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

CERTIFIED MAIL RETURN RECEIPT REQUESTED

JUL 24 2013

Marcia Jada Berger,
President
Clean Properties Inc.
111 Boston Post Road, Suite 211
Sudbury, MA 01776

Re: Authorization to discharge under the Remediation General Permit (RGP) – MAG910000. Ground excavation at 8 Forest Street and 5 High Street site located in Medford, MA 02155, Middlesex County; Authorization #MAG910586

Dear Ms. Berger:

Based on the review of a Notice of Intent (NOI) submitted on behalf of an undisclosed Owner's name, by your company Clean Properties, Inc., for the site referenced above, the U.S. Environmental Protection Agency (EPA) hereby authorizes you, as the named 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 you have marked "Believed Present" The checklist also includes all the parameters included in the Volatiles Organics Only (VO) sub-category for a more comprehensive protection of the receiving stream. The permitte may at the end of six months submit a Notice of Change (NOC) and request a deletion of the parameters that haven't been detected above the RGP's Appendix III limitations. EPA at that time will issue a new list which will include only the active (detected) pollutants of concern present at the site.

Also, please note that the metal iron included on the checklist is a dilution dependent pollutant and subject to limitations based on selected dilution range and technology-based ceiling limitations. The dilution factor 76.59 for this parameter is within a dilution range greater than fifty to one hundred (<50 - 100), established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the iron limit of 5,000 ug/L is 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 July 15, 2015. If for any reason the discharge terminates sooner you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

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

Sincerely,

for

Thelma Murphy, Chief
Storm Water and Construction
Permits Section

Enclosure

cc: Robert Kubit, MassDEP
Roy Sorenson, Town of Bedford DPW

2010 Remediation General Permit
Summary of Monitoring Parameters[1]

NPDES Authorization Number:	**MAG910586**
Authorization Issued:	July, 2013
Facility/Site Name:	Ground Excavation
Facility/Site Address:	8 Forest St., Medford, MA 02155, Middlesex County
	Email address of owner:macasoli@comcast.net
Legal Name of Operator:	Clean Properties, Inc.
Operator contact name, title, and Address:	Marcia Jada Berger, President, 111 Boston Post Road, Suite 211, Sudbury, MA 01776
	Email: mberger@cleanproperties.com
Estimated date of The Project Completion:	July 15, 2015
Category and Sub-Category:	Category II- Non Petroleum Site Remediation. Sub-category A. Volatile Organics Only Sites.
RGP Termination Date:	September 10, 2015
Receiving Water:	Mystic River

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

	Parameter	**Effluent Limit/Method#/ML** (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

	Parameter	Effluent Limit/Method#/ML (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
√	9. Total 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

		Freshwater	Saltwater		
	39. Antimony	5.6/ML 10			
	40. Arsenic **	10/ML20	36/ML 20		
	41. Cadmium **	0.2/ML10	8.9/ML 10		
	42. Chromium III (trivalent) **	48.8/ML15	100/ML 15		
	43. Chromium VI (hexavalent) **	11.4/ML10	50.3/ML 10		
	44. Copper **	5.2/ML15	3.7/ML 15		
	45. Lead **	1.3/ML20	8.5/ML 20		
	46. Mercury **	0.9/ML0.2	1.1/ML 0.2		
	47. Nickel **	29/ML20	8.2/ML 20		
	48. Selenium **	5/ML20	71/ML 20		
	49. Silver	1.2/ML10	2.2/ML 10		
	50. Zinc **	66.6/ML15	85.6/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:

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

	Parameter	Effluent Limit/Method#/ML (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L
	a. Benzo(a) Anthracene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	b. Benzo(a) Pyrene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	c. Benzo(b)Fluoranthene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	d. Benzo(k)Fluoranthene [7]	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	e. Chrysene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	f. Dibenzo(a,h)anthracene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L
	g. Indeno(1,2,3-cd) Pyrene [7]	0.0038 ug/L /Me#8270D/ML 5ug/L, Me#610/ML 5ug/L& Me#625/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

[2] Limits for cyanide are based on EPA's water quality criteria expressed as micrograms per liter. There is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.
[3] Although the maximum values for cyanide are 5.2 ug/l and 1.0 ug/l for freshwater and saltwater, respectively, the compliance limits are equal to the minimum level (ML) of the Method 335.4 as listed in Appendix VI (i.e., 10 ug/l).
[4] BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.
[5] Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. If both VOC and SVOC are analyzed, the highest value must be used unless the QC criteria for one of the analyses is not met. In such cases, the value from the analysis meeting the QC criteria must be used.
[6] The sum of individual phthalate compounds(not including the #34, Bis (2-Ethylhexyl) Phthalate . The compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.
Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measurement of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.
[7] Although the maximum value for the individual PAH compounds is 0.0038 ug/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Appendix VI.
[8] In the November 2002 WQC, EPA has revised the definition of Total PCBs for aquatic life as total PCBs is the sum of all homologue, all isomer, all congener, or all "Oroclor analyses."Total values calculated for reporting on NOIs and discharge monitoring reports shall be calculated by adding the measured concentration of each constituent. If the measure of a constituent is less than the ML, the permittee shall use a value of zero for that constituent. For each test, the permittee shall also attach the raw data for each constituent to the discharge monitoring report, including the minimum level and minimum detection level for the analysis.
[9]Although the maximum value for total PCBs is 0.000064 ug/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Appendix VI (i.e., 0.5 ug/l for Method 608 or 0.00005 ug/l when Method 1668a is approved).
[10] Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.
[11] For a Dilution Factor (DF) from 1 to 5, metals limits are calculated using DF times the base limit for the metal. See Appendix IV. For example, iron limits are calculated using DF 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

June 28, 2013

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

Re: Notice of Intent (NOI) for Remediation General Permit
8 Forest Street/ 5 High Street (the Site)
Medford, Massachusetts

Dear Sir/Madam;

Clean Properties is submitting the attached NOI to obtain a Remediation General Permit under the National Pollutant Discharge Elimination System for the properties located at 8 Forest Street/5 High Street. Clean Properties' response actions at the Site are being conducted in accordance with the Massachusetts Contingency Plan 310 CMR 40.000. The Massachusetts Department of Environmental Protection (MassDEP) has assigned Release Tracking Number 3-26842 to the release of chlorinated dry cleaning compounds to soil and groundwater at the Site.

This submittal includes the completed Notice of Intent and supporting documentation, which consists of the following attachments:

Figure 1: Site Location Map Showing Discharge Point to Receiving Water
Figure 2: Site Plan Showing Source of Discharge Subject to this NOI
Figure 3: MassDEP Priority Resource Map of Sensitive Environmental Receptors
Figure 4: Line Drawing Showing Flow of Discharge Water Through the Treatment System
Figure 5: Documentation of Natural Heritage and Endangered Species Program Eligibility

Appendix A: Best Management Practices Plan
Appendix B: Laboratory Data Reports for Sampling Conducted to Support this NOI
Appendix C: US Geological Survey *Streamstats* Output with Reported 7Q10
Appendix D: MassDEP 303(d) Water Quality Report for the Mystic River watershed
Appendix E: Historic Areas Assessment
Appendix F: Material Safety Data Sheets

US Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912
Remediation General Permit Notice of Intent

Thank you for your review of this report. Please feel free to call me for any reason at: 978-443-6622.

Very truly yours,

CLEAN PROPERTIES, INC.

Marcia J. Berger, P.E., L.S.P.
President

Clean Properties, Inc., 111 Boston Post Road, Suite 211, Sudbury, MA 01776
Tel. (800) 977-1982 Fax (781) 577-1510 public@clean-properties.com

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:** 8 Forest Street/5 High Street		**Facility/site** mailing address:		
Location of **facility/site:** longitude: 71° 6' 37.5" latitude: 42° 25' 6.2"	Facility SIC code(s): 8651	Street: 8 Forest Street		
b) Name of **facility/site owner:** 8-14 Forest Street LLC		Town: Medford		
Email address of facility/site owner: macasoli@comcast.net		State: MA	Zip: 02155	County: Middlesex
Telephone no. of facility/site **owner:** 781-727-1568				
Fax no. of facility/site **owner:** 781-779-1602		**Owner** is (check one): 1. Federal ○ 2. State/Tribal ○ 3. Private ◉ 4. Other ○ if so, describe: 8-14 Forest Street LLC		
Address of **owner** (if different from site):				
Street: 825 Main Street				
Town: Reading	State: MA	Zip: 01867	County: Middlesex	
c) Legal name of **operator:** Clean Properties, Inc.	**Operator** telephone no: 800-977-1982			
	Operator fax no.: 781-577-1510	**Operator** email: mberger@cleanproperties.com		
Operator contact name and title: Marcia Jada Berger, PE, LSP, President				
Address of **operator** (if different from owner):	Street: 111 Boston Post Road, Suite 211			
Town: Sudbury	State: MA	Zip: 01776	County: South Middlesex	

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 ○

e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y ○ N ◉
If Y, please list:
1. site identification # assigned by the state of NH or MA:
2. permit or license # assigned:
3. state agency contact information: name, location, and telephone number:

f) Is the site/facility covered by any other EPA permit, including:
1. Multi-Sector General Permit? Y ○ N ◉,
if Y, number:
2. Final Dewatering General Permit? Y ○ N ◉,
if Y, number:
3. EPA Construction General Permit? Y ○ N ◉,
if Y, number:
4. Individual NPDES permit? Y ○ N ◉,
if Y, number:
5. any other water quality related individual or general permit? Y ○ N ◉, if Y, number:

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 ☐ B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) ☐ C. Petroleum Sites with Additional Contamination ☐
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites ☒ B. VOC Sites with Additional Contamination ☐ C. Primarily Heavy Metal Sites ☐
III - Contaminated Construction Dewatering	A. General Urban Fill Sites ☐ B. Known Contaminated Sites ☐

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

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 with concentrations of tetrachloroethylene in excess of the National Recommended Water Quality Criteria being discharged by existing sump system to the municipal stormwater system which outfalls to the Mystic River

b) Provide the following information about each discharge:

1) Number of discharge points: 1

2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft^3/s)?
Max. flow 0.044 Is maximum flow a **design value**? Y ◉ N ○
Average flow (include units) 0.022 ft3/s Is average flow a design value or estimate? estimate

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

pt.1: lat	42°25'07"	long	70°13'05"	pt.2: lat.		long.	;
pt.3: lat		long		pt.4: lat.		long.	;
pt.5: lat		long		pt.6: lat.		long.	;
pt.7: lat		long		pt.8: lat.		long.	; etc.

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

5) Is the discharge intermittent ◉ or seasonal ○ ?
Is discharge ongoing? Y ○ N ◉

c) Expected dates of discharge (mm/dd/yy): start Jul 15, 2013 end Jul 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). Please see attached Figure 4

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)		☒	☐								
2. Total Residual Chlorine (TRC)		☒	☐								
3. Total Petroleum Hydrocarbons (TPH)		☒	☐	1	grab	EPA 1664	1.4 mg/l	ND		ND	
4. Cyanide (CN)	57125	☒	☐								
5. Benzene (B)	71432	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
6. Toluene (T)	108883	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
7. Ethylbenzene (E)	100414	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	☒	☐	1	grab	EPA 8260C	3.0 ug/l	ND		ND	
9. Total BTEX [2]	n/a	☒	☐								
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) [3]	106934	☒	☐	1	grab	EPA 8260C	0.50 ug/l	ND		ND	
11. Methyl-tert-Butyl Ether (MtBE)	1634044	☒	☐	1	grab	EPA 8260 C	1.0 ug/l	ND		ND	
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	☒	☐								

* 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	☒	☐	1	grab	EPA 8260C	0.50 ug/l	ND		ND	
14. Naphthalene	91203	☒	☐	1	grab	EPA 8260C	2.0 ug/l	ND		ND	
15. Carbon Tetrachloride	56235	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
16. 1,2 Dichlorobenzene (o-DCB)	95501	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
17. 1,3 Dichlorobenzene (m-DCB)	541731	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
18. 1,4 Dichlorobenzene (p-DCB)	106467	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
18a. Total dichlorobenzene		☒	☐								
19. 1,1 Dichloroethane (DCA)	75343	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
20. 1,2 Dichloroethane (DCA)	107062	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
21. 1,1 Dichloroethene (DCE)	75354	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
22. cis-1,2 Dichloroethene (DCE)	156592	☐	☒	1	grab	EPA 8260C	1.0 ug/l	9.2	0.502	9.2	0.251
23. Methylene Chloride	75092	☒	☐	1	grab	EPA 8260C	5.0 ug/l	ND		ND	
24. Tetrachloroethene (PCE)	127184	☐	☒	1	grab	EPA 8260C	1.0 ug/l	130	7.09	130	3.55
25. 1,1,1 Trichloro-ethane (TCA)	71556	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
26. 1,1,2 Trichloro-ethane (TCA)	79005	☒	☐	1	grab	EPA 8260C	1.0 ug/l	ND		ND	
27. Trichloroethene (TCE)	79016	☐	☒	1	grab	EPA 8260C	1.0 ug/l	1.9	0.104	1.9	0.052

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	☒	☐	1	grab	EPA 8260C	2.0 ug/l	ND		ND	
29. Acetone	67641	☒	☐	1	grab	EPA 8260C	10 ug/l	ND		ND	
30. 1,4 Dioxane	123911	☒	☐	1	grab	EPA 8260C	50 ug/l	ND		ND	
31. Total Phenols	108952	☒	☐	1	grab	EPA 420.1	0.050 mg/l	ND		ND	
32. Pentachlorophenol (PCP)	87865	☒	☐	1	grab	EPA 8270D	10 ug/l	ND		ND	
33. Total Phthalates (Phthalate esters) [4]		☒	☐	1	grab	EPA 8270D	10 ug/l	ND		ND	
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	☒	☐	1	grab	EPA 8270D	10 ug/l	ND		ND	
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
a. Benzo(a) Anthracene	56553	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
b. Benzo(a) Pyrene	50328	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
c. Benzo(b)Fluoranthene	205992	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
d. Benzo(k)Fluoranthene	207089	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
e. Chrysene	21801	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
f. Dibenzo(a,h)anthracene	53703	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
g. Indeno(1,2,3-cd) Pyrene	193395	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	

[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	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
i. Acenaphthylene	208968	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
j. Anthracene	120127	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
k. Benzo(ghi) Perylene	191242	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
l. Fluoranthene	206440	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
m. Fluorene	86737	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
n. Naphthalene	91203	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
o. Phenanthrene	85018	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
p. Pyrene	129000	☒	☐	1	grab	EPA 8270D	5.0 ug/l	ND		ND	
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	☒	☐	1	grab	EPA 8082A	0.20 ug/l	ND		ND	
38. Chloride	16887006	☒	☐								
39. Antimony	7440360	☒	☐								
40. Arsenic	7440382	☒	☐								
41. Cadmium	7440439	☒	☐								
42. Chromium III (trivalent)	16065831	☒	☐								
43. Chromium VI (hexavalent)	18540299	☒	☐								
44. Copper	7440508	☒	☐								
45. Lead	7439921	☒	☐								
46. Mercury	7439976	☒	☐								
47. Nickel	7440020	☒	☐								
48. Selenium	7782492	☒	☐								
49. Silver	7440224	☒	☐								
50. Zinc	7440666	☒	☐								
51. Iron	7439896	☐	☒	1	grab	EPA 6010C	0.050 mg/l	160	8.73	160	4.36
Other (describe):		☐	☐								

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

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

Step 1: Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y ○ N ◉	If yes, which metals?
Step 2: For any metals which exceed the **Appendix III** limits, calculate the **dilution factor (DF)** using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metal: DF: Metal: DF: Metal: DF: Metal: DF: Etc.	Look up the limit calculated at the corresponding dilution factor in **Appendix IV.** Do any of the metals in the **influent** have the potential to exceed the corresponding **effluent** limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y ○ N ○ If Y, list which metals:

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:

Intake water is to be withdrawn from source locations via pumps and then pass through bag filters to remove sediment. After traversing bag filters influent water is to be treated with ozone gas and then pass through a series of granular activated carbon (GAC) units; the ozone will remove VOCs via oxidation and the GAC will remove additional VOCs and excess ozone from the water stream prior to its discharge to the stormwater system. The treatment system water pumps will usurp the task currently achieved by the existing sumps at 5 High Street of keeping the groundwater below the basement floor of the existing structure.

b) Identify each applicable treatment unit (check all that apply):	Frac. tank ☐	Air stripper ☐	Oil/water separator ☐	Equalization tanks ☐	Bag filter ☒	GAC filter ☒
	Chlorination ☐	De-chlorination ☐	Other (please describe):	Ozone		

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 10 gpm Maximum flow rate of treatment system 20 gpm
Design flow rate of treatment system 20 gpm

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

Ozone gas; 4.7 wt%

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

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

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:
Treatment system for existing storm water sump system, discharge effluent to municipal storm water system outfall to Mystic River

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:
1. For multiple discharges, number the discharges sequentially.
2. For indirect 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 Class B

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 3.33 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)? See Appendix D

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.

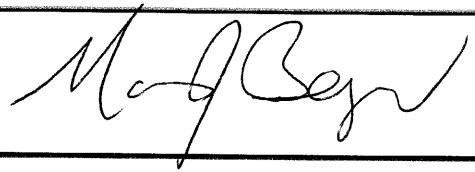
7. Supplemental information.

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

Attached are Appendices A through F, which contain the Best Management Practices Plan (Appendix A), laboratory report for sampling conducted to support this NOI (Appendix B), US Geological Survey Streamstats output reporting 7Q10 of the receiving water body (Appendix C), MassDEP 303(d) Integrated List of Waters Report for the Mystic River Watershed (Appendix D), Historic Areas Assessment (Appendix E), and Chemical Material Safety Data Sheets (Appendix F).

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:	8 Forest Street/5 High Street, Medford, MA
Operator signature:	
Printed Name &Title:	Marcia Jada Berger, PE, LSP, President
Date:	June 28, 2013

FIGURES

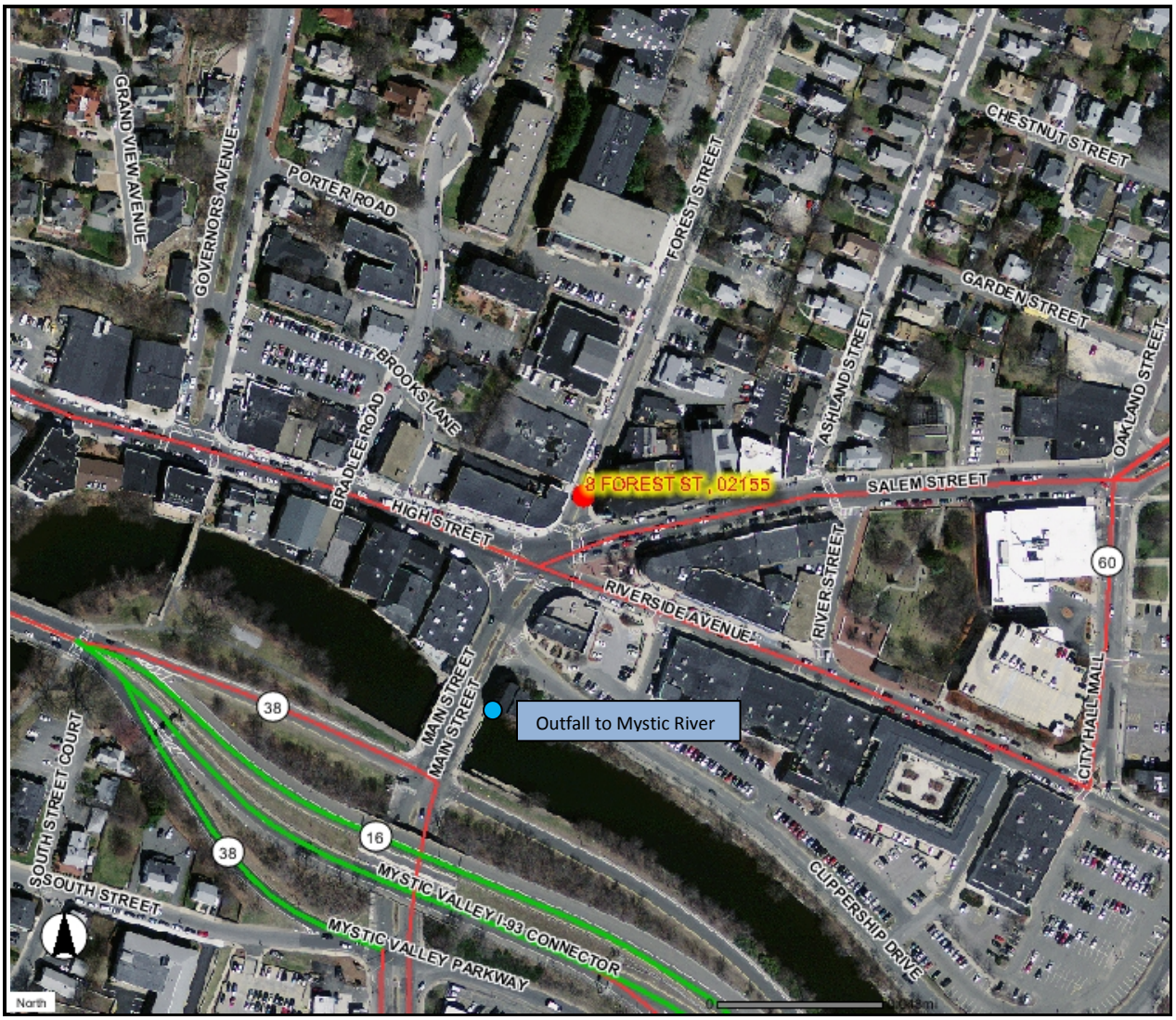
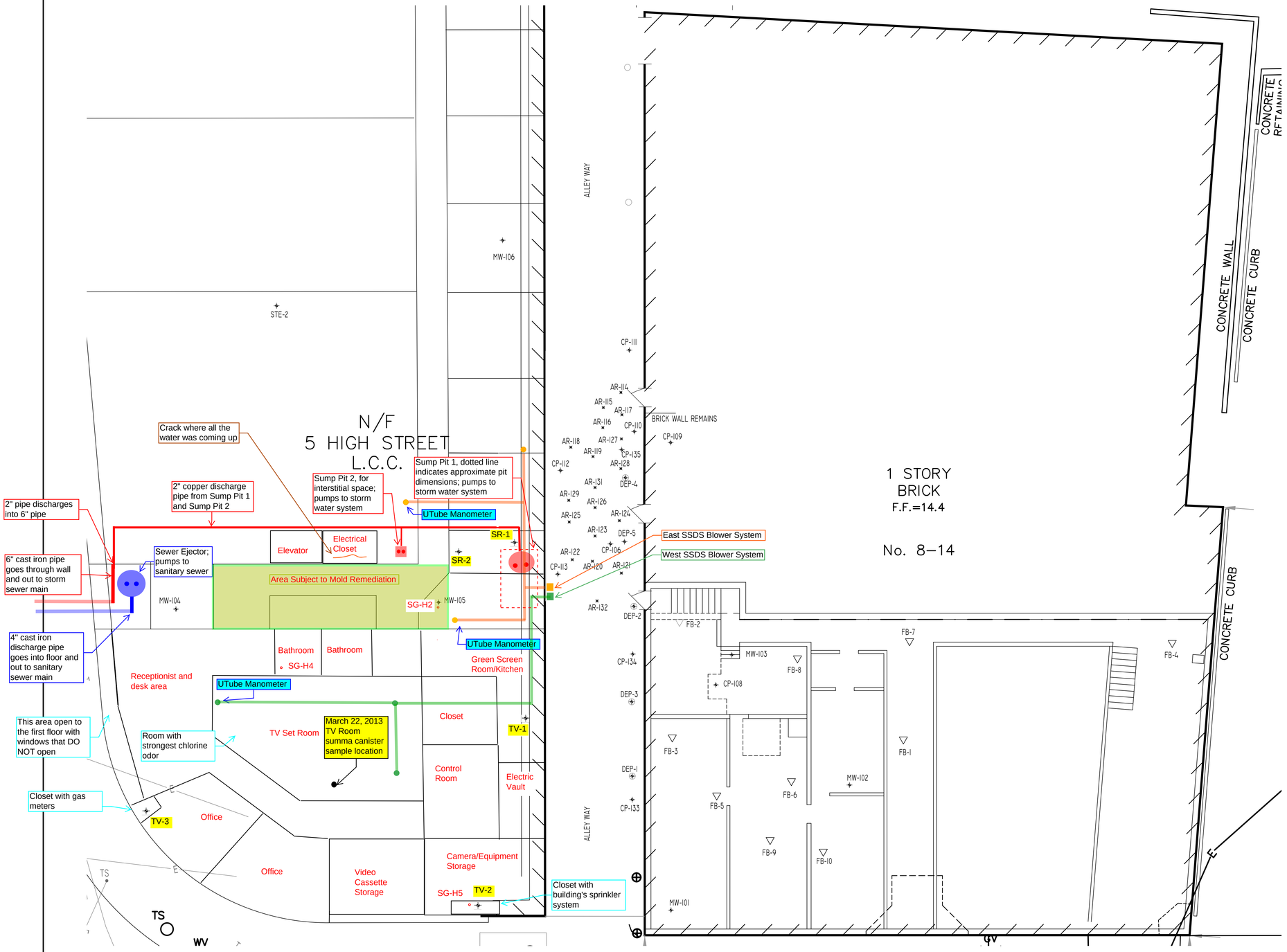


Figure 1 – Site Location Map Showing Discharge Point to Receiving Waters
8 Forest Street/5 High Street, Medford, MA

Base map from US Geological Survey 2008 Color Ortho Imagery produced by MassGis



Clean Properties
Environmental Assessment & Cleanup

CLEAN PROPERTIES, INC.
111 BOSTON POST ROAD, SUITE 211
SUDBURY, MA 01776 WWW.CLEANPROPERTIES.COM
TEL. (978) 443-6622 FAX (781) 577-1510

PROJECT:
8-14 FOREST STREET
MEDFORD, MA
MA. DEP RTN 3-26842

DWG. TITLE:
SITE PLAN – MONITORING WELL AND INJECTION WELL LOCATIONS

REVISIONS

DRAWN JL	APPR. JL/MB
DATE APRIL 2012	
SCALE 1/8" = 1'-0"	
CAD FILE SITE PLAN.DWG	
JOB NO. 0549	
SHEET	

FIG – 2B

\\ABC-101\DATA-PROJECTS\0549 MEDFORD FOREST ST\DRAWINGS\

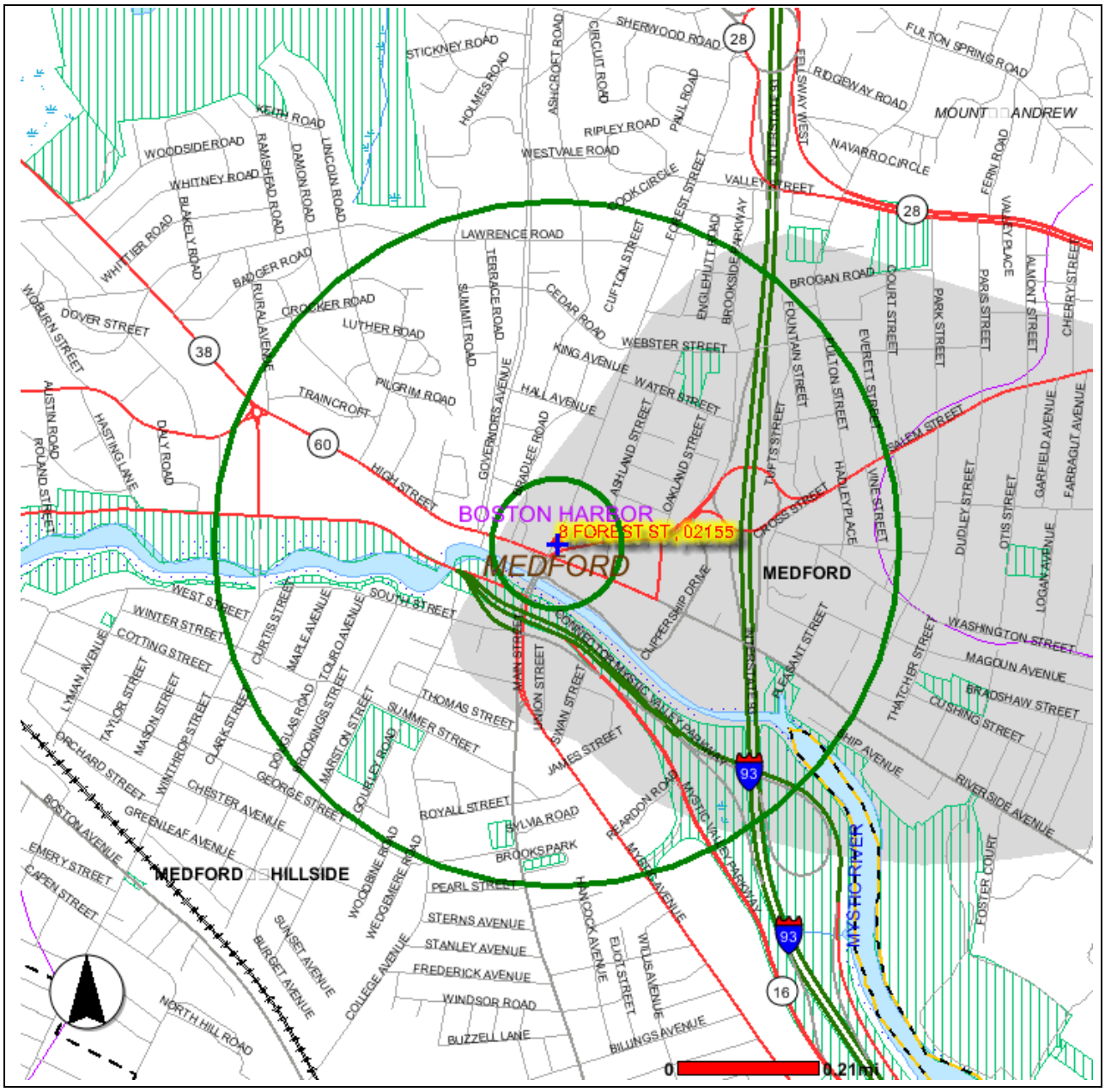
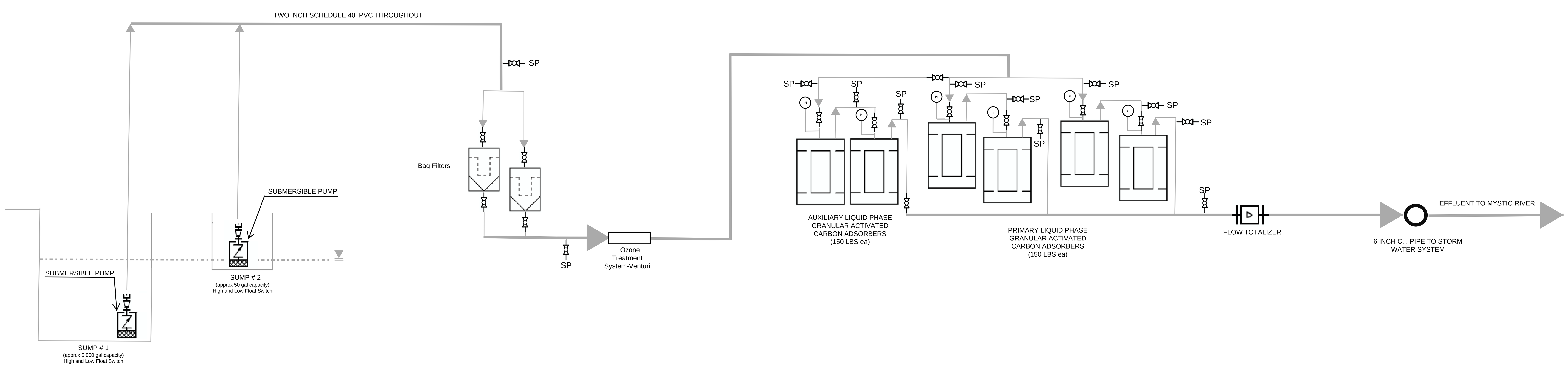


Figure 3: MassDEP Priority Resource Map
Sensitive Environmental Receptors



LEGEND	
⊙	Pressure Gauge
ball valve symbol	Ball Valve
SP	Sampling Port

CLEAN PROPERTIES, INC.
111 BOSTON POST ROAD, SUITE 211
SUDBURY, MA 01776 WWW.CLEANPROPERTIES.COM
TEL. (800)944-1982 FAX (781)577-1510

PROJECT:
8 Forest Street/
5 High Street,
Medford MA

DWG. TITLE:
Treatment System Flow
Line Drawing

REVISIONS	
DRAWN IA	APPR. MB
DATE July 1, 2013	
SCALE NA	
JOB NO. 0549	

Figure 4

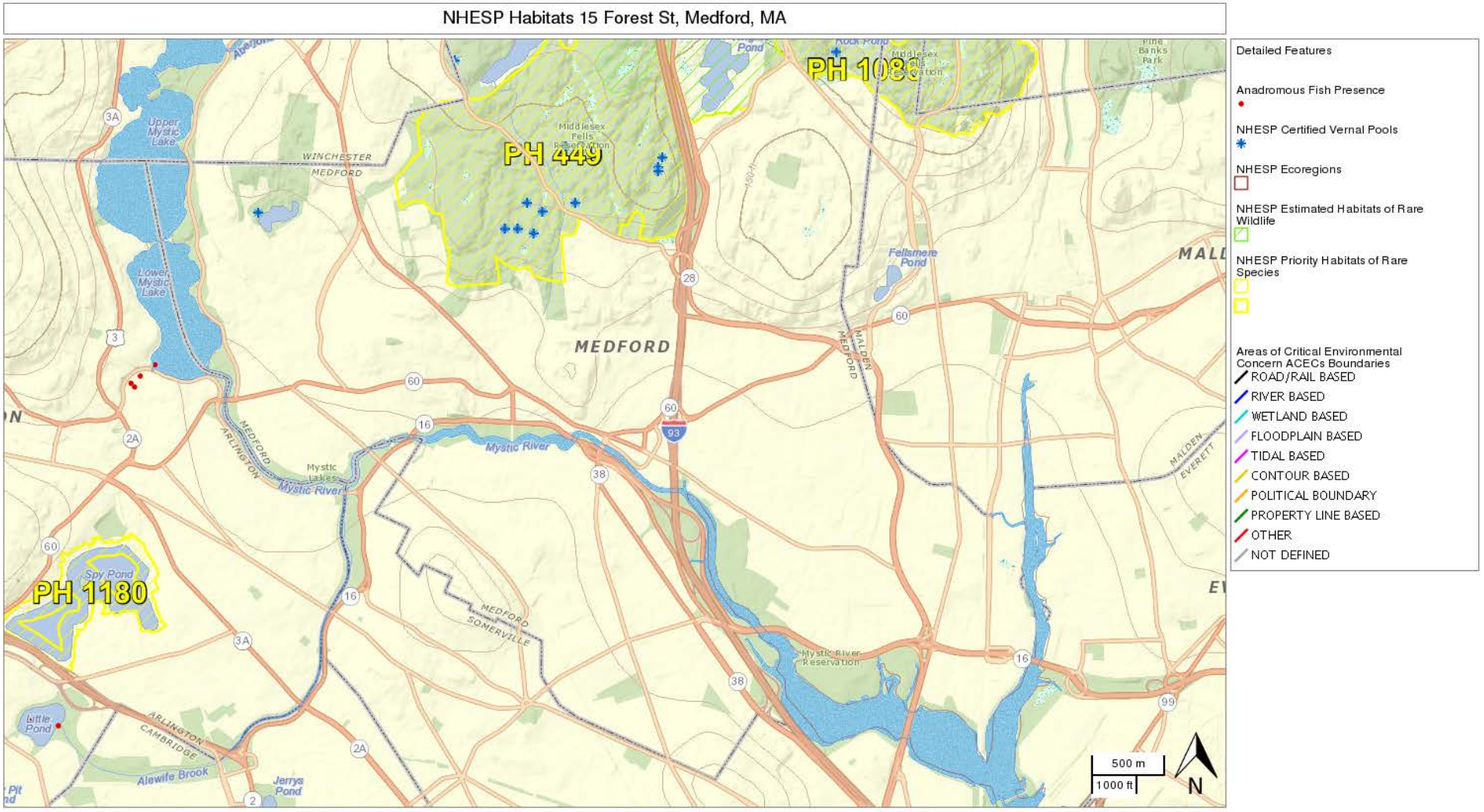


Figure 5 – Documentation of Endangered Species Act Eligibility

APPENDIX A

Clean Properties Inc Best Management Practices Plan
Five High Street, Medford, Massachusetts
June 2013

1.0 Introduction

This Stormwater Best Management Practices Plan (BMPP) documents the methodology employed by Clean Properties to address the release of storm water and remedial wastewater into the City of Medford, Massachusetts (City) municipal storm water system. The BMPP contains all of the requisite information pursuant to the Remediation General Permit (RGP) under the National Pollutant Discharge Elimination System (NPDES) for discharges in Massachusetts.

The objective of this BMPP is to minimize chlorinated solvent concentrations in the water that is being discharged to the Mystic River from the sump pits located within the commercial building at Five High Street in Medford, Massachusetts. The BMPP describes procedures for Operation, Maintenance, and Monitoring (OMM) of remedial discharges from Five High Street in Medford, Massachusetts, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of the Mystic River. To achieve this objective, this BMPP outlines specific remedial wastewater discharge design and performance standards.

2.0 Pollutant Sources & Types

2.1 Pollutant Sources

The elevation of the basement floor in the commercial building located at Five High Street is intermittently, when subject to certain conditions, lower than the regional groundwater table elevation. To prevent the infiltration of water into this finished and occupied space, when and as required, there are two separate sump pump systems in place that withdraw groundwater from different regions of the building footprint and discharge it to the municipal storm water system. Present in this intermittently discharged sump water are dissolved phase concentrations of tetrachloroethylene, detected most recently at a concentration of the 130 micrograms per liter (ug/l). The source of the contamination in the sump water is in part attributed to a release of dry cleaning solvent at the neighboring Eight Forest Street property. However, based on historical uses, a release may also have occurred in the past at Five High Street that could potentially be contributing to the sump water concentrations of tetrachloroethylene.

2.2 Pollutant Types and Concentrations

Pollutants associated with remedial wastewater at Five High Street may include the following chlorinated compounds: cis-1,2-dichloroethylene; tetrachloroethylene; and trichloroethylene. These chlorinated compounds have been detected in groundwater samples by laboratory analysis as part of response actions

conducted under the Massachusetts Contingency Plan 310 CMR 40.0000. Tetrachloroethylene is the primary Contaminant of Concern at the Site, and results from historic dry-cleaning releases at Eight Forest Street. The other detected chlorinated compounds are considered to be daughter products resulting from the degradation of tetrachloroethylene. The most recent groundwater sampling results, which are attached to this NPDES permit request, collected from the aforementioned sump detected the above-listed chlorinated compounds ranging in concentrations from 1.9 to 130 ug/l.

3.0 Pollutant Reduction Methodology

Clean Properties intends to employ a combination of technologies to reduce concentrations of chlorinated compounds described in Section 2.0 to below the criteria required by National Recommended Water Quality Criteria for the receiving surface water body. A general schematic of the pollutant reduction processes is shown in Figure 4 – Treatment System Design. Sequentially, the treatment process will include bag filters, ozone treatment, and Granular Activated Carbon (GAC) filtration.

Water to be discharged to the municipal storm water conveyance system will be pumped through parallel inline bag filters to remove any suspended solids as the first step in the treatment process. Reducing the amounts of solids in the sump water is expected to help homogenize ozone delivery to the sample stream and prevent clogging of the system overall.

After solid particle removal in the bag filters, the influent water will be mixed with gas constituted of 4.7 percent ozone by weight, ozone being produced by oxygen supplied to the ozone unit by an in-line oxygen concentrator. The balance of the feed gas is elemental oxygen. A remote ozone monitoring system equipped with an alarm will also be installed to ensure that no ozone gas escapes the confines of the system. Should ozone gas be detected in ambient air at a concentration greater than 0.05 parts per million (ppm), the ozone generator will automatically shut down and Clean Properties will be notified automatically. The Occupational Safety and Health Administration (OSHA) 8 hour exposure limit is set at 0.1 ppm.

Following ozone treatment, the water will enter a series of GAC canisters to remove residual ozone and absorb any potentially remaining Volatile Organic Compounds that were not destroyed by the ozone. Each canister will contain approximately two hundred pounds of GAC and will be rated for a 10 gallon per minute flow rate. A minimum of two and maximum of six GAC canisters will be utilized in series. After the water exits the GAC treatment system, the water will flow through a totalizer, which will track the total volume of water, before being discharged into the six inch cast iron pipe within the basement that ties into the storm water system.

Clean Properties will conduct periodic effluent sampling of the GACs in accordance with the NPDES permit to determine if any contaminants remain in the treated water. Any anomalous increase in contaminant concentrations above surface water quality criteria will be suspect that breakthrough has occurred. Clean Properties will then replace the carbon and recycle the spent material in accordance

with the waste management described in Section 5.0.

4.0 Site Security

Five High street entrance and egress points are locked 24 hours per day with the exception of the front entrance double door facing High Street which is open during normal business hours from approximately 08:00 hours to 17:00 hours Monday through Friday. On weekends the front door is locked and requires key access for admission. All working components of the treatment system will be located inside the Five High Street building. Additionally, working system components identified in Section 3.0 will be located inside locked basement utility rooms within the Five High Street building. Therefore, only persons who are authorized key holders to Five High Street electrical or utility rooms will be able to access the treatment system.

5.0 Management of Generated Waste

Two types of wastes, bag filter sediment and spend carbon from the GACs, are expected to be generated by the treatment processes described in Section 3.0. The volume of bag filter sediment removed from the remedial wastewater is expected to be de minimis. Bag filters will be cleaned using distilled water to loosen the sediment; the rinse water will then be filtered and run through the described treatment process. The expected small volume of sediment so collected will be retained as remediation waste and treated on-Site in accordance with the Massachusetts Contingency Plan 310 CMR 40.0000. The clean bag filters will be reused in the treatment process.

If periodic effluent sampling of the GAC canisters indicates that breakthrough has occurred or is likely to occur, Clean Properties will recycle the spent carbon. A sample of the GAC will be collected and submitted for to a Massachusetts-certified laboratory for landfill disposal characterization. Clean Properties will vacuum out the spent carbon using our vacuum excavation capabilities, package the spent carbon, and arrange for transportation to an approved disposal/recycling facility depending on the results of the disposal characterization. Clean Properties will then refill the GAC canisters with new carbon. Standby canisters will be used in the treatment process while awaiting new carbon to ensure that effluent continues to meet surface water quality criteria.

6.0 Prohibition of Discharge Exceeding Design Flow

The discharge of sump water through the treatment system is expected to be intermittent rather than continuous and is expected to be dependent on the rate of inflow of primarily surface runoff during rainy days and groundwater inflow during periods of dry weather. Based on the surface area of the runoff drains located around the perimeter of Five High Street, Clean Properties estimates that a moderate rain fall event will create a maximum inflow to the sump of approximately 15 gallons of storm runoff per minute. During periods of dry weather, the inflow to the sump is expected to be less than 10 gallons per minute. Therefore, the GAC treatment system will be designed to accommodate a flow of 15 gallons per

minute plus a 40 percent safety margin to be conservative.

Clean Properties will employ a submersible pump to push water through the treatment process described in Section 3.0 and into the municipal storm water conveyance system. The pump will be fitted with a float device to cease pump operation when the sump water level falls below the pump intake. The float device will prevent the sump pump from "running dry".

7.0 Monitoring Total Flow Through the System

Clean Properties will use a flow totalizer as the final component of the treatment system as shown in Figure 1. The flow controller will record daily changes in cumulative flow volumes and can be read on a monthly basis as part of Operation, Maintenance, and Monitoring of this BMPP.

8.0 Employee Training

All response actions that will be performed under this RGP will be conducted under the oversight of a Massachusetts Licensed Site Professional and Licensed Wastewater Treatment Operator of at least Grade 3. Prior to implementing activities under the RGP, Clean Properties will prepare a Health and Safety Plan, which will establish the procedures, personnel responsibilities, and training necessary to protect the health and safety of all on-site personnel. The Health and Safety Plan will serve as the primary training mechanism for all new and seasoned employees in executing responsibilities of the RGP. The Health and Safety Plan provides training for conducting routine and hazardous field activities and preparing for unexpected Site emergencies. Clean Properties personnel and sub-contractors are expected to will familiarize themselves with the Health and Safety Plan and abide by the requirements contained herein.

9.0 Management of Run-On and Run-Off

The treatment system as conceived is self-contained. That is, the sump where groundwater and storm water will accumulate and be pumped through the treatment system described herein is located entirely indoors and is constructed of concrete over the entire surface area. Inflow to the sump pit originates primarily from storm water during rain events and primarily from groundwater during dry periods. Maximum flows are accounted for in the design of the system. Aside from the sources of storm water and groundwater inflow to sump, no other sources of run-on or runoff are expected to be discharged to the sump as the sump is hydraulically isolated from any other source of water inflow.

10.0 Sediment Control, Erosion, and Scouring in the Receiving Water Body

10.1 Sediment Control

Sediment control will be accomplished by utilizing the dual bag filters to remove sediment from sump water as the first step in the treatment process. Clean Properties intends to use bag filters composed of

polyester felt or equivalent material with a design particulate removal size of 50 microns or less. As described previously, these bag filters will be placed in the treatment stream prior to the introduction of ozone and prior to the GAC filtration media.

Clean Properties will examine bag filters at periodic intervals for clogging, rips and deterioration which would reduce filtering capacity. Clean Properties endeavors to reuse and/or recycle where possible. However, if damage or filter wear is observed that could lead to filter failure, one or both bag filters as necessary will be removed and replaced with new units.

10.2 Erosion and Scouring in the Receiving Water Body

Based on the US Geological *Streamstats* output contained in Appendix C, the 7Q10 low flow for the Mystic River in the vicinity of the outfall discharge which is the subject of this Notice of Intent is 3.3 cubic feet per second. As stated in the Notice of Intent, the maximum discharge through the treatment system, which will enter the storm water conveyance system that discharges to the Mystic River, is expected to be 20 gallons per minute. The conversion of 20 gallons per minute, which is expected to occur only infrequently in response to heavy rainfall events, to cubic feet per second results in a discharge through the treatment system of 0.044 or 1.4 percent of the 7Q10. Therefore, under the most adverse combined conditions of heavy precipitation and low river flow, the discharge which is the subject of this Notice of Intent will increase the river flow by approximately 1.4 percent. During the vast majority of the time, the contribution from the treatment system to total river flow will be much less than 1.4 percent. Clean Properties expects that the a flow increase of up to 1.4 percent is a de minimis volume increase and is not likely to exacerbate erosion and scouring in the receiving water body.

APPENDIX B

Laboratory Data Report 13D1148 Sampled April 26, 2013
To Support this Notice of Intent

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

May 6, 2013

Marcia Berger
Clean Properties
111 Boston Post Road, Suite 211
Sudbury, MA 01776

Project Location: 8 Forest St., Medford, MA
Client Job Number:
Project Number: 0549
Laboratory Work Order Number: 13D1148

Enclosed are results of analyses for samples received by the laboratory on April 29, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Clean Properties
111 Boston Post Road, Suite 211
Sudbury, MA 01776
ATTN: Marcia Berger

REPORT DATE: 5/6/2013

PURCHASE ORDER NUMBER: 0549

PROJECT NUMBER: 0549

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13D1148

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 8 Forest St., Medford, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Sump RGP Baseline	13D1148-01	Ground Water		EPA 1664A	
				EPA 420.1	
				SW-846 6010C	
				SW-846 8082A	
				SW-846 8270D	
SR-2	13D1148-02	Ground Water		SW-846 8260C	

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SW-846 8260C

Qualifications:

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

Bromochloromethane, Carbon Disulfide, Diisopropyl Ether (DIPE), Methylene Chloride

B072135-BS1, B072135-BSD1

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

Naphthalene

13D1148-02[SR-2], B072135-BLK1, B072135-BS1, B072135-BSD1

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:

1,2-Dibromo-3-chloropropane (DBCP), tert-Butyl Ethyl Ether (TBEE)

B072135-BS1, B072135-BSD1

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

1,2,3-Trichlorobenzene

B072135-BS1

Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.

Analyte & Samples(s) Qualified:

2-Butanone (MEK), 2-Hexanone (MBK), Acetone, Bromomethane

B072135-BSD1, B072135-BS1

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

1,2,3-Trichlorobenzene, 2-Hexanone (MBK), Naphthalene

13D1148-02[SR-2], B072135-BLK1, B072135-BS1, B072135-BSD1

Elevated reporting limit due to high concentration of target compounds. MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:

13D1148-02[SR-2]

Continuing calibration did not meet method specifications and was biased on the low side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dibromo-3-chloropropane (DBCP), Naphthalene

13D1148-02[SR-2], B072135-BLK1, B072135-BS1, B072135-BSD1

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane

13D1148-02[SR-2], B072135-BLK1, B072135-BS1, B072135-BSD1

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Carbon Disulfide, Chloromethane, Diisopropyl Ether (DIPE), Methylene Chloride

B072135-BS1, B072135-BSD1

SW-846 8270D

Qualifications:

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

2-Chloronaphthalene

13D1148-01[Sump RGP Baseline], B072107-BLK1, B072107-BS1, B072107-BSD1

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

Benzo(g,h,i)perylene

B072107-BSD1

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

Benzo(g,h,i)perylene

13D1148-01[Sump RGP Baseline], B072107-BLK1, B072107-BS1

Continuing calibration did not meet method specifications and was biased on the low side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

4-Chloroaniline, Anthracene, Di-n-butylphthalate

13D1148-01[Sump RGP Baseline], B072107-BLK1, B072107-BS1, B072107-BSD1

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Michael A. Erickson
Laboratory Director

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 8 Forest St., Medford, MA | Sample Description: | Work Order: 13D1148

Date Received: 4/29/2013

Field Sample #: Sump RGP Baseline | Sampled: 4/26/2013 11:23

Sample ID: 13D1148-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Acenaphthylene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Acetophenone	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Aniline	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Anthracene	ND	5.0	µg/L	1	V-05	SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Benzo(a)anthracene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Benzo(a)pyrene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Benzo(b)fluoranthene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Benzo(g,h,i)perylene	ND	5.0	µg/L	1	R-05	SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Benzo(k)fluoranthene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Bis(2-chloroethoxy)methane	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Bis(2-chloroethyl)ether	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Bis(2-chloroisopropyl)ether	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
4-Bromophenylphenylether	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Butylbenzylphthalate	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
4-Chloroaniline	ND	10	µg/L	1	V-05	SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2-Chloronaphthalene	ND	10	µg/L	1	L-04	SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2-Chlorophenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Chrysene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Dibenz(a,h)anthracene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Dibenzofuran	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Di-n-butylphthalate	ND	10	µg/L	1	V-05	SW-846 8270D	4/30/13	5/2/13 15:41	CMR
1,2-Dichlorobenzene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
1,3-Dichlorobenzene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
1,4-Dichlorobenzene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
3,3-Dichlorobenzidine	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2,4-Dichlorophenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Diethylphthalate	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2,4-Dimethylphenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Dimethylphthalate	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2,4-Dinitrophenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2,4-Dinitrotoluene	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2,6-Dinitrotoluene	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Di-n-octylphthalate	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Fluoranthene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Fluorene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Hexachlorobenzene	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Hexachlorobutadiene	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Hexachloroethane	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Isophorone	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2-Methylnaphthalene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 8 Forest St., Medford, MA | Sample Description: | Work Order: 13D1148

Date Received: 4/29/2013

Field Sample #: Sump RGP Baseline | Sampled: 4/26/2013 11:23

Sample ID: 13D1148-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
3/4-Methylphenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Naphthalene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Nitrobenzene	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2-Nitrophenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
4-Nitrophenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Pentachlorophenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Phenanthrene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Phenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
Pyrene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
1,2,4-Trichlorobenzene	ND	5.0	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2,4,5-Trichlorophenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR
2,4,6-Trichlorophenol	ND	10	µg/L	1		SW-846 8270D	4/30/13	5/2/13 15:41	CMR

Surrogates	% Recovery	Recovery Limits	Flag	
2-Fluorophenol	38.2	15-110		5/2/13 15:41
Phenol-d6	34.3	15-110		5/2/13 15:41
Nitrobenzene-d5	66.2	30-130		5/2/13 15:41
2-Fluorobiphenyl	58.8	30-130		5/2/13 15:41
2,4,6-Tribromophenol	66.3	15-110		5/2/13 15:41
p-Terphenyl-d14	64.0	30-130		5/2/13 15:41

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 8 Forest St., Medford, MA | Sample Description: | Work Order: 13D1148

Date Received: 4/29/2013

Field Sample #: Sump RGP Baseline | Sampled: 4/26/2013 11:23

Sample ID: 13D1148-01

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC
Aroclor-1221 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC
Aroclor-1232 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC
Aroclor-1242 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC
Aroclor-1248 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC
Aroclor-1254 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC
Aroclor-1260 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC
Aroclor-1262 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC
Aroclor-1268 [1]	ND	0.20	µg/L	1		SW-846 8082A	4/30/13	5/1/13 15:49	MJC

Surrogates	% Recovery	Recovery Limits	Flag	
Decachlorobiphenyl [1]	87.1	30-150		5/1/13 15:49
Decachlorobiphenyl [2]	97.7	30-150		5/1/13 15:49
Tetrachloro-m-xylene [1]	84.5	30-150		5/1/13 15:49
Tetrachloro-m-xylene [2]	91.7	30-150		5/1/13 15:49

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 8 Forest St., Medford, MA | Sample Description: | Work Order: 13D1148

Date Received: 4/29/2013

Field Sample #: Sump RGP Baseline | Sampled: 4/26/2013 11:23

Sample ID: 13D1148-01

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Iron	0.16	0.050	mg/L	1		SW-846 6010C	4/30/13	5/1/13 13:48	OP

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Project Location: 8 Forest St., Medford, MA | Sample Description: | Work Order: 13D1148

Date Received: 4/29/2013

Field Sample #: Sump RGP Baseline | Sampled: 4/26/2013 11:23

Sample ID: 13D1148-01

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Phenol	ND	0.050	mg/L	1		EPA 420.1	5/6/13	5/6/13 11:00	LL
Silica Gel Treated HEM (SGT-HEM)	ND	1.4	mg/L	1		EPA 1664A	5/1/13	5/1/13 12:30	LL

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 8 Forest St., Medford, MA | Sample Description: | Work Order: 13D1148

Date Received: 4/29/2013

Field Sample #: SR-2 | Sampled: 4/26/2013 13:00

Sample ID: 13D1148-02

Sample Matrix: Ground Water

Sample Flags: RL-05

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	1900	250	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
tert-Amyl Methyl Ether (TAME)	ND	120	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Benzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Bromobenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Bromochloromethane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Bromodichloromethane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Bromoform	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Bromomethane	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
2-Butanone (MEK)	3600	250	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
n-Butylbenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
sec-Butylbenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
tert-Butylbenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	120	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Carbon Disulfide	ND	120	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Carbon Tetrachloride	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Chlorobenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Chlorodibromomethane	ND	12	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Chloroethane	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Chloroform	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Chloromethane	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
2-Chlorotoluene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
4-Chlorotoluene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	µg/L	25	V-05	SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2-Dibromoethane (EDB)	ND	12	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Dibromomethane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2-Dichlorobenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,3-Dichlorobenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,4-Dichlorobenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Dichlorodifluoromethane (Freon 12)	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,1-Dichloroethane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2-Dichloroethane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,1-Dichloroethylene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
cis-1,2-Dichloroethylene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
trans-1,2-Dichloroethylene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2-Dichloropropane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,3-Dichloropropane	ND	12	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
2,2-Dichloropropane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,1-Dichloropropene	ND	12	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
cis-1,3-Dichloropropene	ND	10	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
trans-1,3-Dichloropropene	ND	10	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Diethyl Ether	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Diisopropyl Ether (DIPE)	ND	12	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,4-Dioxane	ND	1200	µg/L	25	V-16	SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Ethylbenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH

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Project Location: 8 Forest St., Medford, MA | Sample Description: | Work Order: 13D1148

Date Received: 4/29/2013

Field Sample #: SR-2 | Sampled: 4/26/2013 13:00

Sample ID: 13D1148-02

Sample Matrix: Ground Water

Sample Flags: RL-05

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	12	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
2-Hexanone (MBK)	ND	250	µg/L	25	R-05	SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Isopropylbenzene (Cumene)	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
p-Isopropyltoluene (p-Cymene)	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Methyl tert-Butyl Ether (MTBE)	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Methylene Chloride	ND	120	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
4-Methyl-2-pentanone (MIBK)	ND	250	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Naphthalene	ND	50	µg/L	25	L-04, R-05, V-05	SW-846 8260C	5/2/13	5/2/13 18:16	EEH
n-Propylbenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Styrene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,1,1,2-Tetrachloroethane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,1,2,2-Tetrachloroethane	ND	12	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Tetrachloroethylene	31	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Tetrahydrofuran	4900	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Toluene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2,3-Trichlorobenzene	ND	50	µg/L	25	R-05, V-05	SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2,4-Trichlorobenzene	ND	25	µg/L	25	V-05	SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,1,1-Trichloroethane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,1,2-Trichloroethane	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Trichloroethylene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Trichlorofluoromethane (Freon 11)	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2,3-Trichloropropane	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,2,4-Trimethylbenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
1,3,5-Trimethylbenzene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
Vinyl Chloride	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
m+p Xylene	ND	50	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH
o-Xylene	ND	25	µg/L	25		SW-846 8260C	5/2/13	5/2/13 18:16	EEH

Surrogates	% Recovery	Recovery Limits	Flag	
1,2-Dichloroethane-d4	98.8	70-130		5/2/13 18:16
Toluene-d8	103	70-130		5/2/13 18:16
4-Bromofluorobenzene	99.0	70-130		5/2/13 18:16

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Sample Extraction Data

EPA 1664A

Lab Number [Field ID]	Batch	Initial [mL]	Date
13D1148-01 [Sump RGP Baseline]	B072123	1000	05/01/13

EPA 420.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
13D1148-01 [Sump RGP Baseline]	B072208	50.0	50.0	05/06/13

Prep Method: SW-846 3005A-SW-846 6010C

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
13D1148-01 [Sump RGP Baseline]	B072099	50.0	50.0	04/30/13

Prep Method: SW-846 3510C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
13D1148-01 [Sump RGP Baseline]	B072119	1000	10.0	04/30/13

Prep Method: SW-846 5030B-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
13D1148-02 [SR-2]	B072135	0.2	5.00	05/02/13

Prep Method: SW-846 3510C-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
13D1148-01 [Sump RGP Baseline]	B072107	1000	1.00	04/30/13

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B072135 - SW-846 5030B										
Blank (B072135-BLK1)				Prepared: 05/01/13 Analyzed: 05/02/13						
Acetone	ND	10	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	5.0	µg/L							
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	1.0	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	10	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	5.0	µg/L							
Carbon Disulfide	ND	5.0	µg/L							
Carbon Tetrachloride	ND	1.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L							V-05
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	0.50	µg/L							
cis-1,3-Dichloropropene	ND	0.40	µg/L							
trans-1,3-Dichloropropene	ND	0.40	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							V-16
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.50	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							R-05
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
Methylene Chloride	ND	5.0	µg/L							
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	ND	2.0	µg/L							L-04, R-05, V-05

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B072135 - SW-846 5030B												
Blank (B072135-BLK1)				Prepared: 05/01/13 Analyzed: 05/02/13								
n-Propylbenzene	ND	1.0	µg/L									
Styrene	ND	1.0	µg/L									
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L									
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L									
Tetrachloroethylene	ND	1.0	µg/L									
Tetrahydrofuran	ND	2.0	µg/L									
Toluene	ND	1.0	µg/L									
1,2,3-Trichlorobenzene	ND	2.0	µg/L								R-05, V-05	
1,2,4-Trichlorobenzene	ND	1.0	µg/L								V-05	
1,1,1-Trichloroethane	ND	1.0	µg/L									
1,1,2-Trichloroethane	ND	1.0	µg/L									
Trichloroethylene	ND	1.0	µg/L									
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L									
1,2,3-Trichloropropane	ND	2.0	µg/L									
1,2,4-Trimethylbenzene	ND	1.0	µg/L									
1,3,5-Trimethylbenzene	ND	1.0	µg/L									
Vinyl Chloride	ND	2.0	µg/L									
m+p Xylene	ND	2.0	µg/L									
o-Xylene	ND	1.0	µg/L									
Surrogate: 1,2-Dichloroethane-d4	*24.8*		µg/L	25.0		99.3		70-130				
Surrogate: Toluene-d8	*24.9*		µg/L	25.0		99.5		70-130				
Surrogate: 4-Bromofluorobenzene	*24.5*		µg/L	25.0		97.9		70-130				
LCS (B072135-BS1)				Prepared: 05/01/13 Analyzed: 05/02/13								
Acetone	124	10	µg/L	100		124		40-160				†
tert-Amyl Methyl Ether (TAME)	11.6	5.0	µg/L	10.0		116		70-130				
Benzene	11.9	1.0	µg/L	10.0		119		70-130				
Bromobenzene	10.2	1.0	µg/L	10.0		102		70-130				
Bromochloromethane	13.4	1.0	µg/L	10.0		**134**	*	70-130			L-02	
Bromodichloromethane	10.2	1.0	µg/L	10.0		102		70-130				
Bromoform	8.39	1.0	µg/L	10.0		83.9		70-130				
Bromomethane	6.25	2.0	µg/L	10.0		62.5		40-160			L-14	†
2-Butanone (MEK)	114	10	µg/L	100		114		40-160				†
n-Butylbenzene	11.0	1.0	µg/L	10.0		110		70-130				
sec-Butylbenzene	11.7	1.0	µg/L	10.0		117		70-130				
tert-Butylbenzene	11.6	1.0	µg/L	10.0		116		70-130				
tert-Butyl Ethyl Ether (TBEE)	12.2	5.0	µg/L	10.0		122		70-130				
Carbon Disulfide	14.1	5.0	µg/L	10.0		**141**	*	70-130			L-02, V-20	
Carbon Tetrachloride	10.3	1.0	µg/L	10.0		103		70-130				
Chlorobenzene	11.0	1.0	µg/L	10.0		110		70-130				
Chlorodibromomethane	10.2	0.50	µg/L	10.0		102		70-130				
Chloroethane	12.3	2.0	µg/L	10.0		123		70-130				
Chloroform	9.87	2.0	µg/L	10.0		98.7		70-130				
Chloromethane	10.6	2.0	µg/L	10.0		106		40-160			V-20	†
2-Chlorotoluene	11.0	1.0	µg/L	10.0		110		70-130				
4-Chlorotoluene	11.3	1.0	µg/L	10.0		113		70-130				
1,2-Dibromo-3-chloropropane (DBCP)	6.43	2.0	µg/L	10.0		**64.3**	*	70-130			L-07, V-05	
1,2-Dibromoethane (EDB)	9.96	0.50	µg/L	10.0		99.6		70-130				
Dibromomethane	10.3	1.0	µg/L	10.0		103		70-130				
1,2-Dichlorobenzene	10.9	1.0	µg/L	10.0		109		70-130				
1,3-Dichlorobenzene	11.3	1.0	µg/L	10.0		113		70-130				
1,4-Dichlorobenzene	10.4	1.0	µg/L	10.0		104		70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B072135 - SW-846 5030B												
LCS (B072135-BS1)				Prepared: 05/01/13 Analyzed: 05/02/13								
Dichlorodifluoromethane (Freon 12)	7.10	2.0	µg/L	10.0		71.0		40-160				†
1,1-Dichloroethane	12.0	1.0	µg/L	10.0		120		70-130				
1,2-Dichloroethane	9.55	1.0	µg/L	10.0		95.5		70-130				
1,1-Dichloroethylene	11.9	1.0	µg/L	10.0		119		70-130				
cis-1,2-Dichloroethylene	11.5	1.0	µg/L	10.0		115		70-130				
trans-1,2-Dichloroethylene	12.8	1.0	µg/L	10.0		128		70-130				
1,2-Dichloropropane	11.8	1.0	µg/L	10.0		118		70-130				
1,3-Dichloropropane	10.3	0.50	µg/L	10.0		103		70-130				
2,2-Dichloropropane	10.9	1.0	µg/L	10.0		109		70-130				
1,1-Dichloropropene	11.7	0.50	µg/L	10.0		117		70-130				
cis-1,3-Dichloropropene	11.1	0.40	µg/L	10.0		111		70-130				
trans-1,3-Dichloropropene	11.8	0.40	µg/L	10.0		118		70-130				
Diethyl Ether	11.5	2.0	µg/L	10.0		115		70-130				
Diisopropyl Ether (DIPE)	14.8	0.50	µg/L	10.0		**148**	*	70-130			L-02, V-20	
1,4-Dioxane	97.7	50	µg/L	100		97.7		40-160			V-16	†
Ethylbenzene	10.9	1.0	µg/L	10.0		109		70-130				
Hexachlorobutadiene	10.6	0.50	µg/L	10.0		106		70-130				
2-Hexanone (MBK)	107	10	µg/L	100		107		40-160			R-05	†
Isopropylbenzene (Cumene)	10.9	1.0	µg/L	10.0		109		70-130				
p-Isopropyltoluene (p-Cymene)	11.6	1.0	µg/L	10.0		116		70-130				
Methyl tert-Butyl Ether (MTBE)	11.4	1.0	µg/L	10.0		114		70-130				
Methylene Chloride	15.6	5.0	µg/L	10.0		**156**	*	70-130			L-02, V-20	
4-Methyl-2-pentanone (MIBK)	104	10	µg/L	100		104		40-160				†
Naphthalene	5.26	2.0	µg/L	10.0		**52.6**	*	70-130			L-04, R-05, V-05	
n-Propylbenzene	10.9	1.0	µg/L	10.0		109		70-130				
Styrene	10.8	1.0	µg/L	10.0		108		70-130				
1,1,1,2-Tetrachloroethane	10.2	1.0	µg/L	10.0		102		70-130				
1,1,2,2-Tetrachloroethane	8.52	0.50	µg/L	10.0		85.2		70-130				
Tetrachloroethylene	11.1	1.0	µg/L	10.0		111		70-130				
Tetrahydrofuran	11.6	2.0	µg/L	10.0		116		70-130				
Toluene	11.1	1.0	µg/L	10.0		111		70-130				
1,2,3-Trichlorobenzene	5.63	2.0	µg/L	10.0		**56.3**	*	70-130			L-07A, R-05, V-05	
1,2,4-Trichlorobenzene	8.07	1.0	µg/L	10.0		80.7		70-130			V-05	
1,1,1-Trichloroethane	10.7	1.0	µg/L	10.0		107		70-130				
1,1,2-Trichloroethane	9.57	1.0	µg/L	10.0		95.7		70-130				
Trichloroethylene	10.3	1.0	µg/L	10.0		103		70-130				
Trichlorofluoromethane (Freon 11)	10.1	2.0	µg/L	10.0		101		70-130				
1,2,3-Trichloropropane	8.35	2.0	µg/L	10.0		83.5		70-130				
1,2,4-Trimethylbenzene	10.8	1.0	µg/L	10.0		108		70-130				
1,3,5-Trimethylbenzene	9.71	1.0	µg/L	10.0		97.1		70-130				
Vinyl Chloride	10.2	2.0	µg/L	10.0		102		70-130				
m+p Xylene	22.0	2.0	µg/L	20.0		110		70-130				
o-Xylene	11.0	1.0	µg/L	10.0		110		70-130				
Surrogate: 1,2-Dichloroethane-d4	*24.0*		µg/L	25.0		95.8		70-130				
Surrogate: Toluene-d8	*25.1*		µg/L	25.0		100		70-130				
Surrogate: 4-Bromofluorobenzene	*24.2*		µg/L	25.0		96.6		70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes	
Batch B072135 - SW-846 5030B													
LCS Dup (B072135-BSD1)				Prepared: 05/01/13 Analyzed: 05/02/13									
Acetone	148	10	µg/L	100		148		40-160	17.8		20	L-14	†
tert-Amyl Methyl Ether (TAME)	13.0	5.0	µg/L	10.0		130		70-130	10.8		20		
Benzene	11.7	1.0	µg/L	10.0		117		70-130	1.52		20		
Bromobenzene	10.4	1.0	µg/L	10.0		104		70-130	1.65		20		
Bromochloromethane	13.3	1.0	µg/L	10.0		**133**	*	70-130	0.975		20	L-02	
Bromodichloromethane	10.3	1.0	µg/L	10.0		103		70-130	1.56		20		
Bromoform	9.01	1.0	µg/L	10.0		90.1		70-130	7.13		20		
Bromomethane	7.42	2.0	µg/L	10.0		74.2		40-160	17.1		20		†
2-Butanone (MEK)	138	10	µg/L	100		138		40-160	19.4		20	L-14	†
n-Butylbenzene	10.7	1.0	µg/L	10.0		107		70-130	2.12		20		
sec-Butylbenzene	11.3	1.0	µg/L	10.0		113		70-130	3.57		20		
tert-Butylbenzene	11.5	1.0	µg/L	10.0		115		70-130	1.21		20		
tert-Butyl Ethyl Ether (TBEE)	13.5	5.0	µg/L	10.0		**135**	*	70-130	10.3		20	L-07	
Carbon Disulfide	13.6	5.0	µg/L	10.0		**136**	*	70-130	3.10		20	L-02, V-20	
Carbon Tetrachloride	10.5	1.0	µg/L	10.0		105		70-130	1.34		20		
Chlorobenzene	10.8	1.0	µg/L	10.0		108		70-130	2.57		20		
Chlorodibromomethane	10.8	0.50	µg/L	10.0		108		70-130	5.83		20		
Chloroethane	12.2	2.0	µg/L	10.0		122		70-130	0.816		20		
Chloroform	10.2	2.0	µg/L	10.0		102		70-130	2.80		20		
Chloromethane	11.2	2.0	µg/L	10.0		112		40-160	5.87		20	V-20	†
2-Chlorotoluene	10.7	1.0	µg/L	10.0		107		70-130	2.87		20		
4-Chlorotoluene	11.0	1.0	µg/L	10.0		110		70-130	2.33		20		
1,2-Dibromo-3-chloropropane (DBCP)	7.81	2.0	µg/L	10.0		78.1		70-130	19.4		20	V-05	
1,2-Dibromoethane (EDB)	10.8	0.50	µg/L	10.0		108		70-130	8.37		20		
Dibromomethane	10.6	1.0	µg/L	10.0		106		70-130	2.98		20		
1,2-Dichlorobenzene	11.4	1.0	µg/L	10.0		114		70-130	4.41		20		
1,3-Dichlorobenzene	11.2	1.0	µg/L	10.0		112		70-130	0.800		20		
1,4-Dichlorobenzene	10.4	1.0	µg/L	10.0		104		70-130	0.289		20		
Dichlorodifluoromethane (Freon 12)	7.07	2.0	µg/L	10.0		70.7		40-160	0.423		20		†
1,1-Dichloroethane	12.0	1.0	µg/L	10.0		120		70-130	0.251		20		
1,2-Dichloroethane	9.97	1.0	µg/L	10.0		99.7		70-130	4.30		20		
1,1-Dichloroethylene	11.6	1.0	µg/L	10.0		116		70-130	2.13		20		
cis-1,2-Dichloroethylene	11.6	1.0	µg/L	10.0		116		70-130	0.691		20		
trans-1,2-Dichloroethylene	12.6	1.0	µg/L	10.0		126		70-130	1.02		20		
1,2-Dichloropropane	12.1	1.0	µg/L	10.0		121		70-130	2.51		20		
1,3-Dichloropropane	11.4	0.50	µg/L	10.0		114		70-130	10.6		20		
2,2-Dichloropropane	11.5	1.0	µg/L	10.0		115		70-130	5.35		20		
1,1-Dichloropropene	11.3	0.50	µg/L	10.0		113		70-130	3.66		20		
cis-1,3-Dichloropropene	11.7	0.40	µg/L	10.0		117		70-130	5.01		20		
trans-1,3-Dichloropropene	12.8	0.40	µg/L	10.0		128		70-130	8.03		20		
Diethyl Ether	12.4	2.0	µg/L	10.0		124		70-130	7.62		20		
Diisopropyl Ether (DIPE)	16.0	0.50	µg/L	10.0		**160**	*	70-130	7.34		20	L-02, V-20	
1,4-Dioxane	113	50	µg/L	100		113		40-160	14.3		20	V-16	†
Ethylbenzene	10.5	1.0	µg/L	10.0		105		70-130	3.46		20		
Hexachlorobutadiene	9.97	0.50	µg/L	10.0		99.7		70-130	6.31		20		
2-Hexanone (MBK)	132	10	µg/L	100		132		40-160	**21.0**	*	20	L-14, R-05	†
Isopropylbenzene (Cumene)	10.7	1.0	µg/L	10.0		107		70-130	1.85		20		
p-Isopropyltoluene (p-Cymene)	11.3	1.0	µg/L	10.0		113		70-130	2.79		20		
Methyl tert-Butyl Ether (MTBE)	12.9	1.0	µg/L	10.0		129		70-130	12.8		20		
Methylene Chloride	16.3	5.0	µg/L	10.0		**163**	*	70-130	4.31		20	L-02, V-20	
4-Methyl-2-pentanone (MIBK)	121	10	µg/L	100		121		40-160	14.5		20		†
Naphthalene	6.85	2.0	µg/L	10.0		**68.5**	*	70-130	**26.3**	*	20	L-04, R-05, V-05	

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes
Batch B072135 - SW-846 5030B											
LCS Dup (B072135-BSD1)				Prepared: 05/01/13 Analyzed: 05/02/13							
n-Propylbenzene	11.0	1.0	µg/L	10.0		110	70-130	1.46		20	
Styrene	10.8	1.0	µg/L	10.0		108	70-130	0.278		20	
1,1,1,2-Tetrachloroethane	10.1	1.0	µg/L	10.0		101	70-130	0.692		20	
1,1,2,2-Tetrachloroethane	9.35	0.50	µg/L	10.0		93.5	70-130	9.29		20	
Tetrachloroethylene	10.8	1.0	µg/L	10.0		108	70-130	2.19		20	
Tetrahydrofuran	11.6	2.0	µg/L	10.0		116	70-130	0.518		20	
Toluene	11.2	1.0	µg/L	10.0		112	70-130	0.987		20	
1,2,3-Trichlorobenzene	7.35	2.0	µg/L	10.0		73.5	70-130	**26.5**	*	20	R-05, V-05
1,2,4-Trichlorobenzene	8.90	1.0	µg/L	10.0		89.0	70-130	9.78		20	V-05
1,1,1-Trichloroethane	10.6	1.0	µg/L	10.0		106	70-130	0.659		20	
1,1,2-Trichloroethane	10.6	1.0	µg/L	10.0		106	70-130	10.4		20	
Trichloroethylene	10.5	1.0	µg/L	10.0		105	70-130	2.21		20	
Trichlorofluoromethane (Freon 11)	9.78	2.0	µg/L	10.0		97.8	70-130	3.32		20	
1,2,3-Trichloropropane	9.18	2.0	µg/L	10.0		91.8	70-130	9.47		20	
1,2,4-Trimethylbenzene	10.7	1.0	µg/L	10.0		107	70-130	1.02		20	
1,3,5-Trimethylbenzene	9.69	1.0	µg/L	10.0		96.9	70-130	0.206		20	
Vinyl Chloride	10.0	2.0	µg/L	10.0		100	70-130	1.59		20	
m+p Xylene	21.3	2.0	µg/L	20.0		106	70-130	3.42		20	
o-Xylene	10.7	1.0	µg/L	10.0		107	70-130	2.21		20	
Surrogate: 1,2-Dichloroethane-d4	*24.9*		µg/L	25.0		99.6	70-130				
Surrogate: Toluene-d8	*25.8*		µg/L	25.0		103	70-130				
Surrogate: 4-Bromofluorobenzene	*24.5*		µg/L	25.0		97.9	70-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B072107 - SW-846 3510C										
Blank (B072107-BLK1)				Prepared: 04/30/13 Analyzed: 05/02/13						
Acenaphthene	ND	5.0	µg/L							
Acenaphthylene	ND	5.0	µg/L							
Acetophenone	ND	10	µg/L							
Aniline	ND	5.0	µg/L							
Anthracene	ND	5.0	µg/L							V-05
Benzo(a)anthracene	ND	5.0	µg/L							
Benzo(a)pyrene	ND	5.0	µg/L							
Benzo(b)fluoranthene	ND	5.0	µg/L							
Benzo(g,h,i)perylene	ND	5.0	µg/L							R-05
Benzo(k)fluoranthene	ND	5.0	µg/L							
Bis(2-chloroethoxy)methane	ND	10	µg/L							
Bis(2-chloroethyl)ether	ND	10	µg/L							
Bis(2-chloroisopropyl)ether	ND	10	µg/L							
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L							
4-Bromophenylphenylether	ND	10	µg/L							
Butylbenzylphthalate	ND	10	µg/L							
4-Chloroaniline	ND	10	µg/L							V-05
2-Chloronaphthalene	ND	10	µg/L							L-04
2-Chlorophenol	ND	10	µg/L							
Chrysene	ND	5.0	µg/L							
Dibenz(a,h)anthracene	ND	5.0	µg/L							
Dibenzofuran	ND	5.0	µg/L							
Di-n-butylphthalate	ND	10	µg/L							V-05
1,2-Dichlorobenzene	ND	5.0	µg/L							
1,3-Dichlorobenzene	ND	5.0	µg/L							
1,4-Dichlorobenzene	ND	5.0	µg/L							
3,3-Dichlorobenzidine	ND	10	µg/L							
2,4-Dichlorophenol	ND	10	µg/L							
Diethylphthalate	ND	10	µg/L							
2,4-Dimethylphenol	ND	10	µg/L							
Dimethylphthalate	ND	10	µg/L							
2,4-Dinitrophenol	ND	10	µg/L							
2,4-Dinitrotoluene	ND	10	µg/L							
2,6-Dinitrotoluene	ND	10	µg/L							
Di-n-octylphthalate	ND	10	µg/L							
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	µg/L							
Fluoranthene	ND	5.0	µg/L							
Fluorene	ND	5.0	µg/L							
Hexachlorobenzene	ND	10	µg/L							
Hexachlorobutadiene	ND	10	µg/L							
Hexachloroethane	ND	5.0	µg/L							
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/L							
Isophorone	ND	10	µg/L							
2-Methylnaphthalene	ND	5.0	µg/L							
2-Methylphenol	ND	10	µg/L							
3/4-Methylphenol	ND	10	µg/L							
Naphthalene	ND	5.0	µg/L							
Nitrobenzene	ND	10	µg/L							
2-Nitrophenol	ND	10	µg/L							
4-Nitrophenol	ND	10	µg/L							
Pentachlorophenol	ND	10	µg/L							
Phenanthrene	ND	5.0	µg/L							

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B072107 - SW-846 3510C												
Blank (B072107-BLK1)				Prepared: 04/30/13 Analyzed: 05/02/13								
Phenol	ND	10	µg/L									
Pyrene	ND	5.0	µg/L									
1,2,4-Trichlorobenzene	ND	5.0	µg/L									
2,4,5-Trichlorophenol	ND	10	µg/L									
2,4,6-Trichlorophenol	ND	10	µg/L									
Surrogate: 2-Fluorophenol	*74.4*		µg/L	200		37.2		15-110				
Surrogate: Phenol-d6	*72.6*		µg/L	200		36.3		15-110				
Surrogate: Nitrobenzene-d5	*69.4*		µg/L	100		69.4		30-130				
Surrogate: 2-Fluorobiphenyl	*61.8*		µg/L	100		61.8		30-130				
Surrogate: 2,4,6-Tribromophenol	*117*		µg/L	200		58.7		15-110				
Surrogate: p-Terphenyl-d14	*65.9*		µg/L	100		65.9		30-130				
LCS (B072107-BS1)				Prepared: 04/30/13 Analyzed: 05/02/13								
Acenaphthene	74.1	5.0	µg/L	100		74.1		40-140				
Acenaphthylene	70.4	5.0	µg/L	100		70.4		40-140				
Acetophenone	81.9	10	µg/L	100		81.9		40-140				
Aniline	45.7	5.0	µg/L	100		45.7		40-140				
Anthracene	65.7	5.0	µg/L	100		65.7		40-140			V-05	
Benzo(a)anthracene	97.4	5.0	µg/L	100		97.4		40-140				
Benzo(a)pyrene	91.5	5.0	µg/L	100		91.5		40-140				
Benzo(b)fluoranthene	108	5.0	µg/L	100		108		40-140				
Benzo(g,h,i)perylene	43.6	5.0	µg/L	100		43.6		40-140			R-05	
Benzo(k)fluoranthene	71.0	5.0	µg/L	100		71.0		40-140				
Bis(2-chloroethoxy)methane	102	10	µg/L	100		102		40-140				
Bis(2-chloroethyl)ether	87.2	10	µg/L	100		87.2		40-140				
Bis(2-chloroisopropyl)ether	84.6	10	µg/L	100		84.6		40-140				
Bis(2-Ethylhexyl)phthalate	84.7	10	µg/L	100		84.7		40-140				
4-Bromophenylphenylether	73.6	10	µg/L	100		73.6		40-140				
Butylbenzylphthalate	88.8	10	µg/L	100		88.8		40-140				
4-Chloroaniline	52.5	10	µg/L	100		52.5		15-140			V-05	†
2-Chloronaphthalene	35.6	10	µg/L	100		**35.6**	*	40-140			L-04	
2-Chlorophenol	79.6	10	µg/L	100		79.6		30-130				
Chrysene	77.1	5.0	µg/L	100		77.1		40-140				
Dibenz(a,h)anthracene	57.0	5.0	µg/L	100		57.0		40-140				
Dibenzofuran	73.9	5.0	µg/L	100		73.9		40-140				
Di-n-butylphthalate	77.6	10	µg/L	100		77.6		40-140			V-05	
1,2-Dichlorobenzene	77.4	5.0	µg/L	100		77.4		40-140				
1,3-Dichlorobenzene	77.0	5.0	µg/L	100		77.0		40-140				
1,4-Dichlorobenzene	75.7	5.0	µg/L	100		75.7		40-140				
3,3-Dichlorobenzidine	59.3	10	µg/L	100		59.3		40-140				
2,4-Dichlorophenol	79.6	10	µg/L	100		79.6		30-130				
Diethylphthalate	68.5	10	µg/L	100		68.5		40-140				
2,4-Dimethylphenol	83.7	10	µg/L	100		83.7		30-130				
Dimethylphthalate	79.7	10	µg/L	100		79.7		40-140				
2,4-Dinitrophenol	81.2	10	µg/L	100		81.2		15-140				†
2,4-Dinitrotoluene	69.4	10	µg/L	100		69.4		40-140				
2,6-Dinitrotoluene	57.0	10	µg/L	100		57.0		40-140				
Di-n-octylphthalate	106	10	µg/L	100		106		40-140				
1,2-Diphenylhydrazine (as Azobenzene)	86.2	10	µg/L	100		86.2		40-140				
Fluoranthene	82.5	5.0	µg/L	100		82.5		40-140				
Fluorene	68.2	5.0	µg/L	100		68.2		40-140				
Hexachlorobenzene	77.3	10	µg/L	100		77.3		40-140				

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QUALITY CONTROL

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes	
Batch B072107 - SW-846 3510C													
LCS (B072107-BS1)				Prepared: 04/30/13 Analyzed: 05/02/13									
Hexachlorobutadiene	71.7	10	µg/L	100		71.7		40-140					
Hexachloroethane	65.0	5.0	µg/L	100		65.0		40-140					
Indeno(1,2,3-cd)pyrene	59.7	5.0	µg/L	100		59.7		40-140					
Isophorone	87.2	10	µg/L	100		87.2		40-140					
2-Methylnaphthalene	72.5	5.0	µg/L	100		72.5		40-140					
2-Methylphenol	89.2	10	µg/L	100		89.2		30-130					
3/4-Methylphenol	81.6	10	µg/L	100		81.6		30-130					
Naphthalene	70.3	5.0	µg/L	100		70.3		40-140					
Nitrobenzene	78.5	10	µg/L	100		78.5		40-140					
2-Nitrophenol	81.0	10	µg/L	100		81.0		30-130					
4-Nitrophenol	78.9	10	µg/L	100		78.9		15-140					†
Pentachlorophenol	100	10	µg/L	100		100		30-130					
Phenanthrene	80.7	5.0	µg/L	100		80.7		40-140					
Phenol	52.4	10	µg/L	100		52.4		15-140					†
Pyrene	85.5	5.0	µg/L	100		85.5		40-140					
1,2,4-Trichlorobenzene	75.8	5.0	µg/L	100		75.8		40-140					
2,4,5-Trichlorophenol	71.6	10	µg/L	100		71.6		30-130					
2,4,6-Trichlorophenol	93.2	10	µg/L	100		93.2		30-130					
Surrogate: 2-Fluorophenol	*130*		µg/L	200		65.0		15-110					
Surrogate: Phenol-d6	*94.0*		µg/L	200		47.0		15-110					
Surrogate: Nitrobenzene-d5	*79.9*		µg/L	100		79.9		30-130					
Surrogate: 2-Fluorobiphenyl	*75.0*		µg/L	100		75.0		30-130					
Surrogate: 2,4,6-Tribromophenol	*143*		µg/L	200		71.7		15-110					
Surrogate: p-Terphenyl-d14	*81.6*		µg/L	100		81.6		30-130					
LCS Dup (B072107-BSD1)				Prepared: 04/30/13 Analyzed: 05/02/13									
Acenaphthene	71.4	5.0	µg/L	100		71.4		40-140	3.75		20		
Acenaphthylene	69.3	5.0	µg/L	100		69.3		40-140	1.63		20		
Acetophenone	79.5	10	µg/L	100		79.5		40-140	2.98		20		
Aniline	51.7	5.0	µg/L	100		51.7		40-140	12.3		20		
Anthracene	60.8	5.0	µg/L	100		60.8		40-140	7.73		20	V-05	
Benzo(a)anthracene	86.6	5.0	µg/L	100		86.6		40-140	11.7		20		
Benzo(a)pyrene	83.7	5.0	µg/L	100		83.7		40-140	8.83		20		
Benzo(b)fluoranthene	98.6	5.0	µg/L	100		98.6		40-140	8.74		20		
Benzo(g,h,i)perylene	35.3	5.0	µg/L	100		**35.3**	*	40-140	**21.1**	*	20	L-07A	
Benzo(k)fluoranthene	67.5	5.0	µg/L	100		67.5		40-140	5.10		20		
Bis(2-chloroethoxy)methane	94.7	10	µg/L	100		94.7		40-140	7.77		20		
Bis(2-chloroethyl)ether	82.2	10	µg/L	100		82.2		40-140	5.95		20		
Bis(2-chloroisopropyl)ether	80.7	10	µg/L	100		80.7		40-140	4.83		20		
Bis(2-Ethylhexyl)phthalate	82.4	10	µg/L	100		82.4		40-140	2.78		20		
4-Bromophenylphenylether	68.0	10	µg/L	100		68.0		40-140	7.92		20		
Butylbenzylphthalate	82.4	10	µg/L	100		82.4		40-140	7.44		20		
4-Chloroaniline	43.5	10	µg/L	100		43.5		15-140	18.7		20	V-05	†
2-Chloronaphthalene	38.6	10	µg/L	100		**38.6**	*	40-140	8.07		20	L-04	
2-Chlorophenol	76.4	10	µg/L	100		76.4		30-130	4.17		20		
Chrysene	77.9	5.0	µg/L	100		77.9		40-140	1.06		20		
Dibenz(a,h)anthracene	51.7	5.0	µg/L	100		51.7		40-140	9.78		20		
Dibenzofuran	69.0	5.0	µg/L	100		69.0		40-140	6.84		20		
Di-n-butylphthalate	66.8	10	µg/L	100		66.8		40-140	14.9		20	V-05	
1,2-Dichlorobenzene	72.6	5.0	µg/L	100		72.6		40-140	6.41		20		
1,3-Dichlorobenzene	71.8	5.0	µg/L	100		71.8		40-140	6.92		20		
1,4-Dichlorobenzene	71.1	5.0	µg/L	100		71.1		40-140	6.21		20		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B072107 - SW-846 3510C										
LCS Dup (B072107-BSD1)				Prepared: 04/30/13 Analyzed: 05/02/13						
3,3-Dichlorobenzidine	60.3	10	µg/L	100		60.3	40-140	1.74	20	
2,4-Dichlorophenol	74.7	10	µg/L	100		74.7	30-130	6.40	20	
Diethylphthalate	65.2	10	µg/L	100		65.2	40-140	4.98	20	
2,4-Dimethylphenol	79.6	10	µg/L	100		79.6	30-130	4.97	20	
Dimethylphthalate	73.2	10	µg/L	100		73.2	40-140	8.56	20	
2,4-Dinitrophenol	74.7	10	µg/L	100		74.7	15-140	8.37	20	†
2,4-Dinitrotoluene	67.7	10	µg/L	100		67.7	40-140	2.51	20	
2,6-Dinitrotoluene	59.2	10	µg/L	100		59.2	40-140	3.78	20	
Di-n-octylphthalate	93.0	10	µg/L	100		93.0	40-140	12.7	20	
1,2-Diphenylhydrazine (as Azobenzene)	77.0	10	µg/L	100		77.0	40-140	11.3	20	
Fluoranthene	70.3	5.0	µg/L	100		70.3	40-140	15.9	20	
Fluorene	65.1	5.0	µg/L	100		65.1	40-140	4.65	20	
Hexachlorobenzene	72.4	10	µg/L	100		72.4	40-140	6.59	20	
Hexachlorobutadiene	66.2	10	µg/L	100		66.2	40-140	8.02	20	
Hexachloroethane	60.4	5.0	µg/L	100		60.4	40-140	7.23	20	
Indeno(1,2,3-cd)pyrene	49.4	5.0	µg/L	100		49.4	40-140	19.0	20	
Isophorone	80.7	10	µg/L	100		80.7	40-140	7.76	20	
2-Methylnaphthalene	66.0	5.0	µg/L	100		66.0	40-140	9.33	20	
2-Methylphenol	83.8	10	µg/L	100		83.8	30-130	6.22	20	
3/4-Methylphenol	79.9	10	µg/L	100		79.9	30-130	2.13	20	
Naphthalene	64.4	5.0	µg/L	100		64.4	40-140	8.75	20	
Nitrobenzene	74.2	10	µg/L	100		74.2	40-140	5.71	20	
2-Nitrophenol	75.8	10	µg/L	100		75.8	30-130	6.63	20	
4-Nitrophenol	69.1	10	µg/L	100		69.1	15-140	13.2	20	†
Pentachlorophenol	82.1	10	µg/L	100		82.1	30-130	19.6	20	
Phenanthrene	67.3	5.0	µg/L	100		67.3	40-140	18.0	20	
Phenol	43.4	10	µg/L	100		43.4	15-140	18.8	20	†
Pyrene	77.0	5.0	µg/L	100		77.0	40-140	10.5	20	
1,2,4-Trichlorobenzene	69.0	5.0	µg/L	100		69.0	40-140	9.50	20	
2,4,5-Trichlorophenol	71.2	10	µg/L	100		71.2	30-130	0.547	20	
2,4,6-Trichlorophenol	85.5	10	µg/L	100		85.5	30-130	8.65	20	
Surrogate: 2-Fluorophenol	*119*		µg/L	200		59.6	15-110			
Surrogate: Phenol-d6	*87.0*		µg/L	200		43.5	15-110			
Surrogate: Nitrobenzene-d5	*75.0*		µg/L	100		75.0	30-130			
Surrogate: 2-Fluorobiphenyl	*73.8*		µg/L	100		73.8	30-130			
Surrogate: 2,4,6-Tribromophenol	*127*		µg/L	200		63.6	15-110			
Surrogate: p-Terphenyl-d14	*73.8*		µg/L	100		73.8	30-130			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B072119 - SW-846 3510C										
Blank (B072119-BLK1)				Prepared: 04/30/13 Analyzed: 05/01/13						
Aroclor-1016	ND	0.20	µg/L							
Aroclor-1016 [2C]	ND	0.20	µg/L							
Aroclor-1221	ND	0.20	µg/L							
Aroclor-1221 [2C]	ND	0.20	µg/L							
Aroclor-1232	ND	0.20	µg/L							
Aroclor-1232 [2C]	ND	0.20	µg/L							
Aroclor-1242	ND	0.20	µg/L							
Aroclor-1242 [2C]	ND	0.20	µg/L							
Aroclor-1248	ND	0.20	µg/L							
Aroclor-1248 [2C]	ND	0.20	µg/L							
Aroclor-1254	ND	0.20	µg/L							
Aroclor-1254 [2C]	ND	0.20	µg/L							
Aroclor-1260	ND	0.20	µg/L							
Aroclor-1260 [2C]	ND	0.20	µg/L							
Aroclor-1262	ND	0.20	µg/L							
Aroclor-1262 [2C]	ND	0.20	µg/L							
Aroclor-1268	ND	0.20	µg/L							
Aroclor-1268 [2C]	ND	0.20	µg/L							
Surrogate: Decachlorobiphenyl	*1.85*		µg/L	2.00		92.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.08*		µg/L	2.00		104	30-150			
Surrogate: Tetrachloro-m-xylene	*1.71*		µg/L	2.00		85.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.88*		µg/L	2.00		94.2	30-150			
LCS (B072119-BS1)				Prepared: 04/30/13 Analyzed: 05/01/13						
Aroclor-1016	0.55	0.20	µg/L	0.500		110	40-140			
Aroclor-1016 [2C]	0.55	0.20	µg/L	0.500		110	40-140			
Aroclor-1260	0.53	0.20	µg/L	0.500		105	40-140			
Aroclor-1260 [2C]	0.58	0.20	µg/L	0.500		116	40-140			
Surrogate: Decachlorobiphenyl	*1.92*		µg/L	2.00		95.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.16*		µg/L	2.00		108	30-150			
Surrogate: Tetrachloro-m-xylene	*1.79*		µg/L	2.00		89.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.99*		µg/L	2.00		99.3	30-150			
LCS Dup (B072119-BSD1)				Prepared: 04/30/13 Analyzed: 05/01/13						
Aroclor-1016	0.51	0.20	µg/L	0.500		103	40-140	6.84	20	
Aroclor-1016 [2C]	0.51	0.20	µg/L	0.500		102	40-140	7.10	20	
Aroclor-1260	0.49	0.20	µg/L	0.500		97.1	40-140	8.03	20	
Aroclor-1260 [2C]	0.53	0.20	µg/L	0.500		106	40-140	8.20	20	
Surrogate: Decachlorobiphenyl	*1.90*		µg/L	2.00		94.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	*2.13*		µg/L	2.00		107	30-150			
Surrogate: Tetrachloro-m-xylene	*1.72*		µg/L	2.00		85.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.90*		µg/L	2.00		95.0	30-150			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B072099 - SW-846 3005A										
Blank (B072099-BLK1)				Prepared: 04/30/13 Analyzed: 05/01/13						
Iron	ND	0.050	mg/L							
LCS (B072099-BS1)				Prepared: 04/30/13 Analyzed: 05/01/13						
Iron	0.520	0.050	mg/L	0.500		104	80-120			
LCS Dup (B072099-BSD1)				Prepared: 04/30/13 Analyzed: 05/01/13						
Iron	0.521	0.050	mg/L	0.500		104	80-120	0.193	20	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B072123 - EPA 1664A										
Blank (B072123-BLK1)				Prepared & Analyzed: 05/01/13						
Silica Gel Treated HEM (SGT-HEM)	ND	1.4	mg/L							
LCS (B072123-BS1)				Prepared & Analyzed: 05/01/13						
Silica Gel Treated HEM (SGT-HEM)	20		mg/L	20.0		102	64-132			
Duplicate (B072123-DUP1)	**Source: 13D1148-01**			Prepared & Analyzed: 05/01/13						
Silica Gel Treated HEM (SGT-HEM)	ND	1.4	mg/L		ND			NC	18	
Batch B072208 - EPA 420.1										
Blank (B072208-BLK1)				Prepared & Analyzed: 05/06/13						
Phenol	ND	0.050	mg/L							
LCS (B072208-BS1)				Prepared & Analyzed: 05/06/13						
Phenol	0.57	0.050	mg/L	0.500		113	80.2-133			
LCS Dup (B072208-BSD1)				Prepared & Analyzed: 05/06/13						
Phenol	0.56	0.050	mg/L	0.500		111	80.2-133	1.57	20.7	
Duplicate (B072208-DUP1)	**Source: 13D1148-01**			Prepared & Analyzed: 05/06/13						
Phenol	ND	0.050	mg/L		ND			NC	20	
Matrix Spike (B072208-MS1)	**Source: 13D1148-01**			Prepared & Analyzed: 05/06/13						
Phenol	0.59	0.050	mg/L	0.500	ND	118	36.6-163			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.
L-07A	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD outside of control limits. Reduced precision anticipated for any reported result for this compound.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
RL-05	Elevated reporting limit due to high concentration of target compounds. MA CAM reporting limit not met.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the low side.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 420.1 in Water	
Phenol	CT,MA,NH,NY,RI,NC,ME,VA
SW-846 6010C in Water	
Iron	CT,NH,NY,ME,NC,VA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NC
Aroclor-1262 [2C]	NC
Aroclor-1268	NC
Aroclor-1268 [2C]	NC
SW-846 8260C in Water	
Acetone	CT,NH,NY,ME
tert-Amyl Methyl Ether (TAME)	NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	NY,ME
sec-Butylbenzene	NY,ME
tert-Butylbenzene	NY,ME
tert-Butyl Ethyl Ether (TBEE)	NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	NY,ME
4-Chlorotoluene	NY,ME
Dibromomethane	NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Water	
1,2-Dichlorobenzene	CT,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NH,NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
Diisopropyl Ether (DIPE)	NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	CT,NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	NY,ME
p-Isopropyltoluene (p-Cymene)	CT,NH,NY,ME
Methyl tert-Butyl Ether (MTBE)	CT,NH,NY,ME
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY,ME
Naphthalene	NH,NY,ME
n-Propylbenzene	CT,NH,NY,ME
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NH,NY,ME
1,2,4-Trichlorobenzene	CT,NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	NY,ME
1,3,5-Trimethylbenzene	NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Water	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Water	
Aniline	CT,NY
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	CT,NY,NH
1,3-Dichlorobenzene	CT,NY,NH
1,4-Dichlorobenzene	CT,NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Water	
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2013
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2013
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2013
FL	Florida Department of Health	E871027 NELAP	06/30/2013
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2013
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2013
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2012

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Company Name: CLEAN PROPERTIES INC
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Client PO# 0549

DATA DELIVERY (check all that apply)
○ FAX ⊘ EMAIL ○ WEBSITE
Fax #
Email: data@cleanproperties.com
Format: ⊘ PDF ⊘ EXCEL ○ GIS
○ OTHER
○ "Enhanced Data Package"

Project Proposal Provided? (for billing purposes)
○ yes _____ proposal date

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection Beginning Date/Time	Collection Ending Date/Time	Composite	Grab	*Matrix Code	Conc Code	# of Containers	** Preservation	*** Container Code	ANALYSIS REQUESTED: TPH 1664	PCBs 8082	8270	PHENOLS	TOTAL Fe	8260
								2	IS	A						
								2	I	A						
								2	I	A						
								1	IS	A						
								1	INH	P						
								3	IH	V						
01	SUMP RGP BASELINE	4-26-13	1123	X		GW	U				X	X	X	X	X	
02	SR-2	↓	1300	X KB	X	↓	↓									X

Dissolved Metals
○ Field Filtered
○ Lab to Filter

***Cont. Code:
A=amber glass
G=glass
P=plastic
ST=sterile
V=vial
S=summa can
T=tedlar bag
O=Other

**Preservation
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfat
X = Na hydroxide
T = Na thiosulfate
O = Other_____

*Matrix Code:
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other_____

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Comments:

Relinquished by: (signature)	Date/Time:
	4-29-13
Received by: (signature)	Date/Time:
	4/29/13 1250
Relinquished by: (signature)	Date/Time:
	4/29/13 1740
Received by: (signature) 5.1°C	Date/Time:
	4/29/13 17:40

Turnaround ††
☐ 7-Day
☐ 10-Day
☒ Other 5
RUSH †
☐ †24-Hr ☐ †48-Hr
☐ †72-Hr ☐ †4-Day
Require lab approval

Detection Limit Requirements
Massachusetts: Natural Ambient Water Quality Criteria (Chronic)
Connecticut:
Other:

Is your project MCP or RCP?
⊘ MCP Form Required
○ RCP Form Required
○ MA State DW Form Required PWSID # _____

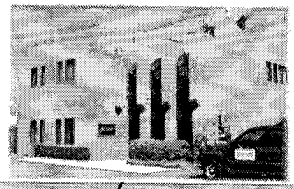
NELAC & AIHA-LAP, LLC Accredited
WBE/DBE Certified

†† TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com

con-test® ANALYTICAL LABORATORY



Sample Receipt Checklist

CLIENT NAME: Clean Properties RECEIVED BY: KKM DATE: 4/29/13

1) **Was the chain(s) of custody relinquished and signed?** (Yes) No No CoC Included
2) **Does the chain agree with the samples?** (Yes) No
   If not, explain:
3) **Are all the samples in good condition?** (Yes) No
   If not, explain:
4) **How were the samples received:**
   On Ice [6] Direct from Sampling [ ] Ambient [ ] In Cooler(s) [6]
   Were the samples received in Temperature Compliance of (2-6°C)? (Yes) No N/A
   Temperature °C by Temp blank _____ Temperature °C by Temp gun 5.1
5) **Are there Dissolved samples for the lab to filter?** Yes (No)
   Who was notified _____ Date _____ Time _____
6) **Are there any RUSH or SHORT HOLDING TIME samples?** Yes (No)
   Who was notified _____ Date _____ Time _____
7) **Location where samples are stored:** 19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) **Do all samples have the proper Acid pH:** (Yes) No N/A _____
9) **Do all samples have the proper Base pH:** Yes No (N/A) _____
10) **Was the PC notified of any discrepancies with the CoC vs the samples:** Yes No N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber	6	8 oz amber/clear jar	
500 mL Amber	1	4 oz amber/clear jar	
250 mL Amber (8oz amber)		2 oz amber/clear jar	
1 Liter Plastic		Air Cassette	
500 mL Plastic		Hg/Hopcalite Tube	
250 mL plastic	1	Plastic Bag / Ziploc	
40 mL Vial - type listed below	3	PM 2.5 / PM 10	
Colisure / bacteria bottle		PUF Cartridge	
Dissolved Oxygen bottle		SOC Kit	
Encore		TO-17 Tubes	
Flashpoint bottle		Non-ConTest Container	
Perchlorate Kit		Other glass jar	
Other		Other	

Laboratory Comments:

40 mL vials: # HCl 3 # Methanol _____
Bisulfate _____ # DI Water _____
Thiosulfate _____ Unpreserved

Time and Date Frozen:

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory	Project #: 13D1148
Project Location: 8 Forest St., Medford, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

13D1148-01 thru 13D1148-02

Matrices: Water

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB ( )	MassDEP VPH CAM IV A ( )	8081 Pesticides CAM V B ( )	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
8270 SVOC CAM II B (X)	7010 Metals CAM III C ( )	MassDEP EPH CAM IV A ( )	8151 Herbicides CAM V C ( )	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )
6010 Metals CAM III A ( )	6020 Metals CAM III D ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )	

Affirmative response to Questions A throughF is 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?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
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?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
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).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes	☑ No[1]

<u>Data User Note:</u> 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 perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

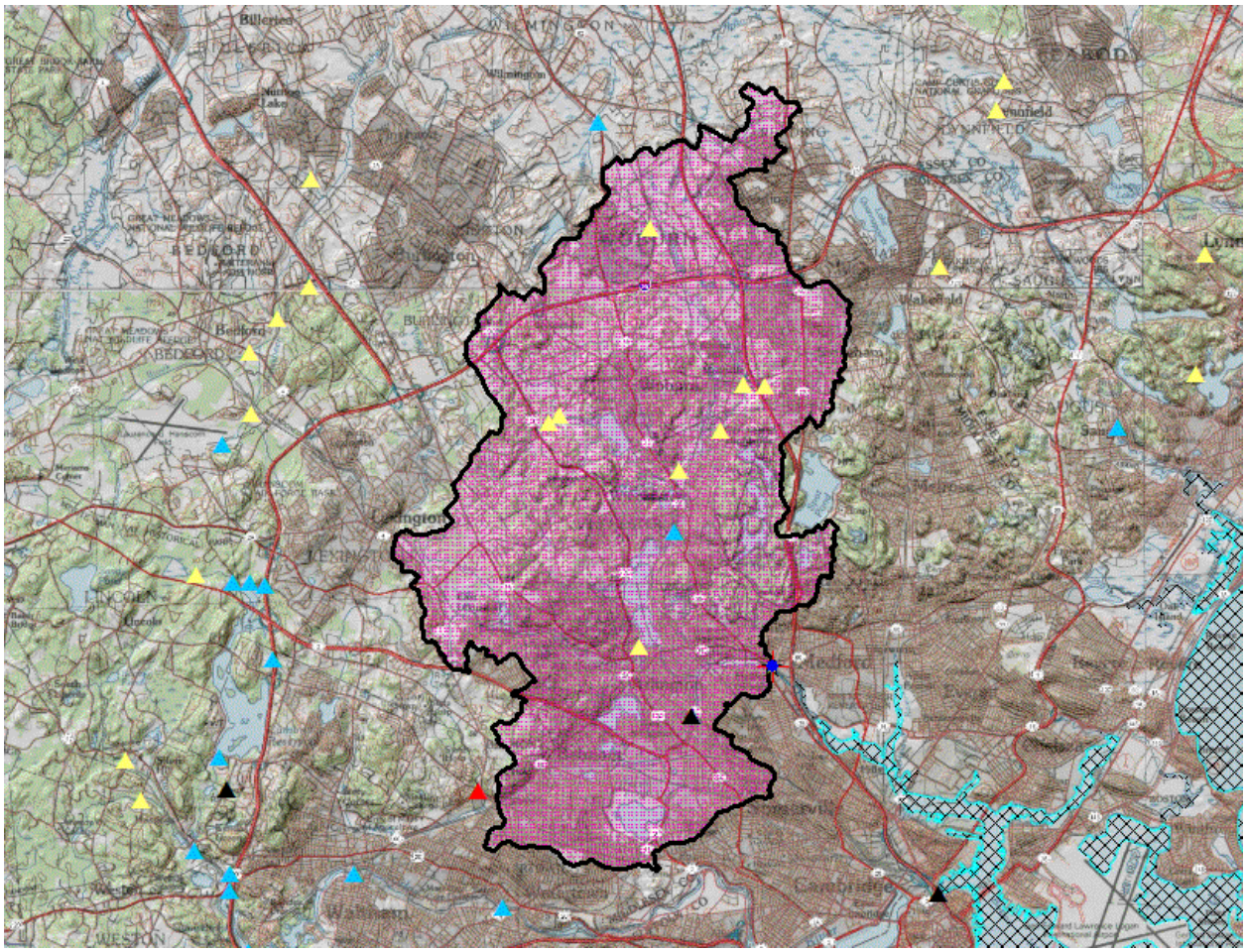
[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

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, accurate and complete.

Signature:  Position: Laboratory Director

Printed Name: Michael A. Erickson Date: 05/06/13

APPENDIX C



US Geological Survey *Streamstats* Delineation of the Mystic River Watershed Upstream from the Discharge Point

Print

Streamstats Ungaged Site Report

Date: Thu Jun 27 2013 08:47:39 Mountain Daylight Time
Site Location: Massachusetts
NAD27 Latitude: 42.4176 (42 25 03)
NAD27 Longitude: -71.1104 (-71 06 38)
NAD83 Latitude: 42.4177 (42 25 04)
NAD83 Longitude: -71.1099 (-71 06 36)
ReachCode: 01090001000242
Measure: 37.60
Drainage Area: 47.2 mi2
Percent Urban: 79.7 %
Percent Impervious: 41.3 %

Low Flows Basin Characteristics

100% Statewide Low Flow (47.2 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	47.2	1.61	149
Mean Basin Slope from 250K DEM (percent)	2.43	0.32	24.6
Stratified Drift per Stream Length (square mile per mile)	0.25	0	1.29
Massachusetts Region (dimensionless)	0	0	1

Probability of Perennial Flow Basin Characteristics

100% Perennial Flow Probability (47.2 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	47.2 (above max value 1.99)	0.01	1.99
Percent Underlain By Sand And Gravel (percent)	44.80	0	100
Percent Forest (percent)	11.96	0	100
Massachusetts Region (dimensionless)	0	0	1

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

Low Flows Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D50	48.7	18		27.4	86
D60	38.4	20		16.1	91.1
D70	25.8	24		10.3	64.2
D75	20.8	26		8.34	51.2
D80	17.3	28		6.8	43.2
D85	13.4	32		5.15	34.4
D90	10.7	37		3.92	28.5
D95	6.74	46		2.17	20.2
D98	4.42	60		1.24	14.9
D99	3.48	65		0.92	12.4
M7D2Y	6.97	50		2.12	22.1
AUGD50	14.3	33		5.5	36.8
M7D10Y	3.33	71		0.83	12.5

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

Probability of Perennial Flow Statistics

Statistic	Value	Standard Error (percent)
PROBPEREN	1	

APPENDIX D

Massachusetts Year 2012 Integrated List of Waters

Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act

Featuring new water quality assessments for the Blackstone, Boston Harbor (including Mystic, Neponset and Weymouth/Weir), Merrimack and Parker watersheds and the Cape Cod coastal drainage areas

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Richard K. Sullivan, Jr., Secretary
Massachusetts Department of Environmental Protection
Kenneth L. Kimmell, Commissioner
Bureau of Resource Protection
Bethany A. Card, Assistant Commissioner

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Lee River	MA61-01	From confluence with Lewin Brook, Swansea to Route 6, Swansea/Somerset	0.02	SQUARE MILES	Fecal Coliform	38905
					Nutrient/Eutrophication Biological Indicators	
Lee River	MA61-02	Route 6, Swansea/Somerset to mouth at Mount Hope Bay, Swansea/Somerset	0.51	SQUARE MILES	(Debris/Floatables/Trash*)	
					Chlorophyll-a	
					Fecal Coliform	38906
					Nitrogen (Total)	
					Oxygen, Dissolved	
					Taste and Odor	
Mount Hope Bay	MA61-06	the Massachusetts portion from the Braga Bridge, Fall River/Somerset to the state border Fall River, MA/Tiverton, RI to the line from Braton Point Somerset to MA/RI border approximately 3/4 of a mile due east of Spar Island, RI	2.29	SQUARE MILES	Chlorophyll-a	
					Fecal Coliform	38908
					Fishes Bioassessments	
					Nitrogen (Total)	
					Temperature, water	
Mount Hope Bay	MA61-07	the Massachusetts portion from mouth of Cole River (at old railway grade), Swansea to state border Swansea, MA/Warren, RI to the line from Brayton Point, Somerset to MA/RI border approximately 3/4 of a mile due east of Spar Island, RI to the line between Bay Point, Swansea and Brayton Point, Somerset (the mouth of the Lee River)	1.84	SQUARE MILES	Chlorophyll-a	
					Fecal Coliform	38909
					Fishes Bioassessments	
					Nitrogen (Total)	
					Oxygen, Dissolved	
					Temperature, water	
Mystic						
Aberjona River	MA71-01	Source just south of Birch Meadow Drive, Reading to inlet Upper Mystic Lake at Mystic Valley Parkway, Winchester (portion culverted underground). (through former pond segments Judkins Pond MA71021 and Mill Pond MA71031).	9.1	MILES	(Physical substrate habitat alterations*)	
					Ammonia (Un-ionized)	
					Aquatic Macroinvertebrate Bioassessments	
					Arsenic	
					Escherichia coli	
					Oxygen, Dissolved	
					Phosphorus (Total)	
					Sediment Bioassays -- Chronic Toxicity Freshwater	
					Turbidity	

* TMDL not required (Non-pollutant)

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Alewife Brook	MA71-04	Outlet of Little Pond, Belmont to confluence with Mystic River, Arlington/Somerville (portion in Belmont and Cambridge identified as Little River with name changing to Alewife Brook at Arlington corporate boundary).	2.3	MILES	(Debris/Floatables/Trash*)	
					Copper	
					Escherichia coli	
					Foam/Flocs/Scum/Oil Slicks	
					Lead	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					Phosphorus (Total)	
					Secchi disk transparency	
					Sediment Bioassays -- Chronic Toxicity Freshwater	
					Taste and Odor	
Belle Isle Inlet	MA71-14	From tidegate at Bennington Street, Boston/Revere to confluence with Winthrop Bay, Boston/Winthrop.	0.12	SQUARE MILES	Fecal Coliform	
					Other	
					PCB in Fish Tissue	
Blacks Nook	MA71005	Cambridge	2	ACRES	(Non-Native Aquatic Plants*)	
					Nutrient/Eutrophication Biological Indicators	
					Secchi disk transparency	
Chelsea River	MA71-06	From confluence with Mill Creek, Chelsea/Revere to confluence with Boston Inner Harbor, Chelsea/East Boston/Charlestown.	0.38	SQUARE MILES	(Debris/Floatables/Trash*)	
					Ammonia (Un-ionized)	
					Fecal Coliform	
					Other	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					Petroleum Hydrocarbons	
					Sediment Screening Value (Exceedence)	
					Taste and Odor	
					Turbidity	
Clay Pit Pond	MA71011	Belmont	12	ACRES	Chlordane	
Ell Pond	MA71014	Melrose	23	ACRES	Chlorophyll-a	
					Fecal Coliform	
					Phosphorus (Total)	
					Secchi disk transparency	
					Total Suspended Solids (TSS)	

* TMDL not required (Non-pollutant)

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Horn Pond	MA71019	Woburn	108	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	
					Oxygen, Dissolved	
					Phosphorus (Total)	
Lower Mystic Lake	MA71027	Arlington/Medford	93	ACRES	DDT	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					Salinity	
					Sediment Bioassays -- Chronic Toxicity Freshwater	
					Sulfide-Hydrogen Sulfide	
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	MA71-08	From Route 1, Chelsea/Revere to confluence with Chelsea River, Chelsea/Revere.	0.02	SQUARE MILES	Fecal Coliform	
					Other	
					PCB in Fish Tissue	

* TMDL not required (Non-pollutant)

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
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	
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	Sediment Screening Value (Exceedence)	
					Ammonia (Un-ionized)	
					Fecal Coliform	
					Foam/Flocs/Scum/Oil Slicks	
					Other	
					Oxygen, Dissolved	
					PCB in Fish Tissue	
					Petroleum Hydrocarbons	
					Taste and Odor	
Spy Pond	MA71040	Arlington	98	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					Chlordane	
					DDT	
					Excess Algal Growth	
					Oxygen, Dissolved	
					Phosphorus (Total)	
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	Escherichia coli	

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Upper Mystic Lake	MA71043	Winchester/Arlington/Medford	176	ACRES	(Non-Native Aquatic Plants*)	
					Dissolved oxygen saturation	
					Oxygen, Dissolved	
Wedge Pond	MA71045	Winchester	23	ACRES	Oxygen, Dissolved	
					Phosphorus (Total)	
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	(Physical substrate habitat alterations*)	
					Escherichia coli	
Winter Pond	MA71047	Winchester	18	ACRES	(Non-Native Aquatic Plants*)	
					Nutrient/Eutrophication Biological Indicators	
Narragansett Bay						
Palmer River	MA53-04	From confluence of East and West Branches of the Palmer River, Rehoboth to the Shad Factory Pond dam, Rehoboth	5.6	MILES	(Low flow alterations*)	
					Fecal Coliform	35086
					Nutrient/Eutrophication Biological Indicators	
Runnins River	MA53-01	Route 44, Seekonk to Mobile Dam, Seekonk, MA/East Providence, RI (through Burrs Pond formerly segment MA53001)	3.7	MILES	(Debris/Floatables/Trash*)	
					Aquatic Macroinvertebrate Bioassessments	
					Fecal Coliform	38903
					Mercury in Fish Tissue	33880
					Nutrient/Eutrophication Biological Indicators	
					Oil and Grease	
					Oxygen, Dissolved	
Nashua						
Asnebumskit Brook	MA81-56	From outlet Eagle Lake, Holden to the confluence with the Quinapoxet River, Holden.	2.9	MILES	Ambient Bioassays -- Chronic Aquatic Toxicity	
Bartlett Pond	MA81008	Lancaster	5	ACRES	Escherichia coli	
Fort Pond	MA81046	Lancaster	76	ACRES	Oxygen, Dissolved	
Gates Brook	MA81-24	Headwaters west of Prospect Street, West Boylston to inlet Wachusett Reservoir (Gates Cove), West Boylston.	3.4	MILES	Fecal Coliform	

* TMDL not required (Non-pollutant)

APPENDIX E

Section 6e Historic Places Documentation

The National Register of Historic Places (NRHP) and Massachusetts Cultural Information Resource System (MCIRS) Databases were searched June 12, 2013.

According to the National Register of Historic Places Database and Massachusetts Cultural Information Resource System Database, the following listed addresses are in the vicinity of the discharge that is the subject of this Notice of Intent:

20-30 High Street

43 High Street

Bigelow Block (NE corner of Forest and Salem Streets)

US Post Office (20 Forest Street)

Salem Street Burying Ground (Medford Square)

The Medford Historical Society was not able to determine the eligibility of 8 Forest St and 5 High Street for inclusion on the National Historic Register.

Per Criteria 2, the project does involve new construction and/or the demolition or rehabilitation of existing buildings or other structures or facilities and historic properties are not affected by the discharge or identified in the path of the discharges regulated by this permit and are not identified where installation or construction of treatment systems or BMPs to control such discharges (e.g., diversion channels or retention ponds) are planned.

APPENDIX F

SAFETY DATA SHEET for OZONE

(Formerly MSDS)

1. PRODUCT IDENTIFICATION

Product Name: Ozone

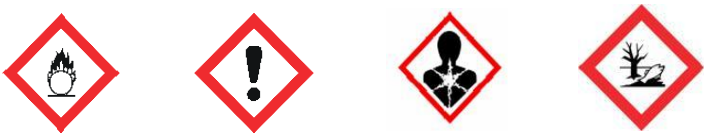
Common Names/Synonyms: Triatomic Oxygen, Trioxygen, O_3

Ozone Generator Manufacturer/Supplier

Ozone Solutions, Inc. website: www.ozonesolutions.com
451 Black Forest Rd. email: tech@ozonesolutions.com
Hull, IA 51239
712-439-6880

Product Use: This SDS is limited to ozone produced in gaseous form on site by an ozone generator, in varying concentrations in either air or aqueous solution, for the purposes of odor abatement, oxidation of organic compounds, or antimicrobial intervention, in a variety of applications, from food processing to ground water remediation.

2. HAZARD IDENTIFICATION



GHS Classifications:

Physical Hazards	Health Hazards	Environmental Hazards
Oxidizing Gas	Skin Irritation – Category 3	Acute Aquatic Toxicity – Category I
	Eye Irritation – Category 2B	
	Respiratory Systemic Toxicity – Category 1 (Acute & Repeated Exposures)	

NOTE: Severe respiratory toxicity will develop before skin or eye irritation go beyond listed categories. ***Anyone with chronic pulmonary problems, especially asthma, should avoid exposure to ozone.***

WHMIS Classifications (Workplace Hazardous Materials Information System, Canada)

D1A	Acute lethality – Very toxic, immediately	C	Oxidizing
D2A	Chronic Toxicity –Very Toxic	F	Dangerously Reactive
D2B	Mutagenicity – Toxic		

3. COMPOSITION

Chemical name	Ozone
Common names	Triatomic oxygen, trioxygen
Chemical Formula	O_3
CAS Registry Number	10028-15-6

4. FIRST AID MEASURES

Route of Entry		**Symptoms**	**First Aid**
Skin Contact	YES	Irritation	Rinse with water
Skin Absorption	NO	NA	NA
Eye Contact	YES	Irritation	Rinse with water, remove contacts
Ingestion	NO	NA	NA
Inhalation	YES	Headache, cough, dry throat, heavy chest, shortness of breath	Remove to fresh air, provide oxygen therapy as needed

For severe cases, or when symptoms don't improve, seek medical help.

5. FIRE FIGHTING MEASURES

While ozone itself is not flammable, it is a strong oxidant and may accelerate, even initiate, combustion, or cause explosions. Use whatever extinguishing agents are indicated for burning materials.

6. ACCIDENTAL RELEASE MEASURES

Turn off ozone generator, and ventilate the area. Evacuate the area until ozone levels subside.

7. HANDLING AND STORAGE

Ozone must be contained within ozone-resistant tubing and pipes from the generation point to the application point. Any leaks must be repaired before further use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Permissible Exposure Limit: 8 hour Time Weighted Average **0.1 ppm**
ANSI/ASTM: 8 hour TWA **0.1 ppm**, Short Term Exposure Limit **0.3 ppm**
ACGIH: 8 hour TWA **0.1 ppm**; STEL **0.3 ppm**
NIOSH: Exposure Limit Ceiling Value **0.1 ppm** light; **0.08 ppm** moderate; **0.05 ppm**, heavy;
Light, moderate, heavy work TWA <= 2 hours, **.2 ppm**
Immediately Dangerous to Life or Health **5 ppm**

Respiratory Protection: Use full face self-contained breathing apparatus for entering areas with high concentration of ozone.

Engineering controls: use ozone destruct units (thermal and/or catalytic) for off gassing ozone.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Gas	pH	NA
Molecular Weight	48.0	Flash point	NA
Appearance	Clear at low concentrations, blue at higher concentrations	Evaporation rate	NA
Odor	Distinctive pungent odor	Flammability	NA
Odor threshold	0.02 to 0.05 ppm; exposure desensitizes	Explosive limits	NA

Melting point	-193°C/-315°F	Relative density	NA
Boiling point	-112°C/-169°F	Partition coefficient	NA
Vapor pressure	> 1 atm	Auto-ignition temperature	NA
Vapor density	1.6 (air = 1)	Decomposition temperature	NA
Solubility in water	570 mg/L @20°C, 100% O_3; 0.64 @0°C (vol/vol)	Viscosity	NA

10. STABILITY AND REACTIVITY

Ozone is highly unstable and highly reactive. Avoid contact with oxidizable substances, including alkenes, benzene and other aromatic compounds, rubber, dicyanogen, bromine diethyl ether, dintrogen tetroxide, nitrogen trichloride, hydrogen bromide, and tetraluorohydrazine. Ozone will readily react and spontaneously decompose under normal ambient temperatures.

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure: inhalation, eyes, skin exposure.

Effects of Acute Exposure: Discomfort, including headache, coughing, dry throat, shortness of breath, heavy feeling in chest (including possible pulmonary edema/fluid in the lungs); higher levels of exposure intensify symptoms. Irritation of skin and/or eyes is also possible.

Effects of Chronic Exposure: Similar to acute exposure effects, with possible development of chronic breathing disorders, including asthma.

Inhalation LC_{50}: mice, 12.6 ppm for 3 hours; hamsters, 35.5 ppm for 3 hours

Irritancy of Ozone	YES
Sensitization to Ozone	NO
Carcinogenicity (NTP, IARC, OSHA)	NO
Reproductive Toxicity	Not Proven
Teratogenicity	Not Proven
Mutagenicity	Not Proven
Toxicologically Synergistic Products	Increase susceptibility to allergens, pathogens, irritants

12. ECOLOGICAL INFORMATION

The immediate surrounding area may be adversely affected by an ozone release, particularly plant life. Discharge of ozone in water solution would also be harmful to any aquatic life. Due to natural decomposition, bioaccumulation will not occur, and the area affected would be limited.

13. DISPOSAL CONSIDERATIONS

Off-gassing of ozone should be through an ozone destruct unit which uses heat and/or a catalyst to accomplish the breakdown of ozone to oxygen before release into the atmosphere.

14. TRANSPORT INFORMATION

NOT APPLICABLE, as ozone is unstable and either reacts with other substances in the environment or decomposes, and therefore must be generated at the location and time of use.

15. REGULATORY INFORMATION

SARA = Superfund Amendments and Renewal Act
SARA Title III Section 302 Extremely Hazardous Substance TPQ: 100 lbs.
SARA Title III Section 304, EHS RQ: 100 lbs.
SARA Title III Section 313: Ozone is reportable if more than 10,000 lbs. are used/year.

TPQ (Threshold Planning Quantity) requires emergency planning activities if this amount is on site at any time during year

RQ (Reportable Quantity) requires any release of this amount into the environment to be reported to the National Response Center

Source: EPA List of Lists

16. OTHER INFORMATION

The half-life of ozone is much shorter in water than in air. Increased temperature in either solvent decreases the half-life. Published research indicates a half-life of 20 minutes for ozone dissolved in water at 20^{o}C, and a half-life of approximately 25 hours for ozone in dry air at 24^{o}C (McClurkin & Maier, 2010). The practical half-life time is actually less, especially in air, due to air circulation, humidity, the presence of contaminants or walls with which to react, etc. In many situations, with air movement, warmer temperatures, and normal relative humidity, the half-life of ozone in air could be 1 hour or less. Further, ventilation of a closed space to other areas will also disperse the ozone, so that concentration levels can rapidly decrease after generation ceases.

Source websites:

Canadian Centre for Occupational Health and Safety: Chemical Profiles: Ozone
http://www.ccohs.ca/oshanswers/chemicals/chem_profiles/ozone/

Haz-Map: Occupational Exposure to Hazardous Agents: Ozone
http://hazmap.nlm.nih.gov/cgi-bin/hazmap_generic?tbl=TblAgents&id=68

International Chemical Safety Cards #0068: Ozone
http://www.cdc.gov/niosh/ipcsneng/neng0068.html

NIOSH Pocket Guide to Chemical Hazards: Ozone http://www.cdc.gov/niosh/npg/npgd0476.html

United States National Library of Medicine ChemIDplus Lite: Ozone 10028-15-6
http://chem.sis.nlm.nih.gov/chemidplus/ProxyServlet?objectHandle=DBMaint&actionHandle=default&nextPage=jsp/chemidlite/ResultScreen.jsp&TXTSUPERLISTID=0010028156

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Emergency Phone Number:
724.827.8181

MSDS Date: 5/14/2003

Material Safety Data Sheet

Section 1 – Product Identification

Chemical Name:	Carbon	Trade Name:	Activated/Reactivated Carbon (Granular, Pelletized or Powdered)
Formula:	C	Common Name:	Carbon
CAS Number:	7440-44-0	Chemical Family:	Element, Group IV-A

Section 2 – Ingredients (Typical Values)

Carbon	----------	90-100%
Inert Ingredients	----------	0-10%

Section 3 - Physical And Chemical Data

● Boiling Point:	8721° F, 4827° C (Approx.)	● Vapor Pressure:	N/A
● Vapor Density:	N/A	● Solubility in Water:	Insoluble
● Specific Gravity:	0.2 – 0.75	● Percent, Volatile by Volume:	N/A
● Appearance:	Black, Odorless, Pelletized, Powder	● Evaporation Rate:	N/A

Section 4 - Fire And Explosion Hazard Data

- Flash Point: N/A
- Ignition Point: 500-800° F
- Extinguishing Media: Dry Chemical, Water Fog, Foam
- Special Fire Fighting Procedures: Wear positive pressure self-contained breathing apparatus if fire occurs in enclosed space. Oxygen starved fires may result in the release of carbon monoxide.
- Unusual Fires And Explosion Hazards: Avoid producing suspensions of dust during handling, and avoid exposure of suspensions to sources of ignition. Suspensions of -40 mesh powdered activated carbon may explode if exposed to strong sources of ignition

Section 5 - Health Hazard Data

- Eye: Carbon particles may cause physical irritation if not removed.
- Skin Contact: Constant prolonged exposure may cause dryness or chapping of exposed area
- Skin Adsorption: Not adsorbed by skin.
- Ingestion: No adverse affect unless quantity ingested causes physical discomfort.
- Inhalation: No toxic affect caused by dust. As with any dust, excessive exposure should be avoided. OSHA "Nuisance Dust" limitations should be observed
- Systemic And Other Effects: None

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Section 5 - Health Hazard Data *(continued)*

- Eyes: Irrigate with water immediately. Repeat as needed to flush particle from eye. If irritation persists, consult medical personnel.
- Skin: Wash with soap and water to avoid skin drying or chapping.
- Ingestion: N/A
- Inhalation: N/A

Section 6 - Reactivity Data Compatibility Data

- Stability: Avoid contact with strong oxidizing chemicals, such as ozone, perchloric acid, permanganate, sodium chlorite, etc. Exposure to hydrocarbons and vegetable oils may cause slow oxidation until ignition point is reached--contact should be avoided.
- Incompatibility: Strong oxidizing materials.
- Hazardous Decomposition Products: Oxygen starved combustion may yield carbon monoxide.
- Hazardous Polymerization: Will not occur.

Section 7 - Storage Handling And Use

- Action To Take For Spills: Shovel and sweep material into appropriate container. If necessary wash area with water.
- Disposal Method: Reactivation, landfill or incineration, in accordance with applicable regulations.

Section 8 - Personnel Protection

- Ventilation: Local exhaust recommended minimizing dust exposure.
- Respiratory Protection: Approved "nuisance dust" dust masks should be worn in dust exposure areas.
- Protective Clothing: Protective gloves can be worn.
- Eye Protection: Safety glasses with side shields should be worn and eye wash capabilities should be available.

Section 9 - Special Precautions And Additional Information

Precautions to be taken in handling and storage: keep dry; wet carbon will adsorb oxygen and may reduce oxygen levels in confined spaces to dangerous levels. Adequate ventilation and precautions should be employed whenever closed tanks, receptacles or other enclosed spaces containing carbon are accessed. Suspensions of dust should be avoided and exposure of suspensions of dust to sources of ignition should be avoided.