massachusetts 02150		
Source: MassGIS Online Viewer			ENVIRONMENTAL & LAND-USE CONSULTANTS 39 Industrial Park Road • Unit C • Plymouth, Massachusetts 02360 • (508) 830-3344 • Fax: (508) 830-3360

ATTACHMENT G

Remediation Activities in Vicinity of Site

Lightship Engineering reviewed on line records from the Commonwealth of Massachusetts Department of Environmental Protection (“MassDEP”), “Searchable List Sites” to identify any state listed disposal sites at or in the vicinity of the work area.

Release Tracking Number (“RTN”)’s 3-0163, 3-2211, 3-19347, 3-29692 – Gulf Terminal/ Cumberland Farms

A release of petroleum was reported to the MassDEP on December 29, 1986. The response actions are ongoing, and the release is in Phase V – Remedy Operations Status (“ROS”).

RTN 3-27122 – Gulf Terminal/ Cumberland Farms

A release of approximately 10,000 gallons of gasoline was discovered as a result of a suspected leak in a subsurface gasoline supply line on September 19, 2007. Additional information is available in the Class C-1 RAO dated August 2011.

RTN 3-28432 – Gulf Terminal/ Cumberland Farms

Vinyl chloride was detected in groundwater exceeding the Reportable Concentration (“RC”) for GW-2 groundwater (“RCGW-2”) in April 2009. Additional information is available in the Phase III Remedial Action Plan (“RAP”) dated April 2012.

RTN 3-29793 – Gulf Terminal/ Cumberland Farms

An “‘emulsified’ sheen” was observed on the Chelsea River on February 8, 2011. The sheen was contained with absorbent boom until it dissipated. The source of the sheen was not determined. Additional details are available in the Class A-1 RAO dated February 2012.

RTN 3-291 – Samuel Cabot Paint Company

A release of oil and/ or hazardous materials (“OHM”) associated with the former paint manufacturing operations was reported to the MassDEP on January 15, 1987. Additional information is available in the Class C-2 Response Action Outcome dated October 1, 2010.

ATTACHMENT G
(Continued)

Remediation Activities in Vicinity of Site

RTN 3-2029 – Logan Office Complex

A release of OHM was discovered during the removal of underground storage tanks (“USTs”) on February 23, 1987. Additional information is available in the RAO dated February 1997.

RTN 3-10105 – Amoco Petroleum Terminal

A release of approximately 29,000 gallons of No. 2 fuel oil occurred on October 26, 1993. The release was linked with RTN 3-3550 in November 1996. Additional information is available in the Class C-1 RAO dated November 1997.

RTN 3-14846 – No Location Aid – 324 Marginal Street

A release of coal tar related compounds was discovered in February 1997. Additional information is available in the Downgradient Property Status (“DPS”) Opinion dated October 1997.

RTN 3-19346 – No Location Aide – 2 Griffin Way

A release of petroleum related compounds and metals was detected in soil samples collected in 1998. The release was linked to RTN 3-17722 and a Class A-3 RAO and Activity and Use Limitation (“AUL”) was submitted to the MassDEP in March 2003.

RTN 3-20135 – 257 Marginal Street

An intermittent sheen was observed on Chelsea Creek in November and December 2000. Additional information is available in the DPS submitted to the MassDEP in June 2002.

RTN 3-26296 – No Location Aid – 260 Marginal Street

Dense non-aqueous phase liquid (“DNAPL”) was observed in a groundwater monitoring well in June 2006. DNAPL recovery is on-going and additional details are available in the Phase IV Remedy Implementation Plan (“RIP”) dated November 2010.

Site Information			
Site Number:	3-0000163	Category:	NONE
Site Name:	CUMBERLAND FARMS OIL TERMINAL	Release Type:	REMOPS
Address:	281 EASTERN AVE FORMERLY 123 EASTERN AVE	Current date:	8/22/2011
Town:	CHELSEA	Phase:	PHASE V
Zipcode:	02150	RAO Class:	
Official notification date:	12/29/1986	Locationtype:	FUEL DEPOT,PRIVPROP
Initial status date:	8/21/1995	Source:	AST,UNCONTAIN,UNKNOWN

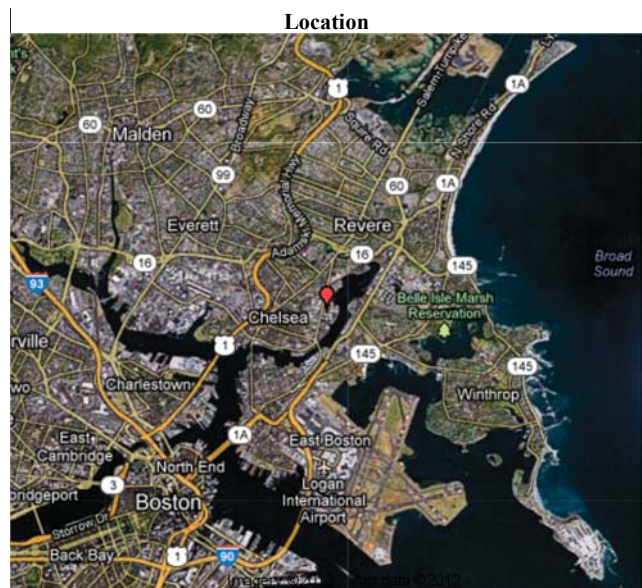
Actions	
Response Action Type:	PHASEV Phase 5
Status:	ROSSTR Remedy Operation Status Report Received
Submittal Date:	8/15/2012
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RAM Release Abatement Measure
Status:	STRCVD Status or Interim Report Received
Submittal Date:	8/15/2012
RAO class:	
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	LNKVIC RTN Linked to TCLASS Via IRA Completion Statement
Submittal Date:	10/13/2011
RAO class:	
Activity & Use Limitation:	
Response Action Type:	URAM Utility-related Abatement Measure
Status:	STMRET Submittal Retracted
Submittal Date:	12/22/2008
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASIV Phase 4
Status:	CSRCVD Completion Statement Received
Submittal Date:	2/17/2006
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHSIII Phase 3
Status:	CSRCVD Completion Statement Received
Submittal Date:	1/3/2005
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASII Phase 2
Status:	CSRCVD Completion Statement Received
Submittal Date:	7/1/2004
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RAO-P Partial RAO for this RTN
Status:	RAORCD RAO Statement Received
Submittal Date:	8/19/1996
RAO class:	NC
Activity & Use Limitation:	NONE
Response Action Type:	PHSIII Phase 3
Status:	CSRCVD Completion Statement Received
Submittal Date:	8/19/1996
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	TCTRNS Tier Classified Transition Sites
Submittal Date:	12/29/1986
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
PETROLEUM		

LSPs	
LSP#	Name
6889	KOLL, CARON S
9197	MARIANO, CHRISTOPHER G

RAO Details			
Class	Method	GW Category	Soil Category
NC	N		

Secondary RTNs	
3-0002211	
3-0019347	
3-0029692	



Site Information			
Site Number:	3-0000291	Category:	NONE
Site Name:	SAMUEL CABOT INC	Release Type:	RAO
Address:	229 MARGINAL ST	Current date:	10/1/2010
Town:	CHELSEA	Phase:	
Zipcode:	02150-0000	RAO Class:	C2
Official notification date:	1/15/1987	Location type:	MANUFACT
Initial status date:	10/1/1994	Source:	UNCONTAIN,UST

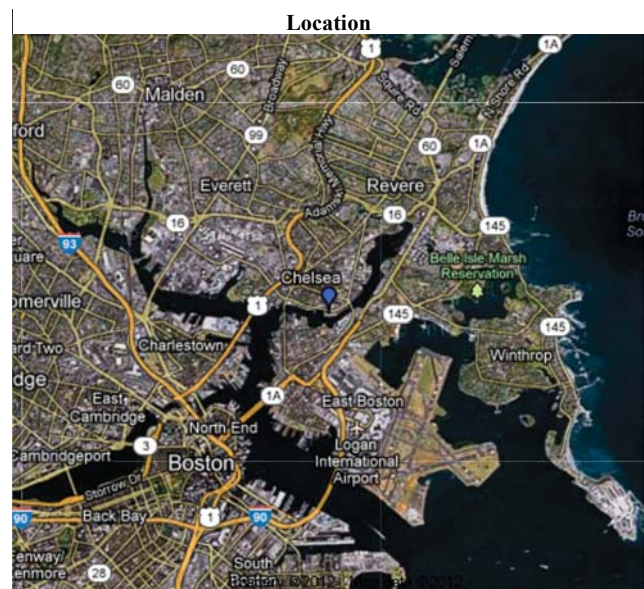
Actions	
Response Action Type:	RAO Response Action Outcome - RAO
Status:	IMRCD Post-RAO C Status Report Received (Ph V-prior to 05 only)
Submittal Date:	5/16/2012
RAO class:	C2
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	PEREXT Permit Extension Received
Submittal Date:	11/17/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASIV Phase 4
Status:	PLANMD Modified Revised or Updated Plan Received
Submittal Date:	11/30/2007
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASII Phase 2
Status:	SOW Scope of Work Received
Submittal Date:	6/12/2006
RAO class:	
Activity & Use Limitation:	
Response Action Type:	URAM Utility-related Abatement Measure
Status:	CSRCVD Completion Statement Received
Submittal Date:	1/30/2004
RAO class:	
Activity & Use Limitation:	
Response Action Type:	URAM Utility-related Abatement Measure
Status:	CSRCVD Completion Statement Received
Submittal Date:	5/27/2003
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	TCTRNS Tier Classified Transition Sites
Submittal Date:	1/15/1987
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
NAPHTHALENE		

LSPs	
LSP#	Name
1510	NANGLE, JEFFREY A

RAO Details			
Class	Method	GW Category	Soil Category
C2	1	2	3

Tier Classification Detail							
NRS Totals	II	III	IV	V	VI	Zone 2	Imminent Hazard
412	135	142	20	115	0	N	N



Site Information			
Site Number:	3-0002029	Category:	NONE
Site Name:	LOGAN OFFICE COMPLEX	Release Type:	RAO
Address:	8-24 GRIFFIN WAY	Current date:	2/12/1997
Town:	CHELSEA	Phase:	
Zipcode:	02150	RAO Class:	
Official notification date:	4/15/1989	Location type:	
Initial status date:	8/2/1996	Source:	

Actions	
Response Action Type:	REL Potential Release or Threat of Release
Status:	TCTRNS Tier Classified Transition Sites
Submittal Date:	4/15/1989
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
UNKNOWN		

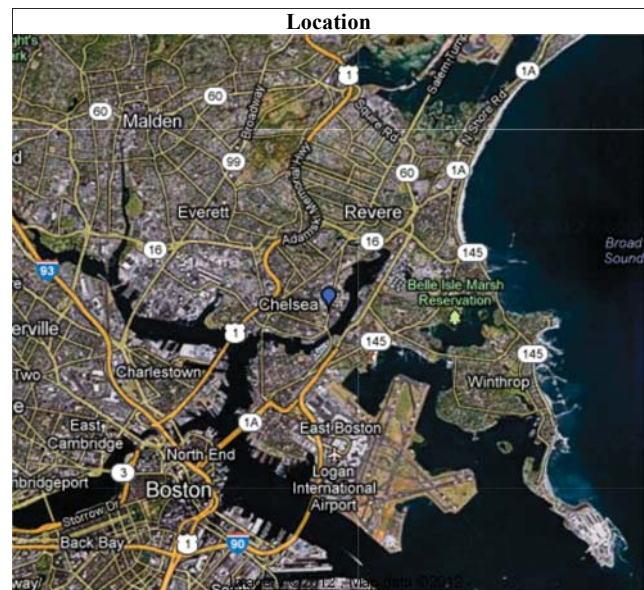
Site Information			
Site Number:	3-0010105	Category:	TWO HR
Site Name:	AMOCO TANK FARM	Release Type:	RTN CLOSED
Address:	111 EASTERN AVE	Current date:	11/8/1996
Town:	CHELSEA	Phase:	
Zipcode:	02150	RAO Class:	
Official notification date:	10/26/1993	Locationtype:	COMMERCIAL,INDUSTRIAL
Initial status date:	2/24/1995	Source:	AST

Actions	
Response Action Type:	RAONR RAO Not Required
Status:	RTCLSS Linked to a Tier Classified Site
Submittal Date:	11/8/1996
RAO class:	
Activity & Use Limitation:	
Response Action Type:	IRA Immediate Response Action
Status:	CSRCVD Completion Statement Received
Submittal Date:	11/8/1994
RAO class:	
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	LNKVIC RTN Linked to TCLASS Via IRA Completion Statement
Submittal Date:	11/8/1994
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	8/24/1994
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	1/6/1994
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	10/26/1993
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
#2 FUEL OIL	29000	GAL

LSPs	
LSP#	Name
2003	BRUEHL, DONALD H

Linked RTNs	
Primary RTN	Secondary RTN
3-0003550	3-0010105



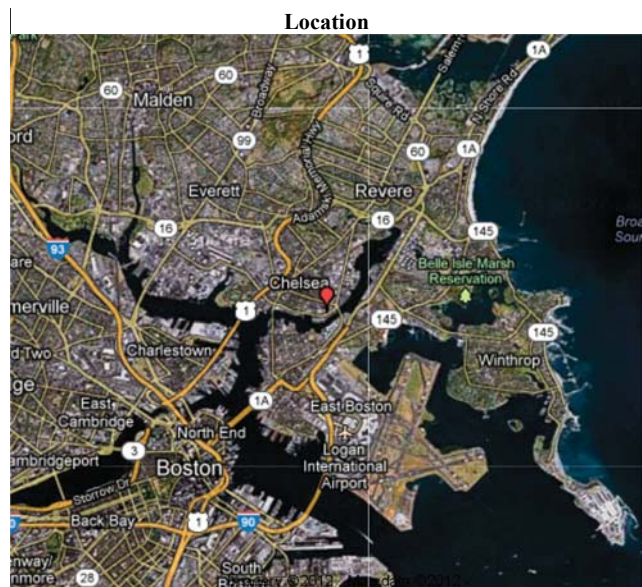
Site Information			
Site Number:	3-0014846	Category:	72 HR
Site Name:	NO LOCATION AID	Release Type:	DPS
Address:	324 MARGINAL ST	Current date:	10/30/1997
Town:	CHELSEA	Phase:	
Zipcode:	02150-0000	RAO Class:	
Official notification date:	2/21/1997	Location type:	
Initial status date:	2/21/1998	Source:	UNKNOWN

Actions	
Response Action Type:	DPS Downgradient Property Status
Status:	REVRCD Revised Statement or Transmittal Received
Submittal Date:	11/9/2001
RAO class:	
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	LNKVTC RTN Linked to TCLASS Via Tier Classification Submittal
Submittal Date:	11/17/2000
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RAONR RAO Not Required
Status:	RTCLSS Linked to a Tier Classified Site
Submittal Date:	4/28/1997
RAO class:	
Activity & Use Limitation:	
Response Action Type:	IRA Immediate Response Action
Status:	CSRCVD Completion Statement Received
Submittal Date:	4/28/1997
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	3/27/1997
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	2/21/1997
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
COAL TAR		
CREOSOTE		
NAPL	24	INCH

LSPs	
LSP#	Name
2332	STIMPSON, WESLEY E

Linked RTNs	
Primary RTN	Secondary RTN
3-0000821	3-0011673
3-0000821	3-0014846
3-0000821	3-0019593



Site Information			
Site Number:	3-0019346	Category:	120 DY
Site Name:	NO LOCATION AID	Release Type:	RTN CLOSED
Address:	2 GRIFFIN WAY	Current date:	3/16/2000
Town:	CHELSEA	Phase:	
Zipcode:	02150-0000	RAO Class:	
Official notification date:	3/2/2000	Location type:	
Initial status date:	3/2/2001	Source:	

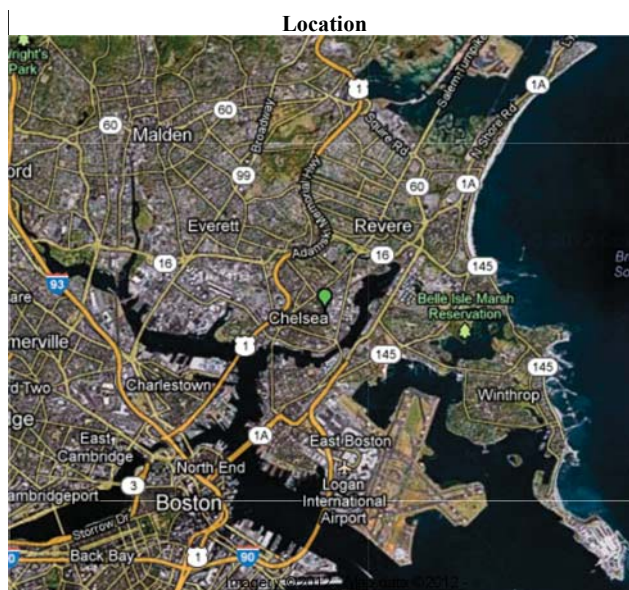
Actions	
Response Action Type:	AUL Activity and Use Limitation
Status:	SNAUDI Level II - Audit Inspection
Submittal Date:	4/28/2005
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RAM Release Abatement Measure
Status:	CSRCVD Completion Statement Received
Submittal Date:	3/2/2002
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RAONR RAO Not Required
Status:	RTCLSS Linked to a Tier Classified Site
Submittal Date:	3/16/2000
RAO class:	
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	LNKVTC RTN Linked to TCLASS Via Tier Classification Submittal
Submittal Date:	3/15/2000
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	3/2/2000
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	3/2/2000
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
EPH	11200	MG/KG
METALS		
PAH	80	MG/KG

LSPs	
LSP#	Name
2261	HUGHTO, RICHARD J

Linked RTNs	
Primary RTN	Secondary RTN
3-0017722	3-0019346

Tier Classification Detail							
NRS Totals	II	III	IV	V	VI	Zone 2	Imminent Hazard
256	100	116	20	20	0	N	N

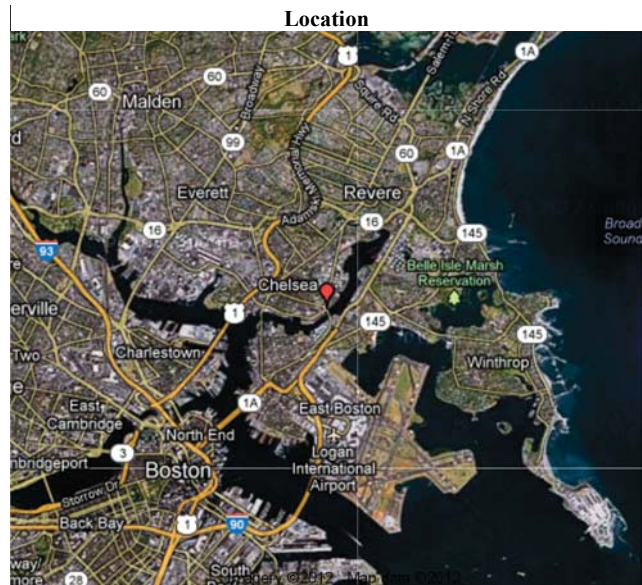


Site Information			
Site Number:	3-0020135	Category:	TWO HR
Site Name:	FMR CABOT PAINT	Release Type:	DPS
Address:	CHELSEA CRK	Current date:	10/30/1997
Town:	CHELSEA	Phase:	
Zipcode:	02150-0000	RAO Class:	
Official notification date:	2/5/2001	Locationtype:	WATERBODY
Initial status date:	2/5/2002	Source:	UNKNOWN

Actions	
Response Action Type:	DPS Downgradient Property Status
Status:	REVRC'D Revised Statement or Transmittal Received
Submittal Date:	11/9/2001
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	4/4/2001
RAO class:	
Activity & Use Limitation:	
Response Action Type:	IRA Immediate Response Action
Status:	PLANWR Written Plan Received
Submittal Date:	4/4/2001
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	11/20/2000
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
PETROLEUM		

LSPs	
LSP#	Name
2332	STIMPSON, WESLEY E



Site Information

Site Number:	3-0026296	Category:	72 HR
Site Name:	NO LOCATION AID	Release Type:	TIER 2
Address:	260 MARGINAL ST	Current date:	11/21/2007
Town:	CHELSEA	Phase:	PHASE IV
Zipcode:	02150-0000	RAO Class:	
Official notification date:	10/13/2006	Locationtype:	COMMERCIAL
Initial status date:	10/13/2007	Source:	CABOT,STAIN,UNKNOWN

Actions

Response Action Type:	RAM Release Abatement Measure
Status:	CSRCVD Completion Statement Received
Submittal Date:	2/1/2011
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASIV Phase 4
Status:	PLANWR Written Plan Received
Submittal Date:	12/1/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASII Phase 2
Status:	CSRCVD Completion Statement Received
Submittal Date:	3/3/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHSIII Phase 3
Status:	CSRCVD Completion Statement Received
Submittal Date:	3/3/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	IRA Immediate Response Action
Status:	TSAUD Level I - Technical Screen Audit
Submittal Date:	8/21/2008
RAO class:	
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	LEGNOT Legal Notice Published
Submittal Date:	11/29/2007
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASEI Phase 1
Status:	CSRCVD Completion Statement Received
Submittal Date:	11/21/2007
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	12/27/2006
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	10/13/2006
RAO class:	
Activity & Use Limitation:	

Chemicals

Chemical	Amount	Units
DNAPL	3.5	INCH
DNAPL		

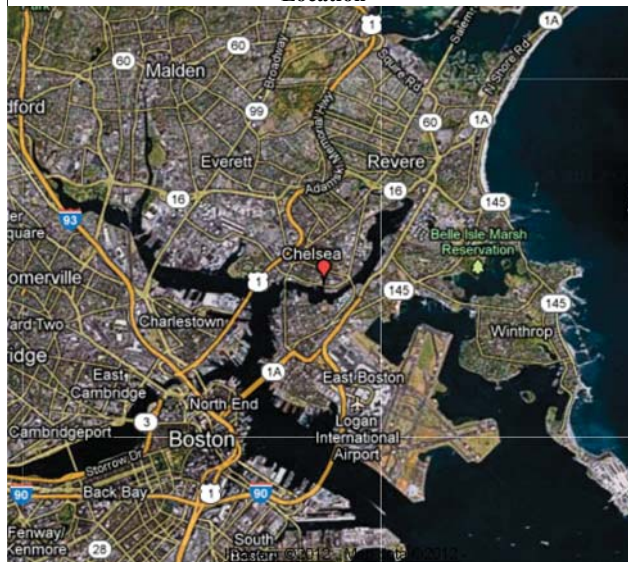
LSPs

LSP#	Name
1510	NANGLE, JEFFREY A

Tier Classification Detail

NRS Totals	II	III	IV	V	VI	Zone 2	Imminent Hazard
266	35	141	15	75	0	N	N

Location



Site Information			
Site Number:	3-0027122	Category:	TWO HR
Site Name:	GULF OIL TERMINAL	Release Type:	RAO
Address:	281 EASTERN AVE	Current date:	8/1/2011
Town:	CHELSEA	Phase:	PHASE IV
Zipcode:	02150-0000	RAO Class:	C1
Official notification date:	9/19/2007	Location type:	INDUSTRIAL
Initial status date:	9/19/2008	Source:	PIPE

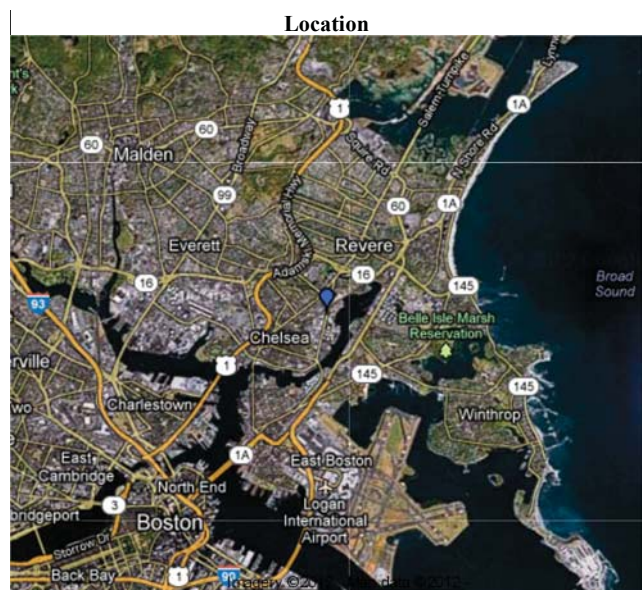
Actions	
Response Action Type:	RAO Response Action Outcome - RAO
Status:	IMRCDD Post-RAO C Status Report Received (Ph V-prior to 05 only)
Submittal Date:	8/6/2012
RAO class:	C1
Activity & Use Limitation:	NONE
Response Action Type:	IRA Immediate Response Action
Status:	CSRCVD Completion Statement Received
Submittal Date:	8/1/2011
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHSIII Phase 3
Status:	CSRCVD Completion Statement Received
Submittal Date:	10/4/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASII Phase 2
Status:	CSRCVD Completion Statement Received
Submittal Date:	10/4/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASEI Phase 1
Status:	CSRCVD Completion Statement Received
Submittal Date:	9/26/2008
RAO class:	
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	TIERII Tier 2 Classification
Submittal Date:	9/26/2008
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	10/22/2007
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	9/19/2007
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
GASOLINE	10	GAL
GASOLINE	10000	GAL

LSPs	
LSP#	Name
9197	MARIANO, CHRISTOPHER G
5586	RICCIARDI, FRANCIS M

RAO Details			
Class	Method	GW Category	Soil Category
C1	1	2	3

Tier Classification Detail							
NRS Totals	II	III	IV	V	VI	Zone 2	Imminent Hazard
348	135	118	20	85	-10	N	N



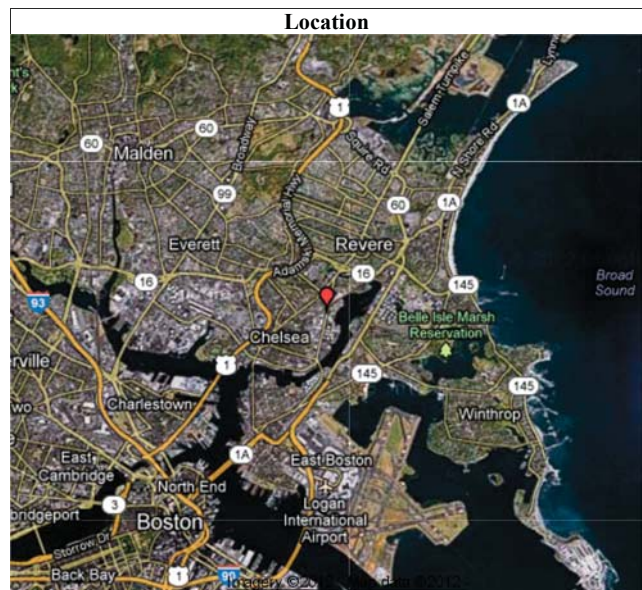
Site Information			
Site Number:	3-0028432	Category:	120 DY
Site Name:	GULF OIL TERMINAL	Release Type:	TIER 2
Address:	281 EASTERN AVE	Current date:	4/2/2010
Town:	CHELSEA	Phase:	PHASE IV
Zipcode:	02150-0000	RAO Class:	
Official notification date:	4/3/2009	Location type:	
Initial status date:	4/3/2010	Source:	

Actions	
Response Action Type:	PHASII Phase 2
Status:	CSRCVD Completion Statement Received
Submittal Date:	4/5/2012
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHSIII Phase 3
Status:	CSRCVD Completion Statement Received
Submittal Date:	4/5/2012
RAO class:	
Activity & Use Limitation:	
Response Action Type:	TCLASS Tier Classification
Status:	TIERII Tier 2 Classification
Submittal Date:	4/2/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	PHASEI Phase 1
Status:	CSRCVD Completion Statement Received
Submittal Date:	4/2/2010
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	4/3/2009
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	4/3/2009
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
VINYL CHLORIDE	130	UG/L

LSPs	
LSP#	Name
6889	KOLL, CARON S

Tier Classification Detail							
NRS Totals	II	III	IV	V	VI	Zone 2	Imminent Hazard
251	60	111	20	60	0	N	N



Site Information			
Site Number:	3-0029793	Category:	TWO HR
Site Name:	BERTH #1	Release Type:	RAO
Address:	281 EASTERN AVENUE	Current date:	2/6/2012
Town:	CHELSEA	Phase:	
Zipcode:	02150-0000	RAO Class:	A1
Official notification date:	2/6/2011	Location type:	INDUSTRIAL, WATERBODY
Initial status date:	2/6/2012	Source:	DRUMS, PIPE, UNKNOWN

Actions	
Response Action Type:	RAO Response Action Outcome - RAO
Status:	FEEREC Fee Received - TFS Use Only
Submittal Date:	2/28/2012
RAO class:	A1
Activity & Use Limitation:	NONE
Response Action Type:	RAM Release Abatement Measure
Status:	CSRCVD Completion Statement Received
Submittal Date:	1/25/2012
RAO class:	
Activity & Use Limitation:	
Response Action Type:	IRA Immediate Response Action
Status:	TSAUD Level I - Technical Screen Audit
Submittal Date:	7/25/2011
RAO class:	
Activity & Use Limitation:	
Response Action Type:	RNF Release Notification Form Received
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	4/8/2011
RAO class:	
Activity & Use Limitation:	
Response Action Type:	REL Potential Release or Threat of Release
Status:	REPORT Reportable Release or Threat of Release
Submittal Date:	2/6/2011
RAO class:	
Activity & Use Limitation:	

Chemicals		
Chemical	Amount	Units
PETROLEUM	.01	GAL

LSPs	
LSP#	Name
9197	MARIANO, CHRISTOPHER G
6889	KOLL, CARON S

RAO Details			
Class	Method	GW Category	Soil Category
A1	N	N	I

ATTACHMENT H

Endangered and Threatened Species Documentation

Lightship Engineering reviewed federal listings of endangered and threatened species published by the U.S. Fish and Wildlife Service. According to the U.S. Fish and Wildlife Service, the Site is within the known or believed habitat of the piping plover (*Charadrius melodus*). No endangered or threatened species were identified for the vicinity of the Site or discharge area.

Lightship Engineering also reviewed the Massachusetts Division of Fisheries and Wildlife list for Massachusetts, and the city of Chelsea. No records were reviewed by Lightship Engineering for the Site, vicinity of the Site or discharge area.



Species Reports

Environmental Conservation Online System

(<http://www.fws.gov>)

Listings and occurrences for Massachusetts

Notes:

- This report shows the listed species associated in some way with this state.
- This list does not include experimental populations and similarity of appearance listings.
- This list includes non-nesting sea turtles and whales in State/Territory coastal waters.
- This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.
- Click on the highlighted scientific names below to view a Species Profile for each listing.

Summary of Animals listings

Animal species listed in this state and that occur in this state (16 species)	
Status (javascript:launch('/tess_public/html/db-status.html'));	Species
E	Beetle, American burying (Microphorus americanus (/speciesProfile/profile/speciesProfile.action?spcode=I028))
T	Plover, piping except Great Lakes watershed (Charadrius melodus (/speciesProfile/profile/speciesProfile.action?spcode=B079))
E	Plymouth Red-Bellied Turtle (Pseudemys rubriventris bangsi (/speciesProfile/profile/speciesProfile.action?spcode=C021))
E	Sea turtle, hawksbill (Eretmochelys imbricata (/speciesProfile/profile/speciesProfile.action?spcode=C00E))
E	Sea turtle, Kemp's ridley (Lepidochelys kempii (/speciesProfile/profile/speciesProfile.action?spcode=C00O))
E	Sea turtle, leatherback (Dermochelys coriacea (/speciesProfile/profile/speciesProfile.action?spcode=C00F))
E	Sturgeon, shortnose (Acipenser brevirostrum (/speciesProfile/profile/speciesProfile.action?spcode=E00B))
E	Tern, roseate northeast U.S. nesting pop. (Sterna dougallii dougallii (/speciesProfile/profile/speciesProfile.action?spcode=B07O))
T	Tiger beetle, northeastern beach (Cicindela dorsalis dorsalis (/speciesProfile/profile/speciesProfile.action?spcode=I02C))
T	Tiger beetle, Puritan (Cicindela puritana (/speciesProfile/profile/speciesProfile.action?spcode=I02D))
E	Wedgemussel, dwarf (Alasmidonta heterodon (/speciesProfile/profile/speciesProfile.action?spcode=F029))
E	Whale, blue (Balaenoptera musculus (/speciesProfile/profile/speciesProfile.action?spcode=A02M))
E	Whale, finback (Balaenoptera physalus (/speciesProfile/profile/speciesProfile.action?spcode=A02N))

Status (javascript:launch('/tess_public/html/db-status.html');)	Species
E	Whale, humpback (Megaptera novaeangliae (/speciesProfile/profile/speciesProfile.action?scode=A02Q))
E	Whale, North Atlantic Right (Eubalaena glacialis (/speciesProfile/profile/speciesProfile.action?scode=A02R))
E	Whale, Sei (Balaenoptera borealis (/speciesProfile/profile/speciesProfile.action?scode=A02S))
Animal species listed in this state that do not occur in this state (4 species)	
Status (javascript:launch('/tess_public/html/db-status.html');)	Species
E	Butterfly, Karner blue (Lycaeides melissa samuelis (/speciesProfile/profile/speciesProfile.action?scode=I00F))
E	Puma (=cougar), eastern (Puma (=Felis) concolor couguar (/speciesProfile/profile/speciesProfile.action?scode=A046))
T	Turtle, bog (=Muhlenberg) northern (Clemmys muhlenbergii (/speciesProfile/profile/speciesProfile.action?scode=C048))
E	Wolf, gray U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, KS, KY, LA, MA, MD, ME, MO, MS, NC, NE, NH, NJ, NV, NY, OK, PA, RI, SC, TN, VA, VT and WV; those portions of AZ, NM, and TX not included in an experimental population; and portions of IA, IN, IL, ND, OH, OR, SD, UT, and WA. Mexico. (Canis lupus (/speciesProfile/profile/speciesProfile.action?scode=A00D))
Animal listed species occurring in this state that are not listed in this state (1 species)	
Status (javascript:launch('/tess_public/html/db-status.html');)	Species
T	Sea turtle, green except where endangered (Chelonia mydas (/speciesProfile/profile/speciesProfile.action?scode=C00S))

Summary of Plant listings

Plant species listed in this state and that occur in this state (3 species)	
Status (javascript:launch('/tess_public/html/db-status.html');)	Species
E	Bulrush, Northeastern (Scirpus ancistrochaetus (/speciesProfile/profile/speciesProfile.action?scode=Q21H))
E	Gerardia, sandplain (Agalinis acuta (/speciesProfile/profile/speciesProfile.action?scode=Q24K))
T	Pogonia, small whorled (Isotria medeoloides (/speciesProfile/profile/speciesProfile.action?scode=Q1XL))
Plant species listed in this state that do not occur in this state (2 species)	
Status (javascript:launch('/tess_public/html/db-status.html');)	Species
T	Amaranth, seabeach (Amaranthus pumilus (/speciesProfile/profile/speciesProfile.action?scode=Q2MZ))

Status (javascript:launch('/tess_public/html/db-status.html');)	Species
E	Chaffseed, American (Schwalbea americana (/speciesProfile/profile/speciesProfile.action?spcode=Q214))

Last updated: September 5, 2012

[ECOS Home \(/ecos/indexPublic.do\)](#) | [Contact Us \(/ecos/helpdesk.do?version=TESS_PUBLIC-1_1_11\)](#)



Species Profile

Environmental Conservation Online System

(<http://www.fws.gov>)

Piping Plover (Charadrius melodus)

Kingdom: Animalia Class: Aves Order: Ciconiiformes
Family: Charadriidae

Listing Status: Endangered and Threatened

Quick links: [Federal Register \(#status\)](#) [Action Plans \(#actionPlans\)](#) [Recovery \(#recovery\)](#) [Critical Habitat \(#crithab\)](#) [Conservation Plans \(#conservationPlans\)](#) [Petitions \(#petitions\)](#) [Life History \(#lifeHistory\)](#) [Other Resources \(#other\)](#)



([/docs/species_images/doc3770.jpg](#))

General Information

Size: 18 cm (7.25 in) in length. Color: Breeding season: Pale brown above, lighter below; black band across forehead; bill orange with black tip; legs orange; white rump. Male: Complete or incomplete black band encircles the body at the breast. Female: Paler head band; incomplete breast band. Winter coloration: Bill black; all birds lack breast band and head band.

Population detail

The FWS is currently monitoring the following populations of the Piping Plover

- **Population location:** Great Lakes watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.)

Listing status: Endangered

States/US Territories in which this population is known to or is believed to occur: [Illinois \(/speciesProfile/profile/countiesByState.action?entityId=130&state=Illinois\)](#) , [Indiana \(/speciesProfile/profile/countiesByState.action?entityId=130&state=Indiana\)](#) , [Michigan \(/speciesProfile/profile/countiesByState.action?entityId=130&state=Michigan\)](#) , [Minnesota \(/speciesProfile/profile/countiesByState.action?entityId=130&state=Minnesota\)](#) , [Mississippi \(/speciesProfile/profile/countiesByState.action?entityId=130&state=Mississippi\)](#) , [New York \(/speciesProfile/profile/countiesByState.action?entityId=130&state=New York\)](#) , [Ohio \(/speciesProfile/profile/countiesByState.action?entityId=130&state=Ohio\)](#) , [Pennsylvania \(/speciesProfile/profile/countiesByState.action?entityId=130&state=Pennsylvania\)](#) , [Wisconsin \(/speciesProfile/profile/countiesByState.action?entityId=130&state=Wisconsin\)](#)

US Counties in which this population is known to or is believed to occur: [View All \(/speciesProfile/profile/countiesBySpecies.action?entityId=130\)](#)

USFWS Refuges in which this population is known to occur: AMAGANSETT NATIONAL WILDLIFE REFUGE, ELIZABETH ALEXANDRA MORTON NATIONAL WILDLIFE REFUGE, FERGUS FALLS WETLAND MANAGEMENT DISTRICT, MORRIS WETLAND MANAGEMENT DISTRICT, TARGET ROCK NATIONAL WILDLIFE REFUGE

Countries in which the this population is known to occur: Canada

For more information: http://ecos.fws.gov/docs/life_histories/B079.html (http://ecos.fws.gov/docs/life_histories/B079.html)

- **Population location:** Entire, except those areas where listed as endangered above

Listing status: Threatened

States/US Territories in which this population is known to or is believed to occur: [Alabama \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Alabama\)](#) , [Arkansas \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Arkansas\)](#) , [Colorado \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Colorado\)](#) , [Connecticut \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Connecticut\)](#) , [Delaware \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Delaware\)](#) , [Florida \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Florida\)](#) , [Iowa \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Iowa\)](#) , [Kansas \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Kansas\)](#) , [Louisiana \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Louisiana\)](#) , [Maine \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Maine\)](#) , [Maryland \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Maryland\)](#) , [Massachusetts \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Massachusetts\)](#) , [Montana \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Montana\)](#) , [Nebraska \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Nebraska\)](#) , [New Hampshire \(/speciesProfile/profile/countiesByState.action?entityId=131&state=New Hampshire\)](#) , [New Jersey \(/speciesProfile/profile/countiesByState.action?entityId=131&state=New Jersey\)](#) , [New Mexico \(/speciesProfile/profile/countiesByState.action?entityId=131&state=New Mexico\)](#) , [New York \(/speciesProfile/profile/countiesByState.action?entityId=131&state=New York\)](#) , [North Carolina \(/speciesProfile/profile/countiesByState.action?entityId=131&state=North Carolina\)](#) , [North Dakota \(/speciesProfile/profile/countiesByState.action?entityId=131&state=North Dakota\)](#) , [Oklahoma \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Oklahoma\)](#) , [Rhode Island \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Rhode Island\)](#) , [South Carolina \(/speciesProfile/profile/countiesByState.action?entityId=131&state=South Carolina\)](#) , [South Dakota \(/speciesProfile/profile/countiesByState.action?entityId=131&state=South Dakota\)](#) , [Tennessee \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Tennessee\)](#) , [Texas \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Texas\)](#) , [Utah \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Utah\)](#) , [Vermont \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Vermont\)](#) , [Virginia \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Virginia\)](#) , [Washington \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Washington\)](#) , [West Virginia \(/speciesProfile/profile/countiesByState.action?entityId=131&state=West Virginia\)](#) , [Wisconsin \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Wisconsin\)](#) , [Wyoming \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Wyoming\)](#)

[/profile/countiesByState.action?entityId=131&state=South Dakota](/profile/countiesByState.action?entityId=131&state=South+Dakota) , [Texas \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Texas\)](/speciesProfile/profile/countiesByState.action?entityId=131&state=Texas) , [Virginia \(/speciesProfile/profile/countiesByState.action?entityId=131&state=Virginia\)](/speciesProfile/profile/countiesByState.action?entityId=131&state=Virginia)

US Counties in which this population is known to or is believed to occur: [View All \(/speciesProfile/profile/countiesBySpecies.action?entityId=131\)](/speciesProfile/profile/countiesBySpecies.action?entityId=131)

USFWS Refuges in which this population is known to occur: ANAHUAC NATIONAL WILDLIFE REFUGE, ARANSAS NATIONAL WILDLIFE REFUGE, ARROWWOOD NATIONAL WILDLIFE REFUGE, AUDUBON NATIONAL WILDLIFE REFUGE, AUDUBON WETLAND MANAGEMENT DISTRICT ... [Show All Refuges \(javascript:toggleRefuges\('on'\)\)](#)

Countries in which the this population is known to occur: Canada, Mexico

For more information: http://ecos.fws.gov/docs/life_histories/B079.html (http://ecos.fws.gov/docs/life_histories/B079.html)

Current Listing Status Summary

Status	Date Listed	Lead Region	Where Listed
Endangered	12/11/1985	Great Lakes-Big Rivers Region (Region 3) (http://www.fws.gov/midwest/)	Great Lakes watershed
Threatened	12/11/1985	Northeast Region (Region 5) (http://www.fws.gov/northeast/)	except Great Lakes watershed

» Federal Register Documents

Most Recent Federal Register Documents (Showing 5 of 29: [view all \(/speciesProfile/profile/displayAllDocuments!fedreg.action;jsessionid=3D0D83D8560C6F230DEA2F310EA3BC04?spcode=B079\)](/speciesProfile/profile/displayAllDocuments!fedreg.action;jsessionid=3D0D83D8560C6F230DEA2F310EA3BC04?spcode=B079))

Date	Citation Page	Title
09/08/2011	76 FR 55638 55641	90-Day Finding on a Petition To List the Snowy Plover and Reclassify the Wintering Population of Piping Plover (http://www.gpo.gov/fdsys/pkg/FR-2011-09-08/pdf/2011-22900.pdf)
05/19/2009	74 FR 23476 23600	Revised Designation of Critical Habitat for the Wintering Population of the Piping Plover (<i>Charadrius melodus</i>) in Texas (http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2009&federalRegister.page=23476&publication=FR)
10/21/2008	73 FR 62816 62841	Revised Designation of Critical Habitat for the Wintering Population of the Piping Plover (<i>Charadrius melodus</i>) in North Carolina; Final Rule (http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2008&federalRegister.page=62816&publication=FR)
09/30/2008	73 FR 56860 56862	Endangered and Threatened Wildlife and Plants; 5-Year Review - Notice of initiation of review; request for information on the piping plover (<i>Charadrius melodus</i>). (http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2008&federalRegister.page=56860&publication=FR)
06/09/2008	73 FR 32629	Correction to Revised Designation of Critical Habitat for the Wintering Population of the Piping Plover (<i>Charadrius melodus</i>) in Texas (http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2008&federalRegister.page=32629&publication=FR)

Action Plans (Showing 2 of 2)

Date	Title
12/04/2009	Piping plover Spotlight Species Action Plan (/docs/action_plans/doc3118.pdf)
10/01/2009	Great Lakes piping plover spotlight species action plan (/docs/action_plans/doc3033.pdf)

» Recovery

[Recovery Plan Information Search \(/roar](#)[/pub/ConfigureRecActionReport.do?path=ROAR+Custom+Queries.Public+Actions+AdHoc\)](#)

- [Information Search FAQs \(http://www.fws.gov/endangered/recovery/ROAR_FAQs%2008-05-09_FINAL.pdf\)](http://www.fws.gov/endangered/recovery/ROAR_FAQs%2008-05-09_FINAL.pdf)

Current Recovery Plan(s)

Date	Title	Plan Action Status	Plan Status
05/02/1996	Piping Plover Atlantic Coast Population Revised Recovery Plan (http://ecos.fws.gov/docs/recovery_plan/960502.pdf)	View Implementation Progress (/roar/pub/planImplementationStatus.action?documentId=1000797&entityId=131)	Final Revision 1
09/16/2003	Recovery Plan for the Great Lakes population of Piping Plovers (http://ecos.fws.gov/docs/recovery_plan/030916a.pdf)	View Implementation Progress (/roar/pub/planImplementationStatus.action?documentId=100006&entityId=130)	Final
05/12/1988	Great Lakes & Northern Great Plains Piping Plover (http://ecos.fws.gov/docs/recovery_plan/880512.pdf)	View Implementation Progress (/roar/pub/planImplementationStatus.action?documentId=1002549&entityId=131)	Final

Other Recovery Documents (Showing 5 of 6: [view all \(/speciesProfile/profile](#)[/displayAllDocuments!otherRecovery.action;jsessionid=3D0D83D8560C6F230DEA2F310EA3BC04?scode=B079\)\)](#)

Date	Citation Page	Title	Document Type
09/30/2008	73 FR 56860 56862	Endangered and Threatened Wildlife and Plants; 5-Year Review - Notice of initiation of review; request for information on the piping plover (<i>Charadrius melodus</i>). (http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2008&federalRegister.page=56860&publication=FR)	• Notice 5-year Review, Initiation
09/16/2003	68 FR 54241 54242	Approved Recovery Plan for the Great Lakes Piping Plover (<i>Charadrius melodus</i>) (http://ecos.fws.gov/docs/federal_register/fr4176.pdf)	• Notice Final Recovery Plan Availability
		Notice of Availability of the Piping Plover (<i>Charadrius melodus</i>) Great Lakes Population Draft Recovery Plan for	• Notice Draft

Date	Citation Page	Title	Document Type
		/docs/federal_register/fr3962.pdf	
12/28/2001	66 FR 67165 67166	ETWP; Proposed Designation of Critical Habitat for the Northern Great Plains Breeding Population of the Piping Plover; Reopening of Public Comment Period and Notice of Availability of Draft Economic Analysis http://ecos.fws.gov/docs/federal_register/fr3830.pdf	• Notice Doc. Availability • Notice Reopen Comment • Proposed Critical Habitat, Critical habitat--birds
09/19/2000	65 FR 56530 56531	Reopening of Comment Period and Notice of Availability of Draft Economic Analysis on Proposed Critical Habitat Designation for the Great Lakes Breeding Population of the Piping Plover http://ecos.fws.gov/docs/federal_register/fr3648.pdf	• Notice Doc. Availability • Notice Reopen Comment
Five Year Review			
Date	Title		
09/29/2009	Piping Plover (Charadrius melodus) 5-Year Review (/docs/five_year_review/doc3009.pdf)		

» Critical Habitat

Current Critical Habitat Documents (Showing 5 of 12: view all (/speciesProfile/profile/displayAllDocuments!crithab.action;jsessionid=3D0D83D8560C6F230DEA2F310EA3BC04?spcode=B079))				
Date	Citation Page	Title	Document Type	Status
05/19/2009	74 FR 23476 23600	Revised Designation of Critical Habitat for the Wintering Population of the Piping Plover (Charadrius melodus) in Texas http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2009&federalRegister.page=23476&publication=FR	Final Rule	Final designated
10/21/2008	73 FR 62816 62841	Revised Designation of Critical Habitat for the Wintering Population of the Piping Plover (Charadrius melodus) in North Carolina; Final Rule http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2008&federalRegister.page=62816&publication=FR	Final Rule	Not Required
05/20/2008	73 FR 29294 29321	Revised Designation of Critical Habitat for the Wintering Population of the Piping Plover (Charadrius melodus) in Texas: Proposed rule. http://www.gpo.gov/fdsys/search/citation.result.FR.action?federalRegister.volume=2008&federalRegister.page=29294&publication=FR	Proposed Rule	Not Required
09/11/2002	67 FR 57638 57717	Endangered and Threatened Wildlife and Plants: Designation of Critical Habitat for the Northern Great Plains Breeding Population of the Piping Plover; Final Rule http://ecos.fws.gov/docs/federal_register/fr3943.pdf	Final Rule	Not Required
		ETWP; Proposed Designation of Critical Habitat for		

Date	Citation Page	Title	Document Type	Status
		the Piping Plover; Reopening of Public Comment Period and Notice of Availability of Draft Economic Analysis (http://ecos.fws.gov/docs/federal_register/fr3830.pdf)		

To learn more about critical habitat please see <http://criticalhabitat.fws.gov> (<http://criticalhabitat.fws.gov>)

» Conservation Plans

Habitat Conservation Plans (HCP) (learn more (/docs/conservation_plans/HCP_Incidental_Take.pdf)) (Showing 3 of 3)
HCP Plan Summaries
Magic Carpet Woods Association (http://ecos.fws.gov/conserv_plans/PlanReport?plan_id=1075&region=3&type=HCP&rtype=1)
Piping Plover HCP (State of Massachusetts) (http://ecos.fws.gov/conserv_plans/PlanReport?plan_id=375&region=5&type=HCP&rtype=1)
Volusia Beaches (http://ecos.fws.gov/conserv_plans/PlanReport?plan_id=3191&region=4&type=HCP&rtype=1)

» Petitions

Most Recent Petition Findings (Showing 1 of 1)			
Date	Citation Page	Title	Finding
09/08/2011	76 FR 55638 55641	90-Day Finding on a Petition To List the Snowy Plover and Reclassify the Wintering Population of Piping Plover (http://www.gpo.gov/fdsys/pkg/FR-2011-09-08/pdf/2011-22900.pdf)	• Notice 90-day Petition Finding, Not substantial

» Life History

No Life History information has been entered into this system for this species.

» Other Resources

[NatureServe Explorer Species Reports \(javascript:;\)](#) -- NatureServe Explorer is a source for authoritative conservation information on more than 50,000 plants, animals and ecological communities of the U.S and Canada. NatureServe Explorer provides in-depth information on rare and endangered species, but includes common plants and animals too. NatureServe Explorer is a product of NatureServe in collaboration with the Natural Heritage Network.

[ITIS Reports \(javascript:;\)](#) -- ITIS (the Integrated Taxonomic Information System) is a source for authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world.

Last updated: September 10, 2012

[FWS Endangered Home \(http://www.fws.gov/endangered/\)](http://www.fws.gov/endangered/) | [ECOS Home \(/ecos/indexPublic.do\)](http://ecos.fws.gov/indexPublic.do) | [Contact Us \(/ecos/helpdesk.do?version=SPECIES_PROFILE-1_3_9\)](#)



PREPARED FOR	PROJECT	FIGURE Piping Plover Habitat Area	LIGHTSHIP ENGINEERING ENVIRONMENTAL & LAND-USE CONSULTANTS 39 Industrial Park Road • Unit C • Plymouth, Massachusetts 02360 • (508) 830-3344 • Fax: (508) 830-3360	
NSTAR Electric One NSTAR Way, SE-250 Westwood, Massachusetts 02090	Proposed New Duct Bank Installation Eastern Avenue Chelsea, Massachusetts 02150			
Source: US Fish and Wildlife				

The Official Website of the Department of Fish and Game (DFG)

Department of Fish and Game

Commissioner Mary B. Griffin

[DFG Home](#) [Mass.Gov Home](#) [State Agencies](#) [State Online Services](#)

MassWildlife

Massachusetts Division of Fisheries & Wildlife

Wayne F. MacCallum, Director



Natural Heritage & Endangered Species

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[Search MassWildlife](#)

Rare Species by Town

MESA (Massachusetts Endangered Species Act) and Federal Status

Quick Links

- » [Town Index](#)
- » [MESA List](#)
- » [Contact Us](#)

E = Endangered T = Threatened SC = Special Concern

Most Recent Observation

This field represents the most recent observation of that species in a town. However, because they are rare, many MESA-listed species are difficult to detect even when they are present. Natural Heritage does not have the resources to be able to conduct methodical species surveys in each town on a regular basis. Therefore, the fact that the 'Most Recent Observation' recorded for a species may be several years old should not be interpreted as meaning that the species no longer occurs in a town. However, Natural Heritage regards records older than twenty-five years historic.

Click on a town below to view MESA-listed species for that town. To print the species for a particular town, highlight the species using your mouse, go to Print under the File Menu, click on 'Selection' under 'Print Range' and click OK.

For more information about a particular species, view the list of [Natural Heritage Fact Sheets](#).

These data were extracted from the database of the Natural Heritage and Endangered Species Program in September 2009.

[Cambridge](#) | [Canton](#) | [Carlisle](#) | [Carver](#) | [Charlemont](#) | [Charlton](#) | [Chatham](#) | [Chelmsford](#) | [Chelsea](#) | [Cheshire](#) | [Chester](#) | [Chesterfield](#) | [Chicopee](#) | [Chilmark](#) | [Clarksburg](#) | [Clinton](#) | [Cohasset](#) | [Colrain](#) | [Concord](#) | [Conway](#) | [Cummington](#)

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
CAMBRIDGE	Amphibian	Ambystoma laterale	Blue-spotted Salamander	SC		1917
CAMBRIDGE	Amphibian	Scaphiopus holbrookii	Eastern Spadefoot	T		1892
CAMBRIDGE	Beetle	Cicindela duodecimguttata	Twelve-spotted Tiger Beetle	SC		1932
CAMBRIDGE	Bird	Ammodramus henslowii	Henslow's Sparrow	E		1871
CAMBRIDGE	Bird	Botaurus lentiginosus	American Bittern	E		1906

CHATHAM	Vascular Plant	Rhexia mariana	Maryland Meadow Beauty	E	2000
CHATHAM	Vascular Plant	Sabatia kennedyana	Plymouth Gentian	SC	2005
CHATHAM	Vascular Plant	Sagittaria teres	Terete Arrowhead	SC	2007
CHATHAM	Vascular Plant	Suaeda calceoliformis	American Sea-blite	SC	1989

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
CHELMSFORD	Amphibian	Ambystoma laterale	Blue-spotted Salamander	SC		1943
CHELMSFORD	Butterfly/Moth	Callophrys irus	Frosted Elfin	SC		2006
CHELMSFORD	Dragonfly/Damselfly	Gomphus vastus	Cobra Clubtail	SC		2004
CHELMSFORD	Dragonfly/Damselfly	Neurocordulia obsoleta	Umber Shadowdragon	SC		2004
CHELMSFORD	Dragonfly/Damselfly	Stylurus spiniceps	Arrow Clubtail	T		2004
CHELMSFORD	Mussel	Alasmidonta undulata	Triangle Floater	SC		2004
CHELMSFORD	Reptile	Emydoidea blandingii	Blanding's Turtle	T		2007
CHELMSFORD	Reptile	Glyptemys insculpta	Wood Turtle	SC		2007
CHELMSFORD	Reptile	Terrapene carolina	Eastern Box Turtle	SC		1993
CHELMSFORD	Vascular Plant	Aristida purpurascens	Purple Needlegrass	T		1907
CHELMSFORD	Vascular Plant	Liatris scariosa var. novae-angliae	New England Blazing Star	SC		1900
CHELMSFORD	Vascular Plant	Linum medium var. texanum	Rigid Flax	T		1902
CHELMSFORD	Vascular Plant	Nabalus serpentarius	Lion's Foot	E		1914
CHELMSFORD	Vascular Plant	Ophioglossum pusillum	Adder's-tongue Fern	T		1884
CHELMSFORD	Vascular Plant	Senna hebecarpa	Wild Senna	E		1902

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
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CHELSEA - At this time we are not aware of any state-listed rare plants or animals in this town. This evaluation is based on the information in the NHESP database as of September 2009.

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
CESHIRE	Amphibian	Ambystoma jeffersonianum	Jefferson Salamander	SC		1986
CESHIRE	Bird	Ammodramus henslowii	Henslow's Sparrow	E		Historic
CESHIRE	Bird	Falco peregrinus	Peregrine Falcon	E		1903

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Natural Heritage Home
Species Information Main
Endangered Species List
Species Fact Sheets
Information by Town
GIS Resources
Request Species Information
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Massachusetts List of Endangered, Threatened and Special Concern Species

*As published in the Code of Massachusetts Regulations
February 27, 2012*

Quick Links

- » [Index to MESA List](#)
- » [Contact Natural Heritage](#)
- » [Listing Criteria](#)
- » [Listing Proposal](#)

List of Rare Species in Massachusetts

[VERTEBRATES](#)
[INVERTEBRATES](#)
[PLANTS](#)

Questions/Comments to
natural.heritage@state.ma.us

*To access a species fact sheet click on the "Common Name".
Please note that some species do not have a fact sheet available at this time.*

Updated: 05/11/2012

VERTEBRATES

Common Name	Scientific Name	MA Status	Fed Status	Notes
Fish				
American Brook Lamprey	<i>Lampetra appendix</i>	T		
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	E	E	
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	E	E	
Lake Chub	<i>Couesius plumbeus</i>	E		
Eastern Silvery Minnow	<i>Hybognathus regius</i>	SC		
Bridle Shiner	<i>Notropis bifrenatus</i>	SC		
Northern Redbelly Dace	<i>Phoxinus eos</i>	E		
Longnose Sucker	<i>Catostomus catostomus</i>	SC		
Burbot	<i>Lota lota</i>	SC		
Threespine Stickleback	<i>Gasterosteus aculeatus</i>	T		1
Amphibians				
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	SC		2

Blue-Spotted Salamander	<i>Ambystoma laterale</i>	SC		3
Marbled Salamander	<i>Ambystoma opacum</i>	T		
Eastern Spadefoot	<i>Scaphiopus holbrookii</i>	T		
Reptiles				
Loggerhead Seaturtle	<i>Caretta caretta</i>	T	T	
Green Seaturtle	<i>Chelonia mydas</i>	T	T	
Hawksbill Seaturtle	<i>Eretmochelys imbricata</i>	E	E	
Kemp's Ridley Seaturtle	<i>Lepidochelys kempii</i>	E	E	
Leatherback Seaturtle	<i>Dermochelys coriacea</i>	E	E	
Wood Turtle	<i>Glyptemys insculpta</i>	SC		
Bog Turtle	<i>Glyptemys muhlenbergii</i>	E	T	
Blanding's Turtle	<i>Emydoidea blandingii</i>	T		
Diamond-backed Terrapin	<i>Malaclemys terrapin</i>	T		
Northern Red-bellied Cooter	<i>Pseudemys rubriventris</i>	E	E	4
Eastern Box Turtle	<i>Terrapene carolina</i>	SC		
Eastern Wormsnake	<i>Carphophis amoenus</i>	T		
Eastern Ratsnake	<i>Pantherophis alleghaniensis</i>	E		
Copperhead	<i>Agkistrodon contortrix</i>	E		
Timber Rattlesnake	<i>Crotalus horridus</i>	E		
Birds				
Common Loon	<i>Gavia immer</i>	SC		
Pied-Billed Grebe	<i>Podilymbus podiceps</i>	E		
Leach's Storm-Petrel	<i>Oceanodroma leucorhoa</i>	E		
American Bittern	<i>Botaurus lentiginosus</i>	E		
Least Bittern	<i>Ixobrychus exilis</i>	E		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T		
Northern Harrier	<i>Circus cyaneus</i>	T		
Sharp-Shinned Hawk	<i>Accipiter striatus</i>	SC		
Peregrine Falcon	<i>Falco peregrinus</i>	E		
King Rail	<i>Rallus elegans</i>	T		
Common Moorhen	<i>Gallinula chloropus</i>	SC		
Piping Plover	<i>Charadrius melodus</i>	T	T	
Upland Sandpiper	<i>Bartramia longicauda</i>	E		
Roseate Tern	<i>Sterna dougallii</i>	E	E	
Common Tern	<i>Sterna hirundo</i>	SC		
Arctic Tern	<i>Sterna paradisaea</i>	SC		
Least Tern	<i>Sternula antillarum</i>	SC		

Barn Owl	<i>Tyto alba</i>	SC	
Long-Eared Owl	<i>Asio otus</i>	SC	
Short-Eared Owl	<i>Asio flammeus</i>	E	
Sedge Wren	<i>Cistothorus platensis</i>	E	
Golden-Winged Warbler	<i>Vermivora chrysoptera</i>	E	
Northern Parula	<i>Parula americana</i>	T	
Blackpoll Warbler	<i>Dendroica striata</i>	SC	
Mourning Warbler	<i>Oporornis philadelphia</i>	SC	
Vesper Sparrow	<i>Pooecetes gramineus</i>	T	
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	T	
Henslow's Sparrow	<i>Ammodramus henslowii</i>	E	
Eastern Whip-poor-will	<i>Caprimulgus vociferus</i>	SC	
Mammals			
Water Shrew	<i>Sorex palustris</i>	SC	
Rock Shrew	<i>Sorex dispar</i>	SC	
Indiana Myotis	<i>Myotis sodalis</i>	E	E
Small-Footed Myotis	<i>Myotis leibii</i>	E	
Little Brown Myotis	<i>Myotis lucifugus</i>	E	
Tricolored Bat	<i>Perimyotis subflavus</i>	E	
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	E	
Southern Bog Lemming	<i>Synaptomys cooperi</i>	SC	
Sperm Whale	<i>Physeter macrocephalus</i>	E	E
Fin Whale	<i>Balaenoptera physalus</i>	E	E
Sei Whale	<i>Balaenoptera borealis</i>	E	E
Blue Whale	<i>Balaenoptera musculus</i>	E	E
Humpback Whale	<i>Megaptera novaeangliae</i>	E	E
Northern Right Whale	<i>Eubalaena glacialis</i>	E	E

INVERTEBRATES

Common Name	Scientific Name	MA Status	Fed Status	Notes
Sponges				
Smooth Branched Sponge	<i>Spongilla aspinosa</i>	SC		
Flatworms				
Sunderland Spring Planarian	<i>Polycelis remota</i>	E		
Segmented Worms				
New England Medicinal Leech	<i>Macrobdella sestertia</i>	SC		

Snails

New England Siltsnail	<i>Floridobia winkleyi</i>	SC
Walker's Limpet	<i>Ferrissia walkeri</i>	SC
Coastal Marsh Snail	<i>Littoridinops tenuipes</i>	SC
Slender Walker	<i>Pomatiopsis lapidaria</i>	E
Boreal Marstonia	<i>Marstonia lustrica</i>	E
Boreal Turret Snail	<i>Valvata sincera</i>	E

Mussels

Dwarf Wedgemussel	<i>Alasmidonta heterodon</i>	E	E
Brook Floater (Swollen Wedgemussel)	<i>Alasmidonta varicosa</i>	E	
Yellow Lampmussel	<i>Lampsilis cariosa</i>	E	
Tidewater Mucket	<i>Leptodea ochracea</i>	SC	
Eastern Pondmussel	<i>Ligumia nasuta</i>	SC	
Creeper	<i>Strophitus undulatus</i>	SC	

Crustaceans

Intricate Fairy Shrimp	<i>Eubbranchipus intricatus</i>	SC
Agassiz's Clam Shrimp	<i>Eulimnadia agassizii</i>	E
	<i>Gammarus</i>	
Northern Spring Amphipod	<i>pseudolimnaeus</i>	SC
American Clam Shrimp	<i>Limnadia lenticularis</i>	SC
Taconic Cave Amphipod	<i>Stygobromus borealis</i>	E
Piedmont Groundwater Amphipod	<i>Stygobromus tenuis</i>	SC
Coastal Swamp Amphipod	<i>Synurella chamberlaini</i>	SC

Dragonflies

Spatterdock Darner	<i>Rhionaeschna mutata</i>	SC
Subarctic Darner	<i>Aeshna subarctica</i>	E
Comet Darner	<i>Anax longipes</i>	SC
Ocellated Darner	<i>Boyeria grafiana</i>	SC
Spine-Crowned Clubtail	<i>Gomphus abbreviatus</i>	SC
Harpoon Clubtail	<i>Gomphus descriptus</i>	E
Midland Clubtail	<i>Gomphus fraternus</i>	E
Rapids Clubtail	<i>Gomphus quadricolor</i>	E
Cobra Clubtail	<i>Gomphus vastus</i>	SC
Skillet Clubtail	<i>Gomphus ventricosus</i>	T
Umber Shadowdragon	<i>Neurocordulia obsoleta</i>	SC
	<i>Neurocordulia</i>	
Stygian Shadowdragon	<i>yamaskanensis</i>	SC

Brook Snaketail	<i>Ophiogomphus aspersus</i>	SC	
Riffle Snaketail	<i>Ophiogomphus carolus</i>	T	
Ski-tipped Emerald	<i>Somatochlora elongata</i>	SC	
Forcinate Emerald	<i>Somatochlora forcipata</i>	E	
Coppery Emerald	<i>Somatochlora georgiana</i>	E	
Incurvate Emerald	<i>Somatochlora incurvata</i>	E	
Kennedy's Emerald	<i>Somatochlora kennedyi</i>	E	
Mocha Emerald	<i>Somatochlora linearis</i>	SC	
Riverine Clubtail	<i>Stylurus amnicola</i>	E	
Ebony Boghaunter	<i>Williamsonia fletcheri</i>	E	
Ringed Boghaunter	<i>Williamsonia lintneri</i>	T	
Damselflies			
Tule Bluet	<i>Enallagma carunculatum</i>	SC	
Attenuated Bluet	<i>Enallagma daeckii</i>	T	
Scarlet Bluet	<i>Enallagma pictum</i>	T	
Pine Barrens Bluet	<i>Enallagma recurvatum</i>	T	
Beetles			
	<i>Cicindela</i>		
Twelve-Spotted Tiger Beetle	<i>duodecimguttata</i>	SC	
	<i>Cicindela rufiventris</i>		
Hentz's Redbelly Tiger Beetle	<i>hentzii</i>	T	
Northeastern Beach Tiger Beetle	<i>Cicindela dorsalis dorsalis</i>	E	T
Bank Tiger Beetle	<i>Cicindela limbalis</i>	SC	
Cobblestone Tiger Beetle	<i>Cicindela marginipennis</i>	E	
Barrens Tiger Beetle	<i>Cicindela patruela</i>	E	
Puritan Tiger Beetle	<i>Cicindela puritana</i>	E	T
Purple Tiger Beetle	<i>Cicindela purpurea</i>	SC	
American Burying Beetle	<i>Nicrophorus americanus</i>	E	E
Butterflies and Moths			
Coastal Heathland Cutworm	<i>Abagrotis nefascia</i>	SC	
Barrens Daggermoth	<i>Acronicta albarufa</i>	T	
Drunk Apamea Moth	<i>Apamea inebriata</i>	SC	
New Jersey Tea Inchworm	<i>Apodrepanulatrix liberaria</i>	E	
Hessel's Hairstreak	<i>Callophrys hesseli</i>	SC	
Frosted Elfin	<i>Callophrys irus</i>	SC	
Bog Elfin	<i>Callophrys lanoraieensis</i>	T	
	<i>Catocala herodias</i>		
Gerhard's Underwing	<i>gerhardi</i>	SC	

Precious Underwing Moth	<i>Catocala pretiosa pretiosa</i>	E	
Waxed Sallow Moth	<i>Chaetagnalea cerata</i>	SC	
Melsheimer's Sack Bearer	<i>Cicinnus melsheimeri</i>	T	
Chain Dot Geometer	<i>Cingilia catenaria</i>	SC	
Unexpected Cycnia	<i>Cycnia inopinatus</i>	T	
Three-Lined Angle Moth	<i>Digrammia eremiata</i>	T	
Imperial Moth	<i>Eacles imperialis</i>	T	
Early Hairstreak	<i>Erora laeta</i>	T	
Persius Duskywing	<i>Erynnis persius persius</i>	E	
Sandplain Euchlaena	<i>Euchlaena madusaria</i>	SC	
Dion Skipper	<i>Euphyes dion</i>	T	
The Pink Streak	<i>Dargida rubripennis</i>	T	
Phyllira Tiger Moth	<i>Grammia phyllira</i>	E	
Slender Clearwing Sphinx Moth	<i>Hemaris gracilis</i>	SC	
Barrens Buckmoth	<i>Hemileuca maia</i>	SC	
Buchholz's Gray	<i>Hypomecis buchholzaria</i>	E	
Pine Barrens Speranza	<i>Speranza exonerata</i>	SC	
Pale Green Pinion Moth	<i>Lithophane viridipallens</i>	SC	
Twilight Moth	<i>Lycia rachelae</i>	E	
Pine Barrens Lycia	<i>Lycia ypsilon</i>	T	
Barrens Metarranthis	<i>Metarranthis apiciaria</i>	E	
Coastal Swamp Metarranthis	<i>Metarranthis pilosaria</i>	SC	
Northern Brocade Moth	<i>Neoligia semicana</i>	SC	
Dune Noctuid Moth	<i>Sympistis riparia</i>	SC	
Pitcher Plant Borer	<i>Papaipema appassionata</i>	T	
Ostrich Fern Borer	<i>Papaipema</i> sp. 2	.SC	5
Chain Fern Borer	<i>Papaipema stenocelis</i>	T	
Water-willow Stem Borer	<i>Papaipema sulphurata</i>	T	
Mustard White	<i>Pieris oleracea</i>	T	
Pink Sallow Moth	<i>Psectraglaea carnosia</i>	SC	
Southern Ptichodis	<i>Ptichodis bistrigata</i>	T	
Orange Sallow Moth	<i>Pyrrhia aurantiago</i>	SC	
Oak Hairstreak	<i>Satyrium favonius</i>	SC	
Spartina Borer	<i>Photodes inops</i>	SC	
	<i>Stenoporpia</i>		
Faded Gray Geometer	<i>polygrammaria</i>	T	
Pine Barrens Zale	<i>Zale lunifera</i>	SC	6
Sandplain Heterocampa	<i>Heterocampa varia</i>	T	
Pine Barrens Zanclognatha	<i>Zanclognatha martha</i>	T	

PLANTS

Common Name	Scientific Name	MA Status	Fed Status	Notes
Adiantaceae (Cliff Ferns)				
Fragile Rock-Brake	<i>Cryptogramma stelleri</i>	E		
Alismataceae (Arrowheads)				
Estuary Arrowhead	<i>Sagittaria montevidensis</i> ssp. <i>spongiosa</i>	E		
Wapato	<i>Sagittaria cuneata</i>	T		
Terete Arrowhead	<i>Sagittaria teres</i>	SC		
Apiaceae (Parsleys, Angelicas)				
Hemlock Parsley	<i>Conioselinum chinense</i>	SC		
Saltpond Pennywort	<i>Hydrocotyle verticillata</i>	T		
Canadian Sanicle	<i>Sanicula canadensis</i>	T		
Long-Styled Sanicle	<i>Sanicula odorata</i>	T		
Aquifoliaceae (Hollies)				
Mountain Winterberry	<i>Ilex montana</i>	E		
Araceae (Arums)				
Green Dragon	<i>Arisaema dracontium</i>	T		
Golden Club	<i>Orontium aquaticum</i>	E		
Araliaceae (Ginsengs)				
Ginseng	<i>Panax quinquefolius</i>	SC		
Asclepiadaceae (Milkweeds)				
Purple Milkweed	<i>Asclepias purpurascens</i>	E		
Linear-Leaved Milkweed	<i>Asclepias verticillata</i>	T		
Aspleniaceae (Spleenworts)				
Mountain Spleenwort	<i>Asplenium montanum</i>	E		
Wall-Rue Spleenwort	<i>Asplenium ruta-muraria</i>	T		
Asteraceae (Asters, Composites)				
Lesser Snakeroot	<i>Ageratina aromatica</i>	E		
Eaton's Beggar-ticks	<i>Bidens eatonii</i>	E		
Estuary Beggar-ticks	<i>Bidens hyperborea</i>	E		

Cornel-leaved Aster	<i>Doellingeria infirma</i>	E
New England Boneset	<i>Eupatorium novae-angliae</i>	E
Purple Cudweed	<i>Gamochaeta purpurea</i>	E
New England Blazing Star	<i>Liatris scariosa</i> var. <i>novae-angliae</i>	SC
Lion's Foot	<i>Nabalus serpentarius</i>	E
Sweet Coltsfoot	<i>Petasites frigidus</i> var. <i>palmatius</i>	E
Sclerolepis	<i>Sclerolepis uniflora</i>	E
Large-Leaved Goldenrod	<i>Solidago macrophylla</i>	T
Upland White Aster	<i>Oligoneuron album</i>	E
Rand's Goldenrod	<i>Solidago simplex</i> ssp. <i>randii</i> var. <i>monticola</i>	E
Eastern Silvery Aster	<i>Symphyotrichum concolor</i>	E
Crooked-Stem Aster	<i>Symphyotrichum prenanthoides</i>	SC
Tradescant's Aster	<i>Symphyotrichum tradescantii</i>	T
Betulaceae (Birches, Alders)		
Mountain Alder	<i>Alnus viridis</i> ssp. <i>crispa</i>	T
Swamp Birch	<i>Betula pumila</i>	E
Boraginaceae (Borages)		
Northern Wild Comfrey	<i>Cynoglossum virginianum</i> var. <i>boreale</i>	E
Oysterleaf	<i>Mertensia maritima</i>	E
Brassicaceae (Mustards)		
Lyre-Leaved Rock-cress	<i>Arabidopsis lyrata</i>	E
Smooth Rock-cress	<i>Boechera laevigata</i>	SC
Green Rock-cress	<i>Boechera missouriensis</i>	T
Purple Cress	<i>Cardamine douglassii</i>	E
Long's Bitter-cress	<i>Cardamine longii</i>	E
Fen Cuckoo Flower	<i>Cardamine dentata</i>	T
Cactaceae (Cacti)		
Prickly Pear	<i>Opuntia humifusa</i>	E
Campanulaceae (Bluebells, Lobelias)		
Great Blue Lobelia	<i>Lobelia siphilitica</i>	E
Caprifoliaceae (Honeysuckles)		

Hairy Honeysuckle	<i>Lonicera hirsuta</i>	E
Snowberry	<i>Symphoricarpos albus</i> var. <i>albus</i>	E
Broad Tinker's-weed	<i>Triosteum perfoliatum</i>	E
Downy Arrowwood	<i>Viburnum rafinesquianum</i>	E
Caryophyllaceae (Pinks, Sandworts)		
Nodding Chickweed	<i>Cerastium nutans</i>	E
Michaux's Sandwort	<i>Minuartia michauxii</i>	T
Large-leaved Sandwort	<i>Moehringia macrophylla</i>	E
Silverling	<i>Paronychia argyrocoma</i>	E
Celastraceae (Staff Tree Family)		
American Bittersweet	<i>Celastrus scandens</i>	T
Chenopodiaceae (Saltworts)		
Fogg's Goosefoot	<i>Chenopodium foggii</i>	E
American Sea-blite	<i>Suaeda calceoliformis</i>	SC
Cistaceae (Rockroses, Pinweeds)		
Bushy Rockrose	<i>Crocanthemum dumosum</i>	SC
Beaded Pinweed	<i>Lechea pulchella</i> var. <i>moniliformis</i>	E
Clusiaceae (St. John's-worts)		
Creeping St. John's-wort	<i>Hypericum adpressum</i>	T
Giant St. John's-wort	<i>Hypericum ascyron</i>	E
St. Andrew's Cross	<i>Hypericum stragulum</i>	E
Convolvulaceae (Morning Glories)		
Low Bindweed	<i>Calystegia spithamea</i>	E
Crassulaceae (Sedums)		
Pygmyweed	<i>Crassula aquatica</i>	T
Cupressaceae (Cedars, Junipers)		
Arborvitae	<i>Thuja occidentalis</i>	E
Cyperaceae (Sedges)		
Foxtail Sedge	<i>Carex alopecoidea</i>	T
Back's Sedge	<i>Carex backii</i>	E

Bailey's Sedge	<i>Carex baileyi</i>	T
Bush's Sedge	<i>Carex bushii</i>	E
Chestnut-colored Sedge	<i>Carex castanea</i>	E
Creeping Sedge	<i>Carex chordorrhiza</i>	E
Davis' Sedge	<i>Carex davisii</i>	E
Glaucous Sedge	<i>Carex glaucoidea</i>	E
Handsome Sedge	<i>Carex formosa</i>	T
Slender Woodland Sedge	<i>Carex gracilescens</i>	E
Gray's Sedge	<i>Carex grayi</i>	T
Hitchcock's Sedge	<i>Carex hitchcockiana</i>	SC
Shore Sedge	<i>Carex lenticularis</i>	T
Glaucous Sedge	<i>Carex livida</i>	E
False Hop-sedge	<i>Carex lupuliformis</i>	E
Midland Sedge	<i>Carex mesochorea</i>	E
Michaux's Sedge	<i>Carex michauxiana</i>	E
Mitchell's Sedge	<i>Carex mitchelliana</i>	T
Rich Woods Sedge	<i>Carex oligocarpa</i>	T
Few-seeded Sedge	<i>Carex oligosperma</i>	E
Few-flowered Sedge	<i>Carex pauciflora</i>	E
Variable Sedge	<i>Carex polymorpha</i>	E
Schweinitz's Sedge	<i>Carex schweinitzii</i>	E
Dioecious Sedge	<i>Carex sterilis</i>	T
Walter's Sedge	<i>Carex striata</i>	E
Fen Sedge	<i>Carex tetanica</i>	SC
Hairy-fruited Sedge	<i>Carex trichocarpa</i>	SC
Tuckerman's Sedge	<i>Carex tuckermanii</i>	E
Cat-tail Sedge	<i>Carex typhina</i>	T
Engelmann's Umbrella-sedge	<i>Cyperus engelmannii</i>	T
Houghton's Flatsedge	<i>Cyperus houghtonii</i>	E
Wright's Spike-rush	<i>Eleocharis diandra</i>	E
Intermediate Spike-sedge	<i>Eleocharis intermedia</i>	T
Tiny-fruited Spike-rush or Spike-sedge	<i>Eleocharis microcarpa</i> var. <i>filiculmis</i>	E
Ovate Spike-rush or Spike-sedge	<i>Eleocharis ovata</i>	E
Few-flowered Spike-sedge	<i>Eleocharis quinqueflora</i>	E
Three-angled Spike-sedge	<i>Eleocharis tricostata</i>	E
Slender Cottongrass	<i>Eriophorum gracile</i>	T
Dwarf Bulrush	<i>Lipocarpa micrantha</i>	T

Capillary Beak-sedge	<i>Rhynchospora capillacea</i>	E	
Inundated Horned-sedge	<i>Rhynchospora inundata</i>	T	
Short-beaked Bald-sedge	<i>Rhynchospora nitens</i>	T	
Long-beaked Bald-sedge	<i>Rhynchospora scirpoides</i>	SC	
Torrey's Beak-sedge	<i>Rhynchospora torreyana</i>	E	
Northeastern Bulrush	<i>Scirpus ancistrochaetus</i>	E	E
Long's Bulrush	<i>Scirpus longii</i>	T	
Papillose Nut-sedge	<i>Scleria pauciflora</i>	E	7
Tall Nut-sedge	<i>Scleria triglomerata</i>	E	
Dryopteridaceae (Wood Ferns)			
Braun's Holly-fern	<i>Polystichum braunii</i>	E	
Smooth Woodsia	<i>Woodsia glabella</i>	E	
Elatinaceae (Waterworts)			
American Waterwort	<i>Elatine americana</i>	E	
Equisetaceae (Horsetails)			
Dwarf Scouring-rush	<i>Equisetum scirpoides</i>	SC	
Ericaceae (Laurels, Blueberries)			
Great Laurel	<i>Rhododendron maximum</i>	T	
	<i>Vaccinium vitis-idaea</i> ssp. <i>minus</i>	E	
Mountain Cranberry		E	
Eriocaulaceae (Pipeworts)			
Parker's Pipewort	<i>Eriocaulon parkeri</i>	E	
Fabaceae (Beans, Peas, Clovers)			
Large-bracted Tick-trefoil	<i>Desmodium cuspidatum</i>	T	
Wild Senna	<i>Senna hebecarpa</i>	E	
Fagaceae (Oaks, Beeches)			
Bur Oak	<i>Quercus macrocarpa</i>	SC	
Yellow Oak	<i>Quercus muehlenbergii</i>	T	
Fumariaceae (Fumitories)			
Climbing Fumitory	<i>Adlumia fungosa</i>	SC	
Gentianaceae (Gentians)			
Andrew's Bottle Gentian	<i>Gentiana andrewsii</i>	E	
Spurred Gentian	<i>Halenia deflexa</i>	E	
Slender Marsh Pink	<i>Sabatia campanulata</i>	E	

Plymouth Gentian	<i>Sabatia kennedyana</i>	SC
Sea Pink	<i>Sabatia stellaris</i>	E
Grossulariaceae (Currants)		
Bristly Black Currant	<i>Ribes lacustre</i>	SC
Haemodoraceae (Redroots)		
Redroot	<i>Lachnanthes caroliana</i>	SC
Haloragaceae (Water-milfoils)		
Alternate-flowered Water-milfoil	<i>Myriophyllum alterniflorum</i>	E
Farwell's Water-milfoil	<i>Myriophyllum farwellii</i>	E
Pinnate Water-milfoil	<i>Myriophyllum pinnatum</i>	SC
Comb Water-milfoil	<i>Myriophyllum verticillatum</i>	E
Hydrophyllaceae (Waterleaves)		
Broad Waterleaf	<i>Hydrophyllum canadense</i>	E
Hymenophyllaceae (Filmy-ferns)		
Appalachian Bristle-fern	<i>Trichomanes intricatum</i>	E
Iridaceae (Irises)		
Sandplain Blue-eyed Grass	<i>Sisyrinchium fuscatum</i>	SC
Slender Blue-eyed Grass	<i>Sisyrinchium mucronatum</i>	E
Isoetaceae (Quillworts)		
Acadian Quillwort	<i>Isoetes acadiensis</i>	E
Lake Quillwort	<i>Isoetes lacustris</i>	E
Juncaceae (Rushes)		
Weak Rush	<i>Juncus debilis</i>	E
Thread Rush	<i>Juncus filiformis</i>	E
Black-fruited Woodrush	<i>Luzula parviflora</i> ssp. <i>melanocarpa</i>	E
Lamiaceae (Mints)		
Purple Giant-hyssop	<i>Agastache scrophulariifolia</i>	E
Downy Wood-mint	<i>Blephilia ciliata</i>	E
Hairy Wood-mint	<i>Blephilia hirsuta</i>	E
Gypsywort	<i>Lycopus rubellus</i>	E
False Pennyroyal	<i>Trichostema brachiatum</i>	E
Lentibulariaceae (Bladderworts)		

Resupinate Bladderwort	<i>Utricularia resupinata</i>	T
Subulate Bladderwort	<i>Utricularia subulata</i>	SC
Liliaceae (Lilies)		
Devil's-bit	<i>Chamaelirium luteum</i>	E
Linaceae (Flaxes)		
Sandplain Flax	<i>Linum intercursum</i>	SC
Rigid Flax	<i>Linum medium</i> var. <i>texanum</i>	T
Lycopodiaceae (Clubmosses)		
Foxtail Clubmoss	<i>Lycopodiella alopecuroides</i>	E
Appalachian Firmoss	<i>Huperzia appressa</i>	E
Mountain Firmoss	<i>Huperzia selago</i>	E
Lythraceae (Loosestrifes)		
Toothcup	<i>Rotala ramosior</i>	E
Magnoliaceae (Magnolias)		
Sweetbay Magnolia	<i>Magnolia virginiana</i>	E
Melastomataceae (Meadow Beauties)		
Maryland Meadow Beauty	<i>Rhexia mariana</i>	E
Moraceae (Mulberries)		
Red Mulberry	<i>Morus rubra</i>	E
Nymphaeaceae (Water Lilies)		
Tiny Cow-lily	<i>Nuphar microphylla</i>	E
Onagraceae (Evening Primroses)		
Many-fruited False-loosestrife	<i>Ludwigia polycarpa</i>	E
Round-fruited False-loosestrife	<i>Ludwigia sphaerocarpa</i>	E
Ophioglossaceae (Grape Ferns)		
Adder's-tongue Fern	<i>Ophioglossum pusillum</i>	T
Orchidaceae (Orchids)		
Putty-root	<i>Aplectrum hyemale</i>	E
Arethusa	<i>Arethusa bulbosa</i>	T
Autumn Coralroot	<i>Corallorhiza odontorhiza</i>	SC
Ram's-head Lady's-slipper	<i>Cypripedium arietinum</i>	E
Small Yellow Lady's-slipper	<i>Cypripedium parviflorum</i> var. <i>makasin</i>	E

Showy Lady's-slipper	<i>Cypripedium reginae</i>	E	
Dwarf Rattlesnake-plantain	<i>Goodyera repens</i>	E	
Small Whorled Pogonia	<i>Isotria medeoloides</i>	E	T
Lily-leaf Twayblade	<i>Liparis liliifolia</i>	T	
Heartleaf Twayblade	<i>Listera cordata</i>	E	
Bayard's Green Adder's-mouth	<i>Malaxis bayardii</i>	E	
White Adder's-mouth	<i>Malaxis monophyllos</i> var. <i>brachypoda</i>	E	
Crested Fringed Orchis	<i>Platanthera cristata</i>	E	
Leafy White Orchis	<i>Platanthera dilatata</i>	T	
Pale Green Orchis	<i>Platanthera flava</i> var. <i>herbiola</i>	T	
Hooded Ladies'-tresses	<i>Spiranthes romanzoffiana</i>	E	
Grass-leaved Ladies'-tresses	<i>Spiranthes vernalis</i>	T	
Crane-fly Orchid	<i>Tipularia discolor</i>	E	
Nodding Pogonia	<i>Triphora trianthophora</i>	E	
Oxalidaceae (Wood-sorrels)			
Violet Wood-sorrel	<i>Oxalis violacea</i>	E	
Poaceae (Grasses)			
Annual Peanutgrass	<i>Amphicarpum amphicarpon</i>	E	
Purple Needlegrass	<i>Aristida purpurascens</i>	T	
Seabeach Needlegrass	<i>Aristida tuberculosa</i>	T	
Reed Bentgrass	<i>Calamagrostis pickeringii</i>	E	
New England Northern Reedgrass	<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	E	
Tufted Hairgrass	<i>Deschampsia cespitosa</i> ssp. <i>glauca</i>	E	
Common's's Panic-grass	<i>Dichanthelium ovale</i> ssp. <i>pseudopubescens</i>	SC	
Mattamuskeet Panic-grass	<i>Dichanthelium dichotomum</i> ssp. <i>mattamuskeetense</i>	E	
Rough Panic-grass	<i>Dichanthelium scabriusculum</i>	T	
Wright's Panic-grass	<i>Dichanthelium wrightianum</i>	SC	
Hairy Wild Rye	<i>Elymus villosus</i>	E	
Frank's Lovegrass	<i>Eragrostis frankii</i>	SC	
Saltpond Grass	<i>Leptochloa fusca</i> ssp. <i>fascicularis</i>	T	
Sea Lyme-grass	<i>Leymus mollis</i>	E	
Woodland Millet	<i>Milium effusum</i>	T	
Gattinger's Panic-grass	<i>Panicum philadelphicum</i> ssp. <i>gattingeri</i>	SC	

Long-Leaved Panic-grass	<i>Panicum rigidulum</i> ssp. <i>pubescens</i>	T
Philadelphia Panic-grass	<i>Panicum philadelphicum</i> ssp. <i>philadelphicum</i>	SC
Drooping Speargrass	<i>Poa saltuensis</i> ssp. <i>languida</i>	E
Bristly Foxtail	<i>Setaria parviflora</i>	SC
Salt Reedgrass	<i>Spartina cynosuroides</i>	T
Shining Wedgegrass	<i>Sphenopholis nitida</i>	T
Swamp Oats	<i>Sphenopholis pensylvanica</i>	T
Small Dropseed	<i>Sporobolus neglectus</i>	E
Northern Gama-grass	<i>Tripsacum dactyloides</i>	E
Spiked False-oats	<i>Trisetum spicatum</i>	E
Polygonaceae (Docks, Knotweeds)		
Strigose Knotweed	<i>Persicaria setacea</i>	T
Sea-beach Knotweed	<i>Polygonum glaucum</i>	SC
Pondshore Knotweed	<i>Persicaria puritanorum</i>	SC
Seabeach Dock	<i>Rumex pallidus</i>	T
Swamp Dock	<i>Rumex verticillatus</i>	T
Portulacaceae (Spring Beauties)		
Narrow-leaved Spring Beauty	<i>Claytonia virginica</i>	E
Potamogetonaceae (Pondweeds)		
Algae-like Pondweed	<i>Potamogeton confervoides</i>	T
Fries' Pondweed	<i>Potamogeton friesii</i>	E
Hill's Pondweed	<i>Potamogeton hillii</i>	SC
Ogden's Pondweed	<i>Potamogeton ogdenii</i>	E
Straight-leaved Pondweed	<i>Potamogeton strictifolius</i>	E
Vasey's Pondweed	<i>Potamogeton vaseyi</i>	E
Pyrolaceae (Shinleaf)		
Pink Pyrola	<i>Pyrola asarifolia</i> ssp. <i>asarifolia</i>	E
Ranunculaceae (Buttercups)		
Black Cohosh	<i>Actaea racemosa</i>	E
Purple Clematis	<i>Clematis occidentalis</i>	SC
Golden Seal	<i>Hydrastis canadensis</i>	E
Tiny-flowered Buttercup	<i>Ranunculus micranthus</i>	E
Bristly Buttercup	<i>Ranunculus pensylvanicus</i>	SC

**Rosaceae (Roses,
Shadbushes)**

Small-flowered Agrimony	<i>Agrimonia parviflora</i>	E
Hairy Agrimony	<i>Agrimonia pubescens</i>	T
Bartram's Shadbush	<i>Amelanchier bartramiana</i>	T
Roundleaf Shadbush	<i>Amelanchier sanguinea</i>	SC
Bicknell's Hawthorn	<i>Crataegus bicknellii</i>	E
Sandbar Cherry	<i>Prunus pumila</i> var. <i>depressa</i>	T
Northern Prickly Rose	<i>Rosa acicularis</i> ssp. <i>sayi</i>	E
Northern Mountain-ash	<i>Sorbus decora</i>	E
Barren Strawberry	<i>Geum fragarioides</i>	SC

**Rubiaceae (Bedstraws,
Bluets)**

Northern Bedstraw	<i>Galium boreale</i>	E
Labrador Bedstraw	<i>Galium labradoricum</i>	T
Long-leaved Bluet	<i>Houstonia longifolia</i>	E

Salicaceae (Willows)

Swamp Cottonwood	<i>Populus heterophylla</i>	E
Sandbar Willow	<i>Salix exigua</i> ssp. <i>interior</i>	T

**Scheuchzeriaceae
(Pod-grasses)**

Pod-grass	<i>Scheuchzeria palustris</i>	E
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**Schizaeaceae (Climbing
Ferns)**

Climbing Fern	<i>Lygodium palmatum</i>	SC
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Scrophulariaceae (Figworts)

Sandplain Gerardia	<i>Agalinis acuta</i>	E	E
Winged Monkey-flower	<i>Mimulus alatus</i>	E	
Muskflower	<i>Mimulus moschatus</i>	E	
Swamp Lousewort	<i>Pedicularis lanceolata</i>	E	
Hairy Beardtongue	<i>Penstemon hirsutus</i>	E	
Sessile Water-speedwell	<i>Veronica catenata</i>	E	
Culver's-root	<i>Veronicastrum virginicum</i>	T	

Sparganiaceae (Bur-reeds)

Small Bur-reed	<i>Sparganium natans</i>	E
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Verbenaceae (Vervains)

Narrow-leaved Vervain	<i>Verbena simplex</i>	E
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Violaceae (Violets)		
Sand Violet	<i>Viola adunca</i>	SC
Britton's Violet	<i>Viola brittoniana</i>	T
Viscaceae (Christmas-mistletoes)		
Dwarf Mistletoe	<i>Arceuthobium pusillum</i>	SC

1. Trimorphic freshwater population only.
2. Including triploid and other polyploid forms within the *Ambystoma jeffersonianum*/*Ambystoma laterale* complex.
3. Ditto
4. This species is listed by the U. S. Fish and Wildlife Service as *P. r. bangsi* (Plymouth Redbelly Turtle) in 50 CFR 17.11.
5. Undescribed species near *P. pterisii*
6. True *Z. lunifera*, sensu Schmidt (2010)
7. Includes the two varieties of this species that occur in Massachusetts: s.p. var. *pauciflora* and s.p. var. *caroliniana*.

Definitions

- "Endangered" (E) species are native species which are in danger of extinction throughout all or part of their range, or which are in danger of extirpation from Massachusetts, as documented by biological research and inventory.
- "Threatened" (T) species are native species which are likely to become endangered in the foreseeable future, or which are declining or rare as determined by biological research and inventory.
- "Special concern" (SC) species are native species which have been documented by biological research or inventory to have suffered a decline that could threaten the species if allowed to continue unchecked, or which occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become threatened within Massachusetts.

Any native species listed as endangered or threatened by the U.S. Fish and Wildlife Service is also included on the state list. The rules and regulations and precise definitions relative to the establishment of the Commonwealth's list of endangered, threatened, and special concern species are set forth in 321 CMR 10.00 et seq. [View a key to the Federal Status abbreviations appearing on the list.](#)

1. Introduction - The list in 321 CMR 10.90 contains the names of all species of plants and animals which have been determined to be Endangered, Threatened, or of Special Concern pursuant to M.G.L. c. 131A and 321 CMR 10.03.
2. List Format - The columns entitled "Common Name" and "Scientific Name" define the species listed. In the "Status" columns the following symbols are used: "E" for Endangered, "T" for Threatened, and "SC" for Special Concern. The status defined under the "MA" column denotes the official status of the species in Massachusetts pursuant to M.G.L. c. 131A and 321 CMR 10.00. The status under the "US" column is the status of the species under the federal Endangered Species Act at the time of the latest revision of 321 CMR 10.00 and is given for informational purposes only. Recent changes in the federal list might not be reflected on this list. The U.S. Fish and Wildlife Service should be consulted for official and up to date information on the federal status of any species. Inquiries may be made by writing to U.S. Fish and

Wildlife Service, 70 Commercial Street, Suite 300, Concord, NH 03301-5087. The "Taxonomic Family/Taxonomic Group" column of the list is included for the purpose of organization. The "Notes" column directs the reader to footnotes which further define or clarify the status of a species or alternative names of species.

3. Organization of the List - The list is generally organized according to the relationship of the listed species as determined by the science of taxonomy, which groups and categorizes species that are similar on the basis of shared evolutionary descent. The most basic division in the list is between animals and plants. Within animals the list is divided between vertebrates, (animals with backbones) and invertebrates (animals without backbones). Within vertebrates, invertebrates, and plants, the list is further divided into categories which are generally recognized, such as fish, mammals, dragonflies, and violets. All such information has no regulatory effect and is provided only for the purpose of organizing the list.

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Massachusetts Division of Fisheries and Wildlife, 1 Rabbit Hill Rd, Westborough, MA 01581

Tel: (508) 389-6300; Fax: (508) 389-7890

Natural Heritage & Endangered Species Program Tel: (508) 389-6360; Fax: (508) 389-7891

ATTACHMENT I

National Register of Historic Places Documentation

Lightship Engineering reviewed federal listings of National Register of Historic Places for Middlesex County in Massachusetts. No files were reviewed by Lightship Engineering associated with the Site vicinity of the Site or discharge area. The Site meets the Permit Eligibility Criteria 1 under a NPDES Remediation General Permit.