



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

CERTIFIED MAIL RETURN RECEIPT REQUESTED

MAR 06 2015

Linda Snyder
Vice President of Operations
520 Boston Avenue
Medford, MA 02115

Re: Authorization to discharge under the Remediation General Permit (RGP) – MAG910000.
Tufts University Central Energy Plant site located at the proposed Central Energy Plant located
East of North Hill Road, Adjacent to Boston Avenue in Medford, MA 02115; Authorization #
MAG910666

Dear Ms. Snyder:

Based on the review of a Notice of Intent (NOI) submitted by Dawn Horter from Capaccio Environmental Engineering, Inc. on behalf of Tufts University, Inc., 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 which your consultant marked "Believed Present". Also included are other parameters typical for the remediation you are proposing to clean up. Monitoring and treatment is required for the protection of the receiving stream.

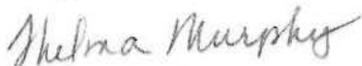
Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on selected dilution ranges and technology-based ceiling limitations. For each parameter the dilution factor 38.0 for this site is within a dilution range greater than ten to fifty (>10 to 50), established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limits for chromium of 489 ug/L, nickel of 290 ug/L, zinc of 666 ug/L and iron of 5,000 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 June 15, 2015. 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, Chief
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
Paul Gere, Medford PWD
Dawn Horter, PG, LSP, Capaccio Environmental Engineering, Inc.

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

NPDES Authorization Number:		MAG910666
Authorization Issued:	March, 2015	
Facility/Site Name:	Tufts University Proposed Central Energy Department	
Facility/Site Address:	East of 100 North Energy Plant Road, Adjacent to Boston Avenue, Medford, MA 02115	
	Email address of owner: Linda.Snyder@tufts.edu	
Legal Name of Operator:	Richard Marks, President Daedalus Projects, Inc.	
Operator contact name, title, and Address:	112 South Street #5, Boston, MA 02111	
	Email: rmarks@dpi-boston.com	
Estimated date of The Project Completion:	June 15, 2015	
Category and Sub-Category:	Category I. Petroleum Related Site Remediation. Subcategory B. Fuel Oils and Other Oil Sites.	
RGP Termination Date:	September 2015	
Receiving Water:	Mystic River	

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#160.2/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

✓	9. Total Benzene, 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
	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/ML5ug/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/ML5ug/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

	Metal parameter	Total Recoverable Metal Limit @ H ¹⁰ = 50 mg/l CaCO₃ for discharges in Massachusetts (ug/l) ^{11/12}		Minimum level=ML	
		Freshwater			
	39. Antimony	5.6/ML	10	ML 10	
	40. Arsenic **	10/ML	20	ML	20
	41. Cadmium **	0.2/ML	10		10
✓	42. Chromium III (trivalent) **	489			15
	43. Chromium VI (hexavalent) **	11.4		ML	10
	44. Copper **	5.2		ML	15
	45. Lead **	1.3		ML	20
	46. Mercury **	0.9		ML	0.2

√	47. Nickel **	290	ML	20
	48. Selenium **	5	ML	20
	49. Silver	1.2	ML	10
√	50. Zinc **	666	ML	15
√	51. Iron	5,000	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:

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 "Orochlor 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 x 1,000ug/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 x 2 =2,000 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

February 12, 2015

US Environmental Protection Agency
Remediation General Permit NOI Processing
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, MA 02109-3912

RE: **EPA Remediation General Permit Notice of Intent**
Tufts University/Central Energy Plant
East of 100 North Hill Road, Adjacent to Boston Avenue
Medford, Massachusetts
RTN 3-29825

To Whom it May Concern:

On behalf of Tufts University (TUFTS), Capaccio Environmental Engineering, Inc. (CAPACCIO) hereby submits the enclosed Notice of Intent (NOI) with supporting documentation for a USEPA Remediation General Permit (RGP) for the above-referenced location. The RGP is required to treat and discharge hydrocarbon-impacted water from dewatering activities during construction of TUFTS' Central Energy Plant (CEP), which is sited on the hillside adjacent to the location of two former No. 6 fuel oil underground storage tanks (USTs) associated with the above-referenced Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number. The Site Plan included with the NOI indicates the location of the property, the location of the former tankfield area, the proposed excavation area and the location of the discharge point.

Groundwater will be encountered during construction of the CEP. Groundwater will be evacuated to a frac tank for temporary storage prior to discharge. Discharge of the groundwater will be through a bag filter and a granular activated carbon unit. The groundwater treatment system will be designed to accommodate a maximum flow of 50 gallons per minute. A flow meter and flow totalizer will be placed immediately prior to discharge of the treated groundwater. Flow rates will be periodically monitored throughout discharging and the total amount of groundwater discharged will be recorded at the end of each day.

Treated groundwater will be discharged to a storm drain located adjacent to the site, which discharges to a stormwater main along Boston Avenue. Stormwater in the main flows north to discharge into the Mystic River. The discharge will be monitored in accordance with the RGP with in-line sample ports for the influent and effluent sample locations. Please note that the Mystic River is listed as a Class B waterway that is listed as an impaired waterway.

If you have any questions or require additional information, please do not hesitate to contact me at (508) 970-0033, ext. 118.

Sincerely,
Capaccio Environmental Engineering, Inc.



Dawn Horter, PG, LSP
Senior Hydrogeologist

Enc: Notice of Intent and supporting documents

C: Linda Snyder, Peter Kelly-Joseph (TUFTS)
MF 05-034.027

**Remediation General Permit
Appendix V****Notice of Intent (NOI)
Suggested Forms & Instructions****I. Notice of Intent (NOI) Suggested Form and Instructions**

In order to be covered by the remediation general permit (RGP), applicants must submit a completed Notice of Intent (NOI) to EPA Region I and the appropriate state agency. The owner or operator, as defined by 40 CFR § 122.2, means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.

The following are three general "operator" scenarios (variations on any of these three are possible, especially as the number of owners and contractors increases):

- ▶ *"Owner" as "Operator" - sole permittee.* The property owner designs the structures and control systems for the site, develops and implements the BMPP, and serves as general contractor (or has an on-site representative with full authority to direct day-to-day operations). Under the definition of operator, in this case, the "Owner" would be considered the "operator" and therefore the only party that needs permit coverage. Everyone else working on the site may be considered subcontractors and do not need to apply for permit coverage.
- ▶ *"Contractor" as "Operator" - sole permittee.* The property owner hires a company (e.g., a contractor) to design the project and oversee all aspects, including preparation and implementation of the BMPP and compliance with the permit (e.g., a "turnkey" project). Here, the contractor would likely be the only party needing a permit. Similarly, EPA expects that property owners hiring a contractor or consultant to perform groundwater remediation work (e.g., due to a leaking fuel oil tank) would come under this type of scenario. EPA believes that the contractor, being a professional in the industry, should be the responsible entity rather than the individual. The contractor is better equipped to meet the requirements of both applying for permit coverage and developing and properly implementing the plans needed to comply with the permit. However, property owners would also meet the definition of "operator" and require permit coverage in instances where they perform any of the required tasks on their personal properties.
- ▶ *"Owner" and "Contractor" as "Operators" - co-permittees.* The owner retains control over any changes to site plans, BMPPs, or wastewater conveyance or control designs, but the contractor is responsible for conducting and overseeing the actual activities (e.g., excavation, installation and operation of treatment train, etc.) and daily implementation of BMPP and other permit conditions. In this case, both parties need to apply for coverage.

Generally, a person would not be considered an "operator," and subsequently would not need permit coverage, if: 1) that person is a subcontractor hired by, and under the supervision of, the owner or a general contractor (e.g., if the contractor directs the

subcontractor's activities on-site, it is probably not an operator); or 2) the person's activities would otherwise result in the need for coverage under the RGP but another operator has legally assumed responsibility for the impacts of project activities.

A. Instructions for the Suggested Notice of Intent (NOI) - At a minimum, the Notice of Intent must include the following for each individual facility or site. Additional information may be attached as needed.

1. General facility/site information.

- a) Provide the facility/site name, mailing address, and telephone and fax numbers. Provide the facility Standard Industrial Classification (SIC) code(s), which can be found online at http://www.osha.gov/pls/inis/sic_manual.html. Provide the site location, including longitude and latitude.
- b) Provide the facility/site owner's name, address, email address, telephone and fax numbers, if different from the site information. Indicate whether the owner is a Federal, State/Tribal, private, or other entity.
- c) Provide the site operator's (e.g., contractor's) name, mailing address, telephone and fax numbers, and email address if different from the owner's information.
- d) For the site for which the application is being submitted, indicate whether:
 - 1) a prior NPDES permit exclusion has been granted for the discharge (if so, provide the tracking number of the exclusion letter);
 - 2) a prior NPDES application (Form 1 & 2C – for reference, please visit http://www.epa.gov/region1/npdes/epa_attach.html) has ever been filed for the discharge (if so, provide the tracking number and date that the application was submitted to EPA);
 - 3) the discharge is a “new discharge” as defined by 40 CFR 122.2; and
 - 4) for sites in Massachusetts, is the discharge covered under the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000 and exempt from state permitting.
- e) Indicate whether there is any ongoing state permitting, licensing, or other action regarding the facility or site which is generating the discharge. If “yes,” provide any site identification number assigned by the state of NH or MA, any permit or license number assigned, and the state agency contact information (e.g. name, location, telephone no.).
- f) Indicate whether or not the facility is covered by other EPA permits including:
 - 1) the Multi-Sector General Permit (MSGP)
<http://cfpub.epa.gov/npdes/stormwater/msgp.cfm>;
 - 2) the Final NPDES General Permit for Dewatering Activity Discharges in Massachusetts and New Hampshire
<http://www.epa.gov/region1/npdes/dewatering.html>;
 - 3) the EPA Construction General Permit
<http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>;
 - 4) an individual NPDES permit; or
 - 5) any other water quality-related individual or general permit.If so, provide permit tracking number(s).
- g) Indicate if the site/facility discharge(s) to an Area of Critical Environmental Concern (ACEC), as shown on the tables and maps in Appendix I.

h) Based on the nature of the facility/site and any historical sampling data, the applicant must indicate which of the sub-categories within which the potential discharge falls.

2. Discharge information.

a) Describe the discharge activities to be covered by the permit. Attach additional sheets as needed.

b) Provide the following information about each discharge:

- 1) the number of discharge points;
- 2) the maximum and average flow rate of the discharge in cubic feet per second. For the average flow magnitude, include the units and appropriate notation if this value is a calculated design value or estimate if technical/design information is not available;
- 3) the latitude and longitude of each discharge with an accuracy of 100 feet (see EPA's siting tool at: http://www.epa.gov/tri/report/siting_tool);
- 4) the total volume of potential discharge (gal), only if hydrostatic testing;
- 5) whether the discharge(s) is intermittent or seasonal and if ongoing.

c) Provide the expected start and end dates of discharge (month/day/year).

d) 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).

3. Contaminant information.

In order to complete the NOI, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for the parameters applicable to the sub-category into which the discharge falls, as listed in Appendix III of the permit and selected in Part 1 of the NOI form, except as noted below.

Permittees shall provide additional sampling results with the NOI if such sampling already exists, or if the permittee has reason to believe the site contains additional contaminants not listed in Appendix III for that sub-category or contains additional contaminants not included in Appendix III.

The applicant may use historical data as a substitute for the new sample if the data was collected no more than 2 years prior to the "Submittal of the NOI" and if collected pursuant to:

- i. for sites in Massachusetts, 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E");
- ii. for sites in New Hampshire, New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act;

a) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is believed present or believed absent in the potential discharge.

Based on the required sampling and analysis, the applicant must fill in the table, or provide a narrative description, with the following additional information for each chemical that is believed present (chemical that violate EPA's criteria limitations):

- 1) the number of samples taken (minimum of one sample for applicable parameters per Appendix III);
- 2) the type of sample (e.g. grab, composite, etc.);
- 3) the analytical method used, including the method number;
- 4) the minimum level (ML) of the method used (based on Appendix VI);
- 5) the maximum daily amount (concentration (ug/l) and mass (kg)) of each pollutant, based on the sampling data

lb/day (pounds per day) equals flow (in million gallons per day, MGD) times concentration in milligrams per liter (mg/l) times 8.34.

Example: 2.5 MGD x 30 mg/l TSS x 8.34 = 625.5 lb TSS/day

MGD = gallons per minute (gpm) x 0.00144

1 kg = 2.2 lbs

And;

- 6) the average daily amount (concentration and mass) of each pollutant, based on the sampling data.

If the results of any sampling indicate that pollutants exist in addition to those listed in Appendix III of the RGP of the permit, the applicant must also describe those contaminants on the NOI in boxes in section I.3.c.) on the line marked "Other," or use additional sheets as needed. Subsequently, EPA may require monitoring for such parameters or will decide if an individual permit is necessary.

c) Determination of Reasonable Potential and Allowable Dilution for Discharges of Metals:

If any *metals* are believed present in the potential discharge to freshwater¹, the applicant must follow the procedures below to determine the dilution factor for each metal.

Step 1: Initial Evaluation

1) The applicant must evaluate all metals believed present in the discharge subject to this permit, including "naturally occurring" metals such as dissolved and/or total Iron. Applicants must enter the highest detected concentration of the metal at zero dilution in the "Maximum value" column of the NOI.

2) Based on the maximum concentration of each metal, the applicant must perform an initial evaluation assuming zero dilution in the receiving water. The applicant must compare the metals concentrations in the untreated (intake) waters to the effluent limits contained in Appendix III.

¹Dilution factors may be available for discharges to saline waters but only with approval of the flow modeling information from the State prior to the submission of the NOI.

- i. If potential discharges (untreated influent) with metals contain concentrations above the concentration limits listed in Appendix III, applicant must proceed to step 2.
- ii. If potential discharges (untreated influent) with metals contain concentrations below the concentrations listed in Appendix III, the applicant may skip step 2 and those metals will **not** be subject to permit limitations or monitoring requirements.

Step 2: Calculation of Dilution Factor

1) **For applicants in NH:** If a metal concentration in a potential discharge (untreated influent) to **freshwater** exceeds the limits in Appendix III with zero dilution, the applicant shall evaluate the potential concentration considering a dilution factor (DF) using the formula below. **For sites in New Hampshire, the applicant must contact NH DES to determine the 7Q10 and dilution factor.**

$$DF = [(Qd + Qs)/Qd] \times 0.9$$

Where:

DF	= Dilution Factor
Qd	= Maximum flow rate of the discharge in cubic feet per second (cfs) (1.0 gpm = .00223 cfs)
Qs	= Receiving water 7Q10 flow, in cfs, where 7Q10 is the annual minimum flow for 7 consecutive days with a recurrence interval of 10 years
0.9	= Allowance for reserving 10% of the assets in the receiving stream as per Chapter ENV-Wq 1700, Surface Water Quality Regulations

i. Using the DF calculated from the formula above, the applicant must refer to the corresponding dilution range column in Appendix IV. The applicant then compares the maximum concentration of the metal entered on the NOI to the corresponding total recoverable metals limits listed in Appendix IV. Please note that for this reissuance the applicant will be permitted to determine a limit using any fraction within the 1-5 dilution factor range times the metal limit (for all regulated metals). For example: if the DF is 1.5, the Iron limit is 1,500 ug/L; if the DF is 1.5, the antimony limit is 8.4, etc. All limits above a dilution factor of 5 are maintained.

1. If a metal concentration in the potential discharge (untreated influent) is less than the corresponding limit in Appendix IV, the metal will **not** be subject to permit limitations or monitoring requirements.
2. If a metal concentration in the potential discharge (untreated influent) is equal to or exceeds the corresponding limit in Appendix IV, the applicant must reduce it in the effluent to a concentration below the applicable total recoverable metals limit in Appendix IV prior to discharge.

ii. In either case, the applicant must submit the results of this calculation as part of the NOI. EPA and NH DES will review the proposed effluent limitations for each metal and approve or disapprove the limits in the notification of coverage letter to the applicant.

2) **For applicants in MA:** If a metal concentration in a potential discharge (untreated influent) to **freshwater** exceeds the limits in Appendix III with zero dilution, the applicant must evaluate the potential concentration considering a dilution factor (DF) using the formula below.

$$DF = (Q_d + Q_s)/Q_d$$

Where: **DF** = Dilution Factor
Q_d = Maximum flow rate of the discharge in cubic feet per second (cfs) (1.0 gpm = .00223 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

i. The applicant may estimate the 7Q10 for receiving water by using available information such as nearby USGS stream gauging stations directly or by application of certain "flow factors," using historic streamflow publication information, calculations based on drainage area, information from state water quality offices, or other means. In many cases Massachusetts has calculated 7Q10 information using "flow factors" for a number of streams in the state. The source of the low flow value(s) used by the applicant must be included on NOI application form. Flow data can also be obtained from web applications such as the one located at: <http://ma.water.usgs.gov/streamstats/>.

ii. Using the DF calculated from the formula above, the applicant must refer to the corresponding dilution range column in Appendix IV. The applicant then shall compare the maximum concentration of each metal entered on the NOI to the corresponding total recoverable metals limit listed in Appendix IV. Please note that for this reissuance the applicant will be permitted to determine a limit using any fraction of the 0-5 of DF times the metal limit (for all regulated metals). For example: if the DF is 1.5, the Iron limit is 1,500 ug/L; if the DF is 1.5, the antimony limit is 8.4, etc. Not to exceed DF of 5.

1. If a metal concentration in the potential discharge (untreated influent) is less than the corresponding limit in Appendix IV, the metal will **not** be subject to permit limitations or monitoring requirements.

2. If a metal concentration in a potential discharge (untreated influent) is equal to or exceeds the corresponding limit in Appendix IV, the applicant must reduce it in the effluent to a concentration below the applicable total recoverable metals limit in Appendix IV prior to discharge.

iii. The applicant must submit the results of this calculation as part of the NOI. EPA (and MassDEP where the discharge is not covered by 310 CMR 40.0000) will review the proposed effluent limitations for each metal and approve or disapprove the limits in the notification of coverage letter to the applicant.

4. Treatment system information.

- a) Provide a written description of the treatment train and how the system will be set up for each discharge and attach a schematic of the proposed or existing treatment system(s).
- b) Identify each major treatment unit (e.g. frac tanks, filters, air stripper, liquid phase/vapor phase activated carbon, oil/water separators, etc.) by checking all that apply and describing any additional equipment not listed. Attach additional sheets as needed.
- c) Provide the proposed average and maximum flow rates (in gallons per minute, gpm) for the discharge and the design flow rates (in gpm) of the treatment system. Clearly identify the component of the treatment with the most limited flow, i.e., the part of the treatment train that establishes the design flow.
- d) Describe any chemical additives being used, or planned to be used, and attach MSDS sheets for each. EPA may request further information regarding the chemical composition of the additive, potential toxic effects, or other information to insure that approval of the use of the additive will not cause or contribute to a violation of State water quality standards. Approval of coverage under the RGP will constitute approval of the use of the chemical additive(s). If coverage of the discharge under the RGP has already been granted and the use of a chemical additive becomes necessary, the permittee must submit a Notice of Change (NOC).

5. Receiving surface water(s) information.

- a) Identify the discharge pathway by checking whether it is discharged: directly to the receiving water (river, stream, or brook), within the facility (e.g., through a sewer drain), to a storm drain, to a wetland, or other receiving body.
- b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters into which discharge will occur.
- c) Provide a detailed map(s) indicating the location of the site and outfall(s) to the receiving water(s):
 - 1) For multiple discharges, the discharges should be numbered sequentially.
 - 2) In the case of indirect dischargers (to municipal storm sewer, etc) the map(s) must be sufficient to indicate the location of the discharge to the indirect conveyance and the discharge to the state classified 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 and the basin (for Massachusetts, the Surface Water Quality Standards (314 CMR 4.00) are available at <http://www.mass.gov/dep/water/laws/regulati.htm#wqual>) (for New Hampshire, contact the NH DES at (603) 271-2984).
- e) Specify the reported seven day-ten year low flow (7Q10) of the receiving water (see Section I.A.3) c. above). In New Hampshire, the 7Q10 must be provided by to the applicant by the New Hampshire Department of Environmental Services.

f) Indicate whether the receiving water is a listed 303(d) water quality impaired or limited water and if so, for which pollutants (see Section IX of the Fact Sheet for additional information).

For MA, the most updated integrated list of waters (CWA 303(d) and 305(b)) is available at <http://www.mass.gov/dep/water/resources/tmdls.htm#info>.

For NH, the most updated integrated list of waters (CWA 303(d) and 305(b)) is available at <http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm>.

Also, indicate if there is a final TMDL for any of the listed pollutants. For MA, final TMDLs can be found at: <http://www.mass.gov/dep/water/resources/tmdls.htm> and for NH, final TMDLs can be found at

<http://des.nh.gov/organization/divisions/water/wmb/tmdl/index.htm>. For more information, contact the states at: New Hampshire Department of Environmental Services, Watershed Management Bureau at 603-271-3503 or the Massachusetts Department of Environmental Protection at 508-767-2796 or 508-767-2873.

6. ESA and NHPA Eligibility.

As required in Parts I.A.4 and Appendix VII the operator of a site/facility must ensure that the potential discharge will not adversely affect endangered species, designated critical habitat, or national historic places that are in proximity to the potential discharge. If the potential discharge is to certain water bodies, the applicant must also submit a formal certification with the NOI that indicates the consultation, with the U.S. Fish and Wildlife Service and National Marine Fisheries Service (the Services), resulted in either a no jeopardy opinion or a written concurrence on a finding that the discharge is not likely to adversely affect any endangered species or critical habitat. Facilities should begin the consultation as early in the process as possible.

- a) Using the instructions in Appendix VII and information in Appendix II, indicate under which criterion listed you are eligible for coverage under this general permit.
- b) If you selected criterion D or F, indicate if consultation with the federal services has been completed or if it is underway.
- c) If consultation with the U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, indicate if a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat was received.
- d) Attach documentation of ESA eligibility as described below and required in Appendix VII, Part I.C, Step 4.

Criterion A - No federally-listed threatened or endangered species or federally-designated critical habitat are present: A copy of the most current county species list pages for the county(ies) where your site or facility and discharges are located. You must also include a statement on how you determined that no listed species or critical habitat are in proximity to your site or facility or discharge locations.

Criterion B - Section 7 consultation completed with the Service(s) on a prior project: A copy of the USFWS and/or NOAA Fisheries, as appropriate, biological opinion or concurrence on a finding of "unlikely to adversely effect" regarding the ESA Section 7 consultation.

Criterion C - Activities are covered by a Section 10 Permit: A copy of the USFWS and/or the NOAA Fisheries, as appropriate, letter transmitting the ESA Section 10 authorization.

Criterion D - Concurrence from the Service(s) that the discharge is "not likely to adversely affect" federally-listed species or federally-designated critical habitat (not including the four species of concern identified in Section I of Appendix I): A copy of the USFWS and/or the NOAA Fisheries, as appropriate, letter or memorandum concluding that the discharge is consistent with the general permit's "not likely to adversely affect" determination.

Criterion E - Activities are covered by certification of eligibility: A copy of the documents originally used by the other operator of your site or facility (or area including your site) to satisfy the documentation requirement of Criteria A, B, C or D.

Criterion F - Concurrence from the Service(s) that the discharge is "not likely to adversely affect" species of concern, as identified in Section I of Appendix I: A copy of the USFWS and/or the NOAA Fisheries, as appropriate, concurrence with the applicant's determination that the discharge is "not likely to adversely affect" listed species.

e) Using the instructions in Appendix VII, identify which criterion listed in Part C makes you eligible for coverage under this general permit.

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. Applicants should provide any supplemental information needed to meet the requirements of the permit, including any analytical data used to support the application, and any certification(s) required.

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

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

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: Tufts University Central Energy Plant		Facility/site mailing address:	
Location of facility/site:	Facility SIC code(s):	Street:	
longitude: 71.11799	8221	Proposed Central Energy Plant East of 100 North Hill Road, Adjacent to Boston Avenue Medford, MA 02115	
latitude: 42.40796			
b) Name of facility/site owner:		Town:	Medford
Email address of facility/site owner:		State:	Zip:
Linda.Snyder@tufts.edu		MA	02115
Telephone no. of facility/site owner: 617-627-3334		County:	Middlesex
Fax no. of facility/site owner: NA		Owner is (check one): 1. Federal <input type="radio"/> 2. State/Tribal <input type="radio"/>	
Address of owner (if different from site):		3. Private <input checked="" type="radio"/> 4. Other <input type="radio"/> if so, describe:	
		Tufts University	
Street: 520 Boston Avenue			
Town:	State:	Zip:	County:
Medford	MA	02115	Middlesex
c) Legal name of operator:		Operator telephone no: 617-451-2717	
Daedalus Projects, Inc.		Operator fax no.:	Operator email:
		617.451.2679	rmarks@dpi-boston.com
Operator contact name and title: Richard Marks, President			
Address of operator (if different from owner):		Street:	
		112 South Street #5	
Town:	State:	Zip:	County:
Boston	MA	02111	Suffolk

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:
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Y N , if Y, date and tracking #:
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

<p>e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y <input type="radio"/> N <input checked="" type="radio"/></p> <p>If Y, please list:</p> <ol style="list-style-type: none"> 1. site identification # assigned by the state of NH or MA: <input type="text"/> 2. permit or license # assigned: <input type="text"/> 3. state agency contact information: name, location, and telephone number: <input type="text"/> 	<p>f) Is the site/facility covered by any other EPA permit, including:</p> <ol style="list-style-type: none"> 1. Multi-Sector General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input type="text"/> 2. Final Dewatering General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input type="text"/> 3. EPA Construction General Permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input type="text"/> 4. Individual NPDES permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input type="text"/> 5. any other water quality related individual or general permit? Y <input type="radio"/> N <input checked="" type="radio"/>, if Y, number: <input type="text"/>
--	--

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.

Activity Category	Activity Sub-Category
I - Petroleum Related Site Remediation	A. Gasoline Only Sites <input type="checkbox"/> B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) <input checked="" type="checkbox"/> C. Petroleum Sites with Additional Contamination <input type="checkbox"/>
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites <input type="checkbox"/> B. VOC Sites with Additional Contamination <input type="checkbox"/> C. Primarily Heavy Metal Sites <input type="checkbox"/>
III - Contaminated Construction Dewatering	A. General Urban Fill Sites <input type="checkbox"/> B. Known Contaminated Sites <input type="checkbox"/>

IV - Miscellaneous Related Discharges	A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites <input type="checkbox"/> B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites <input type="checkbox"/> C. Hydrostatic Testing of Pipelines and Tanks <input type="checkbox"/> D. Long-Term Remediation of Contaminated Sumps and Dikes <input type="checkbox"/> E. Short-term Contaminated Dredging Drain Back Waters (if not covered by 401/404 permit) <input type="checkbox"/>
---------------------------------------	---

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: Groundwater discharge during construction of the Central Energy Plant adjacent to known hydrocarbon-impacted soil and groundwater from No. 6 fuel oil underground storage tanks at the Central Heating Plant.	
b) Provide the following information about each discharge:	
1) Number of discharge points: <input type="text" value="1"/>	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft ³ /s)? Max. flow <input type="text" value="0.1195"/> Is maximum flow a design value? Y <input type="radio"/> N <input checked="" type="radio"/> Average flow (include units) <input type="text" value="0.0446 cfs"/> Is average flow a design value or estimate? <input type="text" value="estimate"/>
3) Latitude and longitude of each discharge within 100 feet:	
pt.1: lat. <input type="text" value="42.407947"/> long. <input type="text" value="71.11815"/>	pt.2: lat. <input type="text"/> long. <input type="text"/>
pt.3: lat. <input type="text"/> long. <input type="text"/>	pt.4: lat. <input type="text"/> long. <input type="text"/>
pt.5: lat. <input type="text"/> long. <input type="text"/>	pt.6: lat. <input type="text"/> long. <input type="text"/>
pt.7: lat. <input type="text"/> long. <input type="text"/>	pt.8: lat. <input type="text"/> long. <input type="text"/> etc.
4) If hydrostatic testing, total volume of the discharge (gals) <input type="text"/>	5) Is the discharge intermittent <input checked="" type="radio"/> or seasonal <input type="radio"/> ? Is discharge ongoing? Y <input type="radio"/> N <input checked="" type="radio"/>
c) Expected dates of discharge (mm/dd/yy): start <input type="text" value="Mar 15, 2015"/> end <input type="text" value="Jun 15, 2015"/>	
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). <input type="text" value="Attached"/>	

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)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	from MW	2540D	2,000 ug/l	5,000 ug/l		5,000 ug/l	
2. Total Residual Chlorine (TRC)		<input checked="" type="checkbox"/>	<input type="checkbox"/>								
3. Total Petroleum Hydrocarbons (TPH)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	from MW	8100	300 ug/l	<300 ug/l		<300 ug/l	
4. Cyanide (CN)	57125	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
5. Benzene (B)	71432	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
6. Toluene (T)	108883	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
7. Ethylbenzene (E)	100414	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
9. Total BTEX ²	n/a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) ³	106934	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
11. Methyl-tert-Butyl Ether (MtBE)	1634044	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<2 ug/l		<2 ug/l	
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	<input checked="" type="checkbox"/>	<input type="checkbox"/>								

* 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.

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)
13. tert-Amyl Methyl Ether (TAME)	9940508	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
14. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
15. Carbon Tetrachloride	56235	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
16. 1,2 Dichlorobenzene (o-DCB)	95501	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
17. 1,3 Dichlorobenzene (m-DCB)	541731	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
18. 1,4 Dichlorobenzene (p-DCB)	106467	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
18a. Total dichlorobenzene		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
19. 1,1 Dichloroethane (DCA)	75343	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
20. 1,2 Dichloroethane (DCA)	107062	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
21. 1,1 Dichloroethene (DCE)	75354	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
22. cis-1,2 Dichloroethene (DCE)	156592	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
23. Methylene Chloride	75092	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	5 ug/l	<5 ug/l		<5 ug/l	
24. Tetrachloroethene (PCE)	127184	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
25. 1,1,1 Trichloro-ethane (TCA)	71556	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
26. 1,1,2 Trichloro-ethane (TCA)	79005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
27. Trichloroethene (TCE)	79016	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	1 ug/l	<1 ug/l		<1 ug/l	
29. Acetone	67641	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	10 ug/l	<10 ug/l		<10 ug/l	
30. 1,4 Dioxane	123911	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8260	100 ug/l	<100 ug/l		<100 ug/l	
31. Total Phenols	108952	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
32. Pentachlorophenol (PCP)	87865	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
33. Total Phthalates (Phthalate esters) ⁴		<input checked="" type="checkbox"/>	<input type="checkbox"/>								
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270	5 ug/l	<5 ug/l		<5 ug/l	
a. Benzo(a) Anthracene	56553	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270	5 ug/l	<5 ug/l		<5 ug/l	
b. Benzo(a) Pyrene	50328	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270	5 ug/l	<5 ug/l		<5 ug/l	
c. Benzo(b)Fluoranthene	205992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270	5 ug/l	<5 ug/l		<5 ug/l	
d. Benzo(k)Fluoranthene	207089	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270	5 ug/l	<5 ug/l		<5 ug/l	
e. Chrysene	21801	<input checked="" type="checkbox"/>	<input type="checkbox"/>		from MW	8270		<5 ug/l		<5 ug/l	
f. Dibenzo(a,h)anthracene	53703	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
g. Indeno(1,2,3-cd) Pyrene	193395	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
i. Acenaphthylene	208968	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
j. Anthracene	120127	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
k. Benzo(ghi) Perylene	191242	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
l. Fluoranthene	206440	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
m. Fluorene	86737	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
n. Naphthalene	91203	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
o. Phenanthrene	85018	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
p. Pyrene	129000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	8270		<5 ug/l		<5 ug/l	
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
38. Chloride	16887006	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
39. Antimony	7440360	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
40. Arsenic	7440382	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
41. Cadmium	7440439	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
42. Chromium III (trivalent)	16065831	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	6010	50 ug/l	<50 ug/l		<50 ug/l	
43. Chromium VI (hexavalent)	18540299	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	3500	20 ug/l	<20 ug/l		<20 ug/l	
44. Copper	7440508	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
45. Lead	7439921	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
46. Mercury	7439976	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
47. Nickel	7440020	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	6010	50 ug/l	<50 ug/l		<50 ug/l	
48. Selenium	7782492	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
49. Silver	7440224	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
50. Zinc	7440666	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	6010	100 ug/l	<100 ug/l		<100 ug/l	
51. Iron	7439896	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	from MW	6010	100 ug/l	<100 ug/l		<100 ug/l	
Other (describe):		<input type="checkbox"/>	<input type="checkbox"/>								

Parameter *	CAS Number	Believed		# of Samples	Sample Type (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
		Absent	Present					concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
		<input type="checkbox"/>	<input type="checkbox"/>								
		<input type="checkbox"/>	<input type="checkbox"/>								

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

<p><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 <input type="radio"/> N <input checked="" type="radio"/></p>	<p>If yes, which metals?</p>										
<p><i>Step 2:</i> For any metals which exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part 1.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?</p> <table border="1"> <tr> <td>Metal:</td> <td>DF:</td> </tr> <tr> <td>Metal:</td> <td>DF:</td> </tr> <tr> <td>Metal:</td> <td>DF:</td> </tr> <tr> <td>Metal:</td> <td>DF:</td> </tr> <tr> <td>Etc.</td> <td></td> </tr> </table>	Metal:	DF:	Metal:	DF:	Metal:	DF:	Metal:	DF:	Etc.		<p>Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)?</p> <p>Y <input checked="" type="radio"/> N <input type="radio"/> If Y, list which metals:</p>
Metal:	DF:										
Metal:	DF:										
Metal:	DF:										
Metal:	DF:										
Etc.											

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:

Water evacuated from the excavation will be contained within a frac tank to separate any non-aqueous phase liquid. Water will be discharged from the frac tank through a minimum of one solids filter to remove particulate matter. Following the solids filter, the water will be discharged through a water-phase granular activated carbon unit to ensure remove of soluble hydrocarbon compounds. Treated water will then be discharged to an adjacent storm drain.

b) Identify each applicable treatment unit (check all that apply):	Frac. tank <input checked="" type="checkbox"/>	Air stripper <input type="checkbox"/>	Oil/water separator <input type="checkbox"/>	Equalization tanks <input type="checkbox"/>	Bag filter <input checked="" type="checkbox"/>	GAC filter <input checked="" type="checkbox"/>
	Chlorination <input type="checkbox"/>	De-chlorination <input type="checkbox"/>	Other (please describe):			

c) Proposed average and maximum flow rates (gallons per minute) for the discharge and the design flow rate(s) (gallons per minute) of the treatment system:
 Average flow rate of discharge 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):
 None

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 <input type="checkbox"/>	Within facility (sewer) <input type="checkbox"/>	Storm drain <input checked="" type="checkbox"/>	Wetlands <input type="checkbox"/>	Other (describe): <input type="text"/>
------------------------------------	--	--	---	-----------------------------------	--

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:
 Discharge is to an adjacent storm drain which flows to Boston Avenue and north to Mystic River outfall.

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:
 1. For multiple discharges, number the discharges sequentially.
 2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water
 The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water:

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water cfs
 Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y N If yes, for which pollutant(s)?
 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.

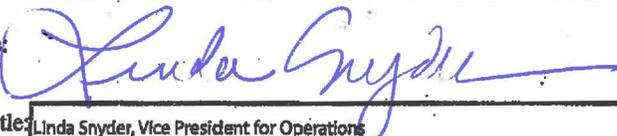
7. Supplemental information.

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

Attachments include:
Water Flow Schematic
Laboratory Analytical Data Report
Site Plan
303(d) List
TMDL List
Endangered Species List and MassDEP GIS Map

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

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

Facility/Site Name:	Tufts University, Central Energy Plant
Operator signature:	
Printed Name & Title:	Linda Snyder, Vice President for Operations
Date:	02/05/2015

B. Submission of NOI to EPA - All operators applying for coverage under this General Permit must submit a completed Notice of Intent (NOI) to EPA. Signed and completed NOI forms and attachments must be submitted to EPA-NE at:

U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, MA 02109-3912
ATTN: Remediation General Permit NOI Processing

or electronically mailed to NPDES.Generalpermits@epa.gov

or faxed to the EPA Office at 617-918-0505

If filling out the suggested NOI form electronically on EPA's website, the signature page must be signed and faxed or mailed to EPA at the fax number and/or address listed above.

I. Filing with the states - A copy of any NOI form filed with EPA-NE must also be filed with state agencies. The state agency may elect to develop a state specific form or other information requirements.

a) Discharges in Massachusetts - In addition to the NOI, permit applicants must submit copies of the State Application Form BRPWM 12, Request for General Permit coverage for the RGP. The application form and the Transmittal Form for Permit Application and Payment may be obtained from the Massachusetts Department of Environmental Protection (MassDEP) website at www.state.ma.us/dep. Municipalities are fee-exempt, but should send a copy of the transmittal form to that address for project tracking purposes. All applicants should keep a copy of the transmittal form and a copy of the application package for their records.

1) A copy of the NOI, the transmittal form, a copy of the check, and Form BRPWM 12 should be sent to:

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

2) A copy of the transmittal form and the appropriate fee should be sent to:

Massachusetts Department of Environmental Protection
P.O. Box 4062
Boston, MA 02111

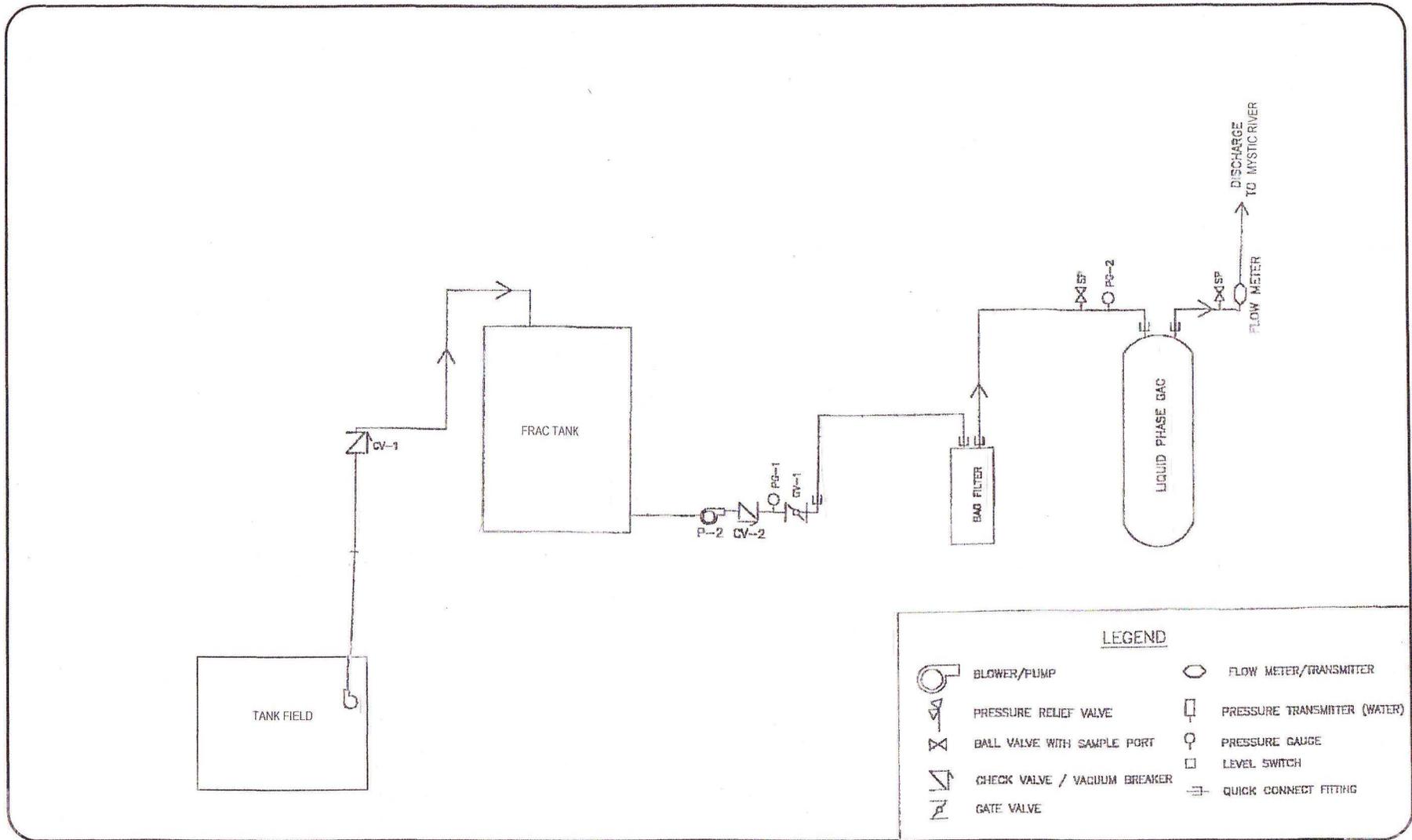
Please note: Applicants for discharges in Massachusetts should note that under 310 CMR 40.000, *as a matter of state law*, the general permit only applies to discharges that are **not** subject to the

Massachusetts Contingency Plan (MCP) and 310 CMR 40.000. Therefore, discharges subject to the MCP are not required to fill out and submit the State Application Form BRPWM 12 or pay the state fees. However, they must submit a NOI to EPA.

b) Discharges in New Hampshire - applicants must provide a copy of the Notice of Intent to:

New Hampshire Department of Environmental Services
Water Division
Wastewater Engineering Bureau
P.O. Box 95
Concord, New Hampshire 03302-0095.

2. Filing with Municipalities - A copy of the NOI must be submitted to the municipality in which the proposed discharge would be located.



LEGEND	
	BLOWER/PUMP
	PRESSURE RELIEF VALVE
	BALL VALVE WITH SAMPLE PORT
	CHECK VALVE / VACUUM BREAKER
	GATE VALVE
	FLOW METER/TRANSMITTER
	PRESSURE TRANSMITTER (WATER)
	PRESSURE GAUGE
	LEVEL SWITCH
	QUICK CONNECT FITTING

PROJECT TITLE:
UST Excavation

CLIENT:
Tufts University

DRAWING TITLE:
Process Flow Diagram –
Dewatering Treatment System (Typical)

JOB LOCATION:
100 North Hill Road
Medford, MA 02155

Capaccio
Environmental Engineering, Inc.
293 Boston Post Road-West
Marlborough, MA 01752
(508) 970-0033 * www.capaccio.com
"Helping Industry and the Environment Prosper"
© Copyright 2011 Capaccio Environmental Engineering, Inc.

JOB NO: 05-034.007
SCALE: 1" = 2083'-0"
REV: A
DRW: GJS
CHK: DLH
ENG:
DATE: 08-17-13

SHEET:
Figure 1
SIZE:
A



CERTIFICATE OF ANALYSIS

Capaccio Environmental Eng.
Attn: Ms. Dawn Horter
293 Boston Post Road - West
Marlborough, MA 01752

Date Received: 1/16/15
Date Reported: 1/23/15
P.O. #:
Work Order #: 1501-01172

DESCRIPTION: TUFTS MEDFORD - 100 NORTH HILL ROAD MEDFORD, MA

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA and Massachusetts Contingency Plan (MCP) approved methodologies where applicable. The specific methodologies are listed in the methods column of the Certificate of Analysis.

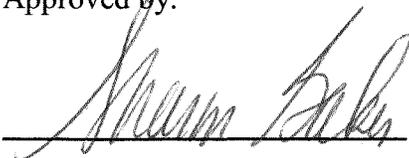
Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI LAI00033, MA M-RI015, CT PH-0508, ME RI00015
NH 2537, NY 11726

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:



Data Reporting

enc: Chain of Custody

Work Order #: 1501-01172

MassDEP Analytical Protocol Certification Form			
Laboratory Name:	R.I. Analytical Laboratories	Work Order #:	1501-01172
Project / Location:	TUFTS MEDFORD - 100 NORTH HILL ROAD MEDFORD, MA	RTN :	
This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):			
1501-01172-001 through 1501-01172-001			

Matrices: Groundwater/Surface Water Soil / Sediment Drinking Water Air Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A <input checked="" type="checkbox"/>	7470/7471 Hg CAM III B <input type="checkbox"/>	MassDEP VPH CAM IV A <input type="checkbox"/>	8081 Pesticides CAM V B <input type="checkbox"/>	7196 Hex Cr CAM VI B <input checked="" type="checkbox"/>	MassDEP APH CAM IX A <input type="checkbox"/>
8270 SVOC CAM II B <input checked="" type="checkbox"/>	7010 Metals CAM III C <input type="checkbox"/>	MassDEP EPH CAM IV B <input type="checkbox"/>	8151 Herbicides CAM V C <input type="checkbox"/>	8330 Explosives CAM VIII A <input type="checkbox"/>	TO-15 VOC CAM IX B <input type="checkbox"/>
6010 Metals CAM III A <input type="checkbox"/>	6020 Metals CAM III D <input type="checkbox"/>	8082 PCB CAM V A <input type="checkbox"/>	9014 Total Cyanide /PAC CAM VI A <input type="checkbox"/>	6860 Perchlorate CAM V111 B <input type="checkbox"/>	

Affirmative responses to Questions A through F are required for "Presumptive Certainty" status

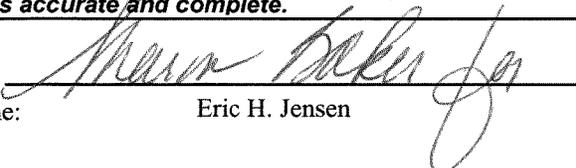
A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
B	Were the analytical methods(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s) ? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Responses to Questions G,H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No ¹
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.			
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No ¹

¹ All negative responses must be addressed in an attached laboratory narrative.

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 analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: 
Printed Name: Eric H. Jensen

Position: Laboratory Director
Date: 1/23/15

Case Narrative

Date: 1/23/2015

Capaccio Environmental Eng.
Attn: Ms. Dawn Horter
293 Boston Post Road - West
Marlborough, MA 01752

Project: TUFTS MEDFORD - 100 NORTH HILL ROAD MEDFORD, MA

Work Order #: 1501-01172

The following exceptions were noted for this Work Order:

The methods requested for Total Suspended Solids, and TPH GC/FID are not listed in the table of contents for compendium of MCP analytical methods. Therefore, there is no guideline for presumptive certainty.

Volatile Organics by 8260

Question H - Laboratory control sample (1/23/15) / laboratory control sample duplicate (1/23/15) had analytes outside the 70%-130% QC acceptance limits. Up to 10% of the analytes are allowed to be out. The specific outliers include, (1,4-Dioxane LCS 63%). These analytes were not detected in the associated samples

Question H - The RPD for (1,4-Dioxane 36%) in the laboratory control sample (1/23/15) / laboratory control sample duplicate (1/23/15) was outside the 20% QC acceptance limits.

PAH's by 8270

Question I - Only the PAH's Method 8270D were reported as requested on the Chain of Custody.

Dissolved Metals by 6010

Question I - Per the client's request, only a subset of the MCP analyte list for SW-846 Method 6010 Dissolved Metals is reported.

There were no additional exceptions or analytical issues to discuss concerning the testing requirements for the project.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Capaccio Environmental Eng.

Date Received: 1/16/15

Work Order #: 1501-01172

TUFTS MEDFORD - 100 NORTH HILL ROAD MEDFORD, MA

Sample # 001

SAMPLE DESCRIPTION: HA14-B1 (OW) / MW-1R COMPOSITE**SAMPLE TYPE:** 2-GRAB/COMPOSITE**SAMPLE DATE/TIME:** 1/16/2015

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Hexavalent Chromium	<0.02	0.02	mg/l	SM3500-CR B 21 ed.	1/16/15 22:10	JDC
Total Suspended Solids	5.0	2.0	mg/l	SM-2540D 18-21 ed.	1/22/15 8:29	KG
TPH						
TPH GC/FID	<300	300	ug/l	SW846 8100M	1/23/15 11:32	KD
Surrogate			RANGE	SW-846 8100M	1/23/15 11:32	KD
2-Fluorobiphenyl	61		40-140%	SW-846 8100M	1/23/15 11:32	KD
Extraction date	Extracted			SW846 3510C	1/22/15 13:07	AK
Volatile Organic Compounds						
Acetone	<10	10	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Tertiary Amyl Methyl Ether	<5	5	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Benzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Bromobenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Bromochloromethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Bromodichloromethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Bromoform	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Bromomethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
n-Butylbenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Sec-butylbenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
tert-Butylbenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Carbon Disulfide	<5	5	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Carbon Tetrachloride	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Chlorobenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Dibromochloromethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Chloroethane	<5	5	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Chloroform	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Chloromethane	<5	5	ug/l	SW-846 8260C	1/23/15 0:53	KAC
2-Chlorotoluene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
4-Chlorotoluene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,2-Dibromo-3-Chloropropane	<2	2	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,2-Dibromoethane(EDB)	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Dibromomethane	<2	2	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,3-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,2-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,4-Dichlorobenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
n-Propylbenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Dichlorodifluoromethane	<5	5	ug/l	SW-846 8260C	1/23/15 0:53	KAC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Capaccio Environmental Eng.

Date Received: 1/16/15

Work Order #: 1501-01172

TUFTS MEDFORD - 100 NORTH HILL ROAD MEDFORD, MA

Sample # 001

SAMPLE DESCRIPTION: HA14-B1 (OW) / MW-1R COMPOSITE

SAMPLE TYPE: 2-GRAB/COMPOSITE

SAMPLE DATE/TIME: 1/16/2015

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
1,1-Dichloroethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,2-Dichloroethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,1-Dichloroethene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
cis-1,2-Dichloroethene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
trans-1,2-Dichloroethylene	<2	2	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,2-Dichloropropane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,3-Dichloropropane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
2,2-Dichloropropane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,1-Dichloropropene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
cis-1,3-Dichloropropene	<0.4	0.4	ug/l	SW-846 8260C	1/23/15 0:53	KAC
trans-1,3-Dichloropropylene	<0.4	0.4	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Diethyl ether	<10	10	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Diisopropyl ether (DIPE)	<5	5	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,4-Dioxane	<100	100	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Ethyl Tertiary Butyl Ether	<5	5	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Ethylbenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Hexachlorobutadiene	<0.5	0.5	ug/l	SW-846 8260C	1/23/15 0:53	KAC
2-Hexanone	<10	10	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Isopropylbenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
p-Isopropyltoluene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
2-Butanone(MEK)	<10	10	ug/l	SW-846 8260C	1/23/15 0:53	KAC
4-Methyl-2-pentanone(MIBK)	<10	10	ug/l	SW-846 8260C	1/23/15 0:53	KAC
MTBE	<2	2	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Methylene Chloride	<5	5	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Naphthalene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,1,2-Trichloroethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Styrene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,1,1,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,1,2,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Tetrachloroethene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Tetrahydrofuran	<10	10	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Toluene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,2,4-Trichlorobenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,2,3-Trichlorobenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,1,1-Trichloroethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Trichloroethene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Trichlorofluoromethane	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Capaccio Environmental Eng.

Date Received: 1/16/15

Work Order #: 1501-01172

TUFTS MEDFORD - 100 NORTH HILL ROAD MEDFORD, MA

Sample # 001

SAMPLE DESCRIPTION: HA14-B1 (OW) / MW-1R COMPOSITE

SAMPLE TYPE: 2-GRAB/COMPOSITE

SAMPLE DATE/TIME: 1/16/2015

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
1,2,3-Trichloropropane	<2	2	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,2,4-Trimethylbenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
1,3,5-Trimethylbenzene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Vinyl Chloride	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
o-Xylene	<1	1	ug/l	SW-846 8260C	1/23/15 0:53	KAC
m,p-Xylene	<2	2	ug/l	SW-846 8260C	1/23/15 0:53	KAC
Surrogates			RANGE	SW-846 8260C	1/23/15 0:53	KAC
Dibromofluoromethane	101		86-118%	SW-846 8260C	1/23/15 0:53	KAC
Toluene-d8	96		88-110%	SW-846 8260C	1/23/15 0:53	KAC
4-Bromofluorobenzene	100		86-115%	SW-846 8260C	1/23/15 0:53	KAC
1,2 Dichloroethane-d4	98		80-120%	SW-846 8260C	1/23/15 0:53	KAC
PAH						
Naphthalene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Acenaphthylene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Acenaphthene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Fluorene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Phenanthrene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Anthracene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Fluoranthene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Pyrene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Benzo(a)anthracene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Chrysene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Benzo(b)fluoranthene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Benzo(k)fluoranthene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Benzo(a)pyrene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Indeno(1,2,3-cd)pyrene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Dibenzo(a,h)anthracene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Benzo(g,h,i)perylene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Dibenzofuran	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
2-Methylnaphthalene	<5.0	5.0	ug/l	SW-846 8270D	1/20/15 19:16	KF
Surrogates			RANGE	SW-846 8270D	1/20/15 19:16	KF
Nitrobenzene-d5	49		30-130%	SW-846 8270D	1/20/15 19:16	KF
2-Fluorobiphenyl	56		30-130%	SW-846 8270D	1/20/15 19:16	KF
P-Terphenyl-d14	89		30-130%	SW-846 8270D	1/20/15 19:16	KF
Dissolved Metals						
Chromium	<0.050	0.050	mg/l	SW-846 6010C	1/21/15 11:57	JRW

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Capaccio Environmental Eng.

Date Received: 1/16/15

Work Order #: 1501-01172

TUFTS MEDFORD - 100 NORTH HILL ROAD MEDFORD, MA

Sample # 001

SAMPLE DESCRIPTION: HA14-B1 (OW) / MW-1R COMPOSITE

SAMPLE TYPE: 2-GRAB/COMPOSITE

SAMPLE DATE/TIME: 1/16/2015

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED		ANALYST
Iron	<0.100	0.100	mg/l	SW-846 6010C	1/21/15	11:57	JRW
Nickel	<0.050	0.050	mg/l	SW-846 6010C	1/21/15	11:57	JRW
Zinc	<0.10	0.10	mg/l	SW-846 6010C	1/21/15	11:57	JRW

QA/QC Report

Client: Capaccio Environmental Eng.

WO #: 1501-01172

Date: 1/23/2015

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Hexavalent Chromium	mg/l	<0.02	1/16/2015
Total Suspended Solids	mg/l	<1.0	1/22/2015

Total Petroleum Hydrocarbons by Method 8100

TPH GC/FID	ug/l	<300	1/23/2015
Surrogate	RANGE		1/23/2015
2-Fluorobiphenyl	40-140%	62	1/23/2015

Volatile Organics by Method 8260

Acetone	ug/l	<10	1/22/2015
Tertiary Amyl Methyl Ether	ug/l	<5	1/22/2015
Benzene	ug/l	<1	1/22/2015
Bromobenzene	ug/l	<1	1/22/2015
Bromochloromethane	ug/l	<1	1/22/2015
Bromodichloromethane	ug/l	<1	1/22/2015
Bromoform	ug/l	<1	1/22/2015
Bromomethane	ug/l	<1	1/22/2015
n-Butylbenzene	ug/l	<1	1/22/2015
Sec-butylbenzene	ug/l	<1	1/22/2015
tert-Butylbenzene	ug/l	<1	1/22/2015
Carbon Disulfide	ug/l	<5	1/22/2015
Carbon Tetrachloride	ug/l	<1	1/22/2015
Chlorobenzene	ug/l	<1	1/22/2015
Dibromochloromethane	ug/l	<1	1/22/2015
Chloroethane	ug/l	<5	1/22/2015
Chloroform	ug/l	<1	1/22/2015
Chloromethane	ug/l	<5	1/22/2015
2-Chlorotoluene	ug/l	<1	1/22/2015
4-Chlorotoluene	ug/l	<1	1/22/2015
1,2-Dibromo-3-Chloropropane	ug/l	<2	1/22/2015
1,2-Dibromoethane(EDB)	ug/l	<1	1/22/2015
Dibromomethane	ug/l	<2	1/22/2015
1,3-Dichlorobenzene	ug/l	<1	1/22/2015
1,2-Dichlorobenzene	ug/l	<1	1/22/2015
1,4-Dichlorobenzene	ug/l	<1	1/22/2015
n-Propylbenzene	ug/l	<1	1/22/2015
Dichlorodifluoromethane	ug/l	<5	1/22/2015
1,1-Dichloroethane	ug/l	<1	1/22/2015
1,2-Dichloroethane	ug/l	<1	1/22/2015
1,1-Dichloroethene	ug/l	<1	1/22/2015
cis-1,2-Dichloroethene	ug/l	<1	1/22/2015
trans-1,2-Dichloroethylene	ug/l	<2	1/22/2015

QA/QC Report

Client: Capaccio Environmental Eng.

WO #: 1501-01172

Date: 1/23/2015

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Volatile Organics by Method 8260 (cont'd)			
1,2-Dichloropropane	ug/l	<1	1/22/2015
1,3-Dichloropropane	ug/l	<1	1/22/2015
2,2-Dichloropropane	ug/l	<1	1/22/2015
1,1-Dichloropropene	ug/l	<1	1/22/2015
cis-1,3-Dichloropropene	ug/l	<0.4	1/22/2015
Diethyl ether	ug/l	<10	1/22/2015
Diisopropyl ether (DIPE)	ug/l	<5	1/22/2015
1,4-Dioxane	ug/l	<100	1/22/2015
Ethyl Tertiary Butyl Ether	ug/l	<5	1/22/2015
Ethylbenzene	ug/l	<1	1/22/2015
Hexachlorobutadiene	ug/l	<0.5	1/22/2015
2-Hexanone	ug/l	<10	1/22/2015
Isopropylbenzene	ug/l	<1	1/22/2015
p-Isopropyltoluene	ug/l	<1	1/22/2015
2-Butanone(MEK)	ug/l	<10	1/22/2015
4-Methyl-2-pentanone(MIBK)	ug/l	<10	1/22/2015
MTBE	ug/l	<2	1/22/2015
Methylene Chloride	ug/l	<5	1/22/2015
Naphthalene	ug/l	<1	1/22/2015
1,1,2-Trichloroethane	ug/l	<1	1/22/2015
Styrene	ug/l	<1	1/22/2015
1,1,1,2-Tetrachloroethane	ug/l	<1	1/22/2015
1,1,2,2-Tetrachloroethane	ug/l	<1	1/22/2015
Tetrachloroethene	ug/l	<1	1/22/2015
Tetrahydrofuran	ug/l	<10	1/22/2015
Toluene	ug/l	<1	1/22/2015
1,2,4-Trichlorobenzene	ug/l	<1	1/22/2015
1,2,3-Trichlorobenzene	ug/l	<1	1/22/2015
1,1,1-Trichloroethane	ug/l	<1	1/22/2015
Trichloroethene	ug/l	<1	1/22/2015
Trichlorofluoromethane	ug/l	<1	1/22/2015
1,2,3-Trichloropropane	ug/l	<2	1/22/2015
1,2,4-Trimethylbenzene	ug/l	<1	1/22/2015
1,3,5-Trimethylbenzene	ug/l	<1	1/22/2015
Vinyl Chloride	ug/l	<1	1/22/2015
o-Xylene	ug/l	<1	1/22/2015
m,p-Xylene	ug/l	<2	1/22/2015
trans-1,3-Dichloropropylene	ug/l	<0.4	1/22/2015
Surrogates	RANGE		1/22/2015
Dibromofluoromethane	86-118%	101	1/22/2015

QA/QC Report

Client: Capaccio Environmental Eng.

WO #: 1501-01172

Date: 1/23/2015

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
-----------	-------	---------	---------------

Volatile Organics by Method 8260 (cont'd)

Toluene-d8	88-110%	98	1/22/2015
4-Bromofluorobenzene	86-115%	100	1/22/2015
1,2 Dichloroethane-d4	80-120%	96	1/22/2015

Aromatic Analytes

Dibenzofuran	ug/l	<5.0	1/20/2015
Naphthalene	ug/l	<5.0	1/20/2015
Acenaphthylene	ug/l	<5.0	1/20/2015
Acenaphthene	ug/l	<5.0	1/20/2015
Fluorene	ug/l	<5.0	1/20/2015
Phenanthrene	ug/l	<5.0	1/20/2015
Anthracene	ug/l	<5.0	1/20/2015
Fluoranthene	ug/l	<5.0	1/20/2015
Pyrene	ug/l	<5.0	1/20/2015
Benzo(a)anthracene	ug/l	<5.0	1/20/2015
Chrysene	ug/l	<5.0	1/20/2015
Benzo(b)fluoranthene	ug/l	<5.0	1/20/2015
Benzo(k)fluoranthene	ug/l	<5.0	1/20/2015
Benzo(a)pyrene	ug/l	<5.0	1/20/2015
Indeno(1,2,3-cd)pyrene	ug/l	<5.0	1/20/2015
Dibenzo(a,h)anthracene	ug/l	<5.0	1/20/2015
Benzo(g,h,i)perylene	ug/l	<5.0	1/20/2015
2-Methylnaphthalene	ug/l	<5.0	1/20/2015

Surrogates

RANGE

Nitrobenzene-d5	30-130%	71	1/20/2015
2-Fluorobiphenyl	30-130%	77	1/20/2015
P-Terphenyl-d14	30-130%	91	1/20/2015

Dissolved Metals

Chromium	mg/l	<0.050	1/21/2015
Iron	mg/l	<0.100	1/21/2015
Nickel	mg/l	<0.050	1/21/2015
Zinc	mg/l	<0.10	1/21/2015

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Hexavalent Chromium		0.200	0.203	102				1/16/2015
Total Suspended Solids		100	90	90				1/22/2015
Total Petroleum Hydrocarbons by Method 8100								
TPH GC/FID		1000	733	73	640	64	14	1/23/2015
Surrogate								
2-Fluorobiphenyl			67		62			1/23/2015
Volatile Organics by Method 8260								
Acetone		500	350	70	360	72	3	1/23/2015
Tertiary Amyl Methyl Ether		50	49	98	48	96	2	1/23/2015
Benzene		50	48	96	46	92	4	1/23/2015
Bromobenzene		50	50	100	48	96	4	1/23/2015
Bromochloromethane		50	48	96	46	92	4	1/23/2015
Bromodichloromethane		50	49	98	48	96	2	1/23/2015
Bromoform		50	52	104	51	102	2	1/23/2015
Bromomethane		50	50	100	54	108	8	1/23/2015
n-Butylbenzene		50	51	102	50	100	2	1/23/2015
Sec-butylbenzene		50	52	104	50	100	4	1/23/2015
tert-Butylbenzene		50	52	104	50	100	4	1/23/2015
Carbon Disulfide		50	46	92	44	88	4	1/23/2015
Carbon Tetrachloride		50	49	98	47	94	4	1/23/2015
Chlorobenzene		50	50	100	48	96	4	1/23/2015
Dibromochloromethane		50	50	100	49	98	2	1/23/2015
Chloroethane		50	49	98	52	104	6	1/23/2015
Chloroform		50	48	96	46	92	4	1/23/2015
Chloromethane		50	41	82	38	76	8	1/23/2015
2-Chlorotoluene		50	50	100	55	110	10	1/23/2015
4-Chlorotoluene		50	52	104	49	98	6	1/23/2015
1,2-Dibromo-3-Chloropropane		50	46	92	45	90	2	1/23/2015
1,2-Dibromoethane(EDB)		50	50	100	49	98	2	1/23/2015
Dibromomethane		50	50	100	49	98	2	1/23/2015
1,3-Dichlorobenzene		50	51	102	50	100	2	1/23/2015
1,2-Dichlorobenzene		50	50	100	49	98	2	1/23/2015
1,4-Dichlorobenzene		50	50	100	49	98	2	1/23/2015
n-Propylbenzene		50	51	102	49	98	4	1/23/2015
Dichlorodifluoromethane		50	40	80	38	76	5	1/23/2015
1,1-Dichloroethane		50	49	98	47	94	4	1/23/2015
1,2-Dichloroethane		50	49	98	47	94	4	1/23/2015
1,1-Dichloroethene		50	46	92	45	90	2	1/23/2015
cis-1,2-Dichloroethene		50	48	96	46	92	4	1/23/2015
trans-1,2-Dichloroethylene		50	46	92	45	90	2	1/23/2015
1,2-Dichloropropane		50	50	100	48	96	4	1/23/2015
1,3-Dichloropropane		50	50	100	49	98	2	1/23/2015
2,2-Dichloropropane		50	58	116	54	108	7	1/23/2015
1,1-Dichloropropene		50	49	98	47	94	4	1/23/2015
cis-1,3-Dichloropropene		50	51	102	50	100	2	1/23/2015
Diethyl ether		500	470	94	470	94	0	1/23/2015
Diisopropyl ether (DIPE)		50	48	96	46	92	4	1/23/2015
1,4-Dioxane		1000	630	63	910	91	36	1/23/2015

QA/QC Report

Client: Capaccio Environmental Eng.

WO #: 1501-01172

Date: 1/23/2015

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
-----------	--------------------------	---------------	-------------	--------------	-----------------	------------------	-------	---------------

Volatile Organics by Method 8260 (cont'd)

Ethyl Tertiary Butyl Ether		50	49	98	48	96	2	1/23/2015
Ethylbenzene		50	49	98	47	94	4	1/23/2015
Hexachlorobutadiene		50	51	102	51	102	0	1/23/2015
2-Hexanone		500	420	84	420	84	0	1/23/2015
Isopropylbenzene		50	50	100	49	98	2	1/23/2015
p-Isopropyltoluene		50	52	104	50	100	4	1/23/2015
2-Butanone(MEK)		500	400	80	400	80	0	1/23/2015
4-Methyl-2-pentanone(MIBK)		500	440	88	440	88	0	1/23/2015
MTBE		50	49	98	49	98	0	1/23/2015
Methylene Chloride		50	46	92	45	90	2	1/23/2015
Naphthalene		50	51	102	50	100	2	1/23/2015
1,1,2-Trichloroethane		50	49	98	49	98	0	1/23/2015
Styrene		50	51	102	50	100	2	1/23/2015
1,1,1,2-Tetrachloroethane		50	51	102	50	100	2	1/23/2015
1,1,2,2-Tetrachloroethane		50	49	98	48	96	2	1/23/2015
Tetrachloroethene		50	50	100	49	98	2	1/23/2015
Tetrahydrofuran		500	410	82	390	78	5	1/23/2015
Toluene		50	49	98	47	94	4	1/23/2015
1,2,4-Trichlorobenzene		50	51	102	50	100	2	1/23/2015
1,2,3-Trichlorobenzene		50	52	104	51	102	2	1/23/2015
1,1,1-Trichloroethane		50	47	94	47	94	0	1/23/2015
Trichloroethene		50	48	96	47	94	2	1/23/2015
Trichlorofluoromethane		50	47	94	46	92	2	1/23/2015
1,2,3-Trichloropropane		50	49	98	48	96	2	1/23/2015
1,2,4-Trimethylbenzene		50	52	104	51	102	2	1/23/2015
1,3,5-Trimethylbenzene		50	52	104	50	100	4	1/23/2015
Vinyl Chloride		50	43	86	40	80	7	1/23/2015
o-Xylene		50	50	100	48	96	4	1/23/2015
m,p-Xylene		100	100	100	98	98	2	1/23/2015
trans-1,3-Dichloropropylene		50	52	104	52	104	0	1/23/2015

Surrogates

Dibromofluoromethane			101		101			
Toluene-d8			102		102			
4-Bromofluorobenzene			104		103			
1,2 Dichloroethane-d4			103		102			

Aromatic Analytes

Dibenzofuran		50	42	84	40	80	5	1/20/2015
Naphthalene		50	37	74	33	66	11	1/20/2015
Acenaphthylene		50	43	86	40	80	7	1/20/2015
Acenaphthene		50	42	84	39	78	7	1/20/2015
Fluorene		50	44	88	42	84	5	1/20/2015
Phenanthrene		50	42	84	41	82	2	1/20/2015

QA/QC Report

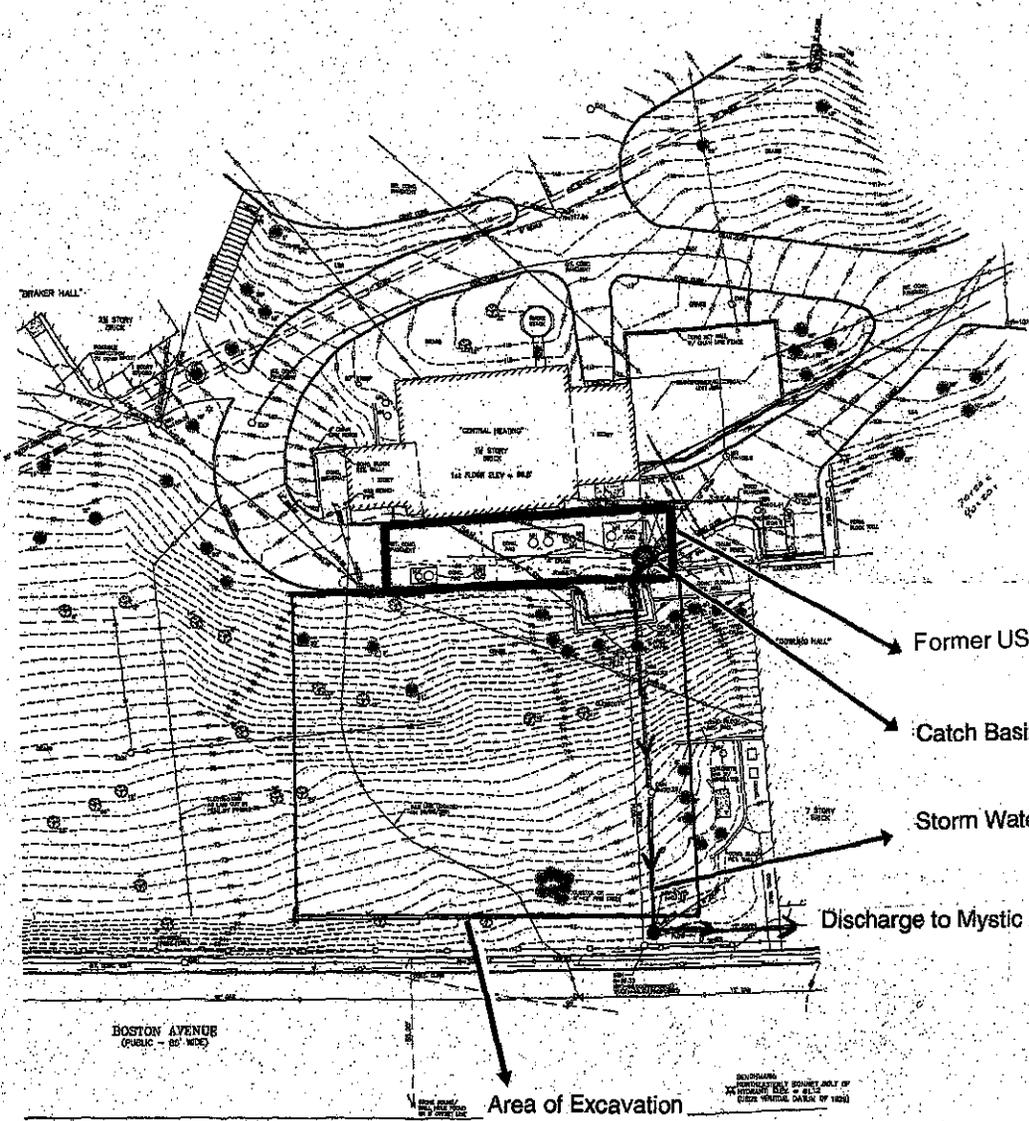
Client: Capaccio Environmental Eng.

WO #: 1501-01172

Date: 1/23/2015

-LCS/I CS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Aromatic Analytes (cont'd)								
Anthracene		50	45	90	44	88	2	1/20/2015
Fluoranthene		50	47	94	46	92	2	1/20/2015
Pyrene		50	46	92	44	88	4	1/20/2015
Benzo(a)anthracene		50	50	100	48	96	4	1/20/2015
Chrysene		50	45	90	44	88	2	1/20/2015
Benzo(b)fluoranthene		50	42	84	40	80	5	1/20/2015
Benzo(k)fluoranthene		50	43	86	42	84	2	1/20/2015
Benzo(a)pyrene		50	46	92	43	86	7	1/20/2015
Indeno(1,2,3-cd)pyrene		50	44	88	42	84	5	1/20/2015
Dibenzo(a,h)anthracene		50	40	80	38	76	5	1/20/2015
Benzo(g,h,i)perylene		50	43	86	40	80	7	1/20/2015
2-Methylnaphthalene		50	43	86	39	78	10	1/20/2015
Surrogates								
Nitrobenzene-d5			69		61			
2-Fluorobiphenyl			77		68			
P-Terphenyl-d14			90		84			
Dissolved Metals								
Chromium		1.00	1.01	101	1.02	102	1	1/21/2015
Iron		10.0	9.43	94	9.85	99	4	1/21/2015
Nickel		1.00	0.992	99	1.00	100	1	1/21/2015
Zinc		1.00	1.0	100	1.0	100	0	1/21/2015



- LEGEND**
- S — SEWER
 - G — GAS
 - W — WATER
 - ST — STEAM
 - — OVERHEAD WIRES
 - — UTILITY POLE
 - FIRE HYDRANT
 - FLOWING WELL
 - CATCH BASIN
 - WATER GATE
 - GAS GATE
 - SOIL
 - DECIDUOUS TREE
 - CONIFEROUS TREE
 - PLUMB PLUMB
 - SEWER MANHOLE
 - DRAIN MANHOLE
 - ELECTRIC MANHOLE
 - WATER MANHOLE
 - LANDSCAPED AREA

NOTE:
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON THIS PLAN PRIOR TO ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION BEFORE PROCEEDING WITH THE WORK.
 THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WATERGATES, ETC. AND COMPILED FROM PLANS SUPPLIED BY VARIOUS UTILITY COMPANIES AND GOVERNMENT AGENCIES.
 ALL CONTRACTORS SHOULD NOTIFY, IN WRITING, ALL UTILITY COMPANIES OR AGENCIES PRIOR TO ANY EXCAVATION WORK.
 CALL DISSAFE, 1-800-322-4844

Former UST Locations

Catch Basin

Storm Water Line

Discharge to Mystic River at 0.85 mile

Area of Excavation

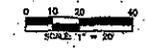
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED FROM AN INSTRUMENT SURVEY.

Thomas M. Kilian
 THOMAS M. KILIAN, P.L.S. DATE: _____



**SITE PLAN OF LAND
 PREPARED FOR TUFTS UNIVERSITY
 CENTRAL HEATING PLANT
 MEDFORD, MASS.**

PREPARED BY:
 MEDFORD ENGINEERING & SURVEY
 ANGELO G. VENEZIANO ASSOCIATES
 15 HALL ST. MEDFORD, MA 02155
 781-386-4486 Fax: 781-386-8052



DATE: OCTOBER 6, 2011	FIELD	DESIGN	DRAW	CALC.	CHECK	FILE NO.
10332900 DATE: AUGUST 31, 2011	A.J.F.L.	-	P.P.	R.K.	P.L.K.	19133

Appendix 1
Assessment Units and Integrated List Categories by Major Watershed

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	CATEGORY
Mill Creek	MA71-08	From Route 1, Chelsea/Revere to confluence with Chelsea River, Chelsea/Revere.	0.02	SQUARE MILES	5
Mystic River	MA71-02	Outlet Lower Mystic Lake, Arlington/Medford to Amelia Earhart Dam, Somerville/Everett.	4.9	MILES	5
Mystic River	MA71-03	Amelia Earhart Dam, Somerville/Everett to confluence with Boston Inner Harbor, Chelsea/Charlestown (Includes Island End River).	0.49	SQUARE MILES	5
Sales Creek	MA71-12	Headwaters near Route 145, Revere to tidegate/confluence with Belle Isle Inlet, Boston/Revere.	0.008	SQUARE MILES	3
Shaker Glen Brook	MA71-11	Headwaters, west of Dix Road Extension, Woburn to confluence with Fowle Brook, Woburn (portion culverted underground).	1.5	MILES	3
Spot Pond	MA71039	Stoneham/Medford	290	ACRES	3
Spy Pond	MA71040	Arlington	98	ACRES	5
Unnamed Tributary	MA71-13	Unnamed tributary locally known as 'Meetinghouse Brook', from emergence south of Route 16/east of Winthrop Street, Medford to confluence with the Mystic River, Medford. (brook not apparent on 1985 Boston North USGS quad - 2005 orthophotos used to delineate stream)	0.1	MILES	5
Upper Mystic Lake	MA71043	Winchester/Arlington/Medford	176	ACRES	5
Wedge Pond	MA71045	Winchester	23	ACRES	5
Winn Brook	MA71-09	Headwaters near Juniper Road and the Belmont Hill School, Belmont to confluence with Little Pond, Belmont (portions culverted underground).	1.4	MILES	5
Winter Pond	MA71047	Winchester	18	ACRES	5
Boston Harbor: Neponset					
Beaver Brook	MA73-19	Headwaters near Moose Hill Street, Sharon through Sawmill Pond to confluence with Massapoag Brook, Sharon.	3.5	MILES	5
Beaver Meadow Brook	MA73-20	Outlet of Glenn Echo Pond, Stoughton, to the inlet of Bolivar Pond, Canton.	3.3	MILES	5
Billings Street/East Street Pond	MA73085	Sharon	2	ACRES	4C
Blue Hills Reservoir	MA73004	Quincy	12	ACRES	3
Bolivar Pond	MA73005	Canton	20	ACRES	5
Bubbling Brook	MA73-11	Headwaters (perennial portion), near North Street, Walpole to inlet Pettee Pond, Walpole/Westwood border.	0.9	MILES	3
Buckmaster Pond	MA73006	Westwood	34	ACRES	3
Clark Pond	MA73008	Walpole	7	ACRES	4C
Cobbs Pond	MA73009	Walpole	14	ACRES	5
East Branch	MA73-05	East Branch Neponset River - Outlet of Forge Pond, Canton through East Branch Pond to confluence with Neponset River, Canton. (locally known as Canton River)	2.6	MILES	5
Ellis Pond	MA73018	Norwood	17	ACRES	4C
Farrington Pond	MA73040	Stoughton	3	ACRES	4C
Flynns Pond	MA73019	Medfield	7	ACRES	3
Forge Pond	MA73020	Canton	19	ACRES	5

**Massachusetts Category 5 Waters
"Waters requiring a TMDL"**

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Malden River	MA71-05	Headwaters south of Exchange Street, Malden to confluence with Mystic River, Everett/Medford.	2.3	MILES	(Debris/Floatables/Trash*)	
					Chlordane	
					DDT	
					Dissolved oxygen saturation	
					Escherichia coli	
					Fecal Coliform	
					Foam/Flocs/Scum/Oil Slicks	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					pH, High	
					Phosphorus (Total)	
					Secchi disk transparency	
					Sediment Bioassays – Chronic Toxicity Freshwater	
Taste and Odor						
Total Suspended Solids (TSS)						
Mill Brook	MA71-07	Headwaters south of Massachusetts Avenue, Lexington to inlet of Lower Mystic Lake, Arlington (portions culverted underground).	3.9	MILES	(Physical substrate habitat alterations*)	
					Escherichia coli	
Mill Creek	MA71-0B	From Route 1, Chelsea/Revere to confluence with Chelsea River, Chelsea/Revere.	0.02	SQUARE MILES	Fecal Coliform	
					Other	
					PCB in Fish Tissue	
Mystic River	MA71-02	Outlet Lower Mystic Lake, Arlington/Medford to Amelia Earhart Dam, Somerville/Everett.	4.9	MILES	(Fish-Passage Barrier*)	
					Arsenic	
					Chlordane	
					Chlorophyll-a	
					DDT	
					Dissolved oxygen saturation	
					Escherichia coli	
					PCB in Fish Tissue	
					Phosphorus (Total)	
					Secchi disk transparency	
					Sediment Bioassays – Chronic Toxicity Freshwater	

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
 IN MASSACHUSETTS**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied cooter	Endangered	Inland Ponds and Rivers	Raynham and Taunton
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague
	Dwarf wedgemussel	Endangered	Mill River	Whately
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hadley, Hatfield, Amherst and Northampton
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
Plymouth	American burying beetle	Endangered	Upland grassy meadows	Nantucket
	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, and Wareham
Suffolk	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
	Piping Plover	Threatened	Coastal Beaches	Wintthrop
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster

- Eastern cougar and gray wolf are considered extirpated in Massachusetts.
- Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.
- Critical habitat for the Northern Red-bellied cooter is present in Plymouth County.

7/31/2008

MassDEP - Bureau of Waste Site Cleanup

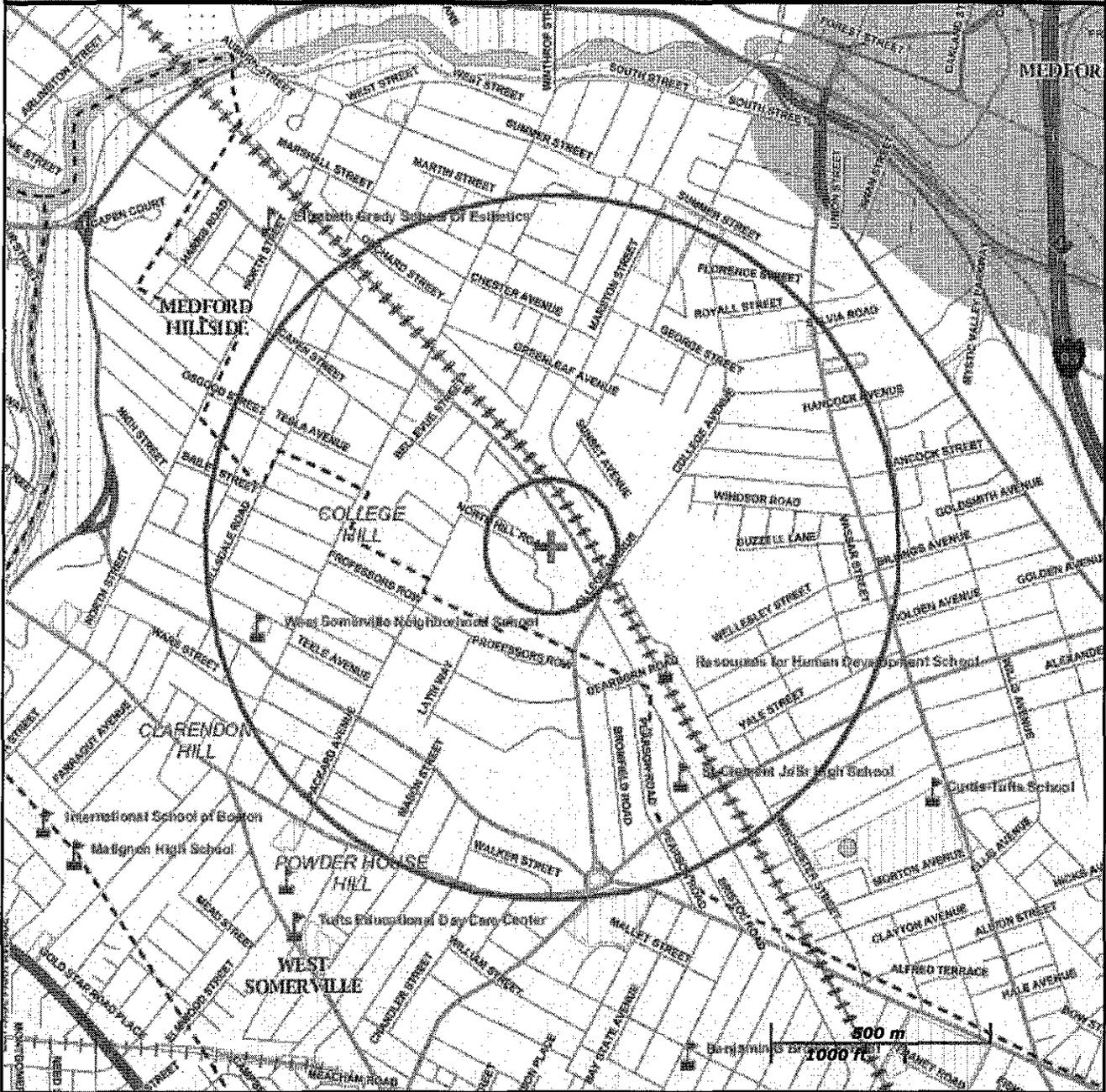
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
 TUFTS UNIVERSITY CEP
 ADJ. TO 100 NORTH HILL RD. MEDFORD, MA
 3-000029825
 NAD83 UTM Meters:
 4697250mN , 325710mE (Zone: 19)
 February 11, 2015

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at:
<http://www.mass.gov/mgis/>.



MassDEP
 Commonwealth of Massachusetts
 Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail	PWS Protection Areas: Zone II, IWPA, Zone A
Boundaries: Town, County, DEP Region, Train; Powerline; Pipeline; Aqueduct	Hydrography: Open Water, PWS Reservoir, Tidal Flat
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam	Wetlands: Freshwater, Saltwater, Cranberry Bog
Aquifers: Medium Yield, High Yield, EPA Sole Source	FEMA 100yr Floodplain; Protected Open Space; ACEC
Non Potential Drinking Water Source Area: Medium, High (Yield)	Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential
	Solid Waste Landfill; PWS: Com. GW, SW, Emerg., Non-Com.