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

CERTIFIED MAIL RETURN RECEIPT REQUESTED

JUL 26 2012

Susan O'Brien
Senior Project Manager
Environmental Compliance Services
10 State Street
Woburn, MA 01801

Re: Authorization to discharge under the Remediation General Permit (RGP) – MAG910000. Beachmont Elementary School site located at 15 Everard Avenue, Revere MA 02151, Suffolk County; Authorization # MAG910551

Dear Ms. O'Brien:

Based on the review of a Notice of Intent (NOI) submitted on behalf of the Revere Public Schools Department and the City of Revere, Massachusetts, by your firm Environmental Compliance Services, 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 that exceeded Appendix III limits. The checklist also includes other parameters for which your laboratory reports indicated there was insufficient sensitivity to detect these parameters at the minimum levels established in Appendix VI of the RGP.

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

EPA determined that the Dilution Factor Range (DFR) for each parameter for this site is in the one and five (1-5) range. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limits for antimony of trivalent chromium of 100ug/L, hexavalent chromium of 50.3ug/L, zinc of 85.6ug/L and iron of 1,000ug/L, are required to achieve permit compliance at your site.

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

This general permit and authorization to discharge will expire on September 9, 2015. You have reported that this project will terminate on August 30, 2012. If for any reason the discharge terminates sooner you are required to submit a Notice of Termination (NOT) to the attention of the contact person indicated below within 30 days of project completion.

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

Sincerely,

Thelma Murphy

Thelma Murphy, Manager
Storm Water and Construction
Permits Section

Enclosure

cc: Kathleen Keohane, MassDEP
Donald Goodwin, City of Revere DPW
Matthew Project Manager

2010 Remediation General Permit
Summary of Monitoring Parameters[1]

NPDES Authorization Number:	**MAG910551**
Authorization Issued:	July, 2012
Facility/Site Name:	Beachmont Elementary School
Facility/Site Address:	15 Everard Avenue, Revere Massachusetts 02151
	Email address of owner: pdakin@revere.mec.edu
Legal Name of Operator:	Environmental Compliance Services
Operator contact name, title, and Address:	Susan O'Brien, Senior Project Manager, 10 State Street, Woburn, MA 01801
	Email: sobrien@ecsconsult.com
Estimated date of Completion:	August 30, 2012
Category and Sub-Category:	Category B- Petroleum Related Site Remediation. Subcategory B. Fuel Oils and Other Oils Sites
RGP Termination Date:	September 10, 2015
Receiving Water:	Belle Isle Inlet

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#60.2/ML5ug/L
	2. Total Residual Chlorine (TRC) [1]	Freshwater = 11 ug/L ** Saltwater = 7.5 ug/L **/ Me#330.5/ML 20ug/L
√	3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/L/ Me# 1664A/ML 5.0mg/L
	4. Cyanide (CN) [2, 3]	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
√	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ ML 2ug/L
	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L

	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

	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

			Saltwater		
	39. Antimony	5.6/ML 10			
	40. Arsenic **		36/ML 20		
	41. Cadmium **		8.9/ML 10		
√	42. Chromium III (trivalent) **		100/ML 15		
√	43. Chromium VI (hexavalent) **		50.3/ML 10		
	44. Copper **		3.7/ML 15		
	45. Lead **		8.5/ML 20		
	46. Mercury **		1.1/ML 0.2		
	47. Nickel **		8.2/ML 20		
	48. Selenium **		71/ML 20		
	49. Silver		2.2/ML 10		
√	50. Zinc **		85.6/ML 15		
√	51. Iron	1,000/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).
[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

ecs
WHERE BUSINESS AND THE ENVIRONMENT CONVERGE

10 State Street, Woburn, MA 01801 tel 781.246.8897 fax 781.246.8950 www.ecsconsult.com

July 17, 2012

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

ECS Project No. 05-203823.01

RE: Notice of Intent for Remediation General Permit
Beachmont Elementary School
15 Everard Avenue
Revere, Massachusetts 02151

To Whom it May Concern:

At the request of the Revere Public Schools Department and the City of Revere (City), Environmental Compliance Services, Inc. (ECS) is submitting the attached Notice of Intent for Remediation General Permit (RGP-NOI) for the above-referenced location, referred to as the Site. The City is in the process of repairing a process water line. Temporary dewatering is required to access and repair the water line. The RGP-NOI is included as Appendix A. A Site Location Map and Site Map are provided as Figures 1 and 2, respectively.

The Site is the location of a subsurface release of No. 2 fuel oil that was reported in 2002. The Massachusetts Department of Environmental Protection (MassDEP) assigned release tracking number (RTN) 3-22311 to the release. Comprehensive response actions were initiated, and currently groundwater monitoring and manual bailing of non-aqueous phase liquid is being conducted on a monthly basis.

During initial excavation activities at the water line location which began on June 28, 2012, groundwater was pumped into a fractionation tank. The rate of groundwater recharge is rapid and the water line could not be repaired. Therefore, excavation activities were halted and it was proposed to discharge treated groundwater to the storm drain system. On July 12, 2012, a water sample was collected from the fractionation tank. Per RGP-NOI Appendix III regulations, groundwater samples were analyzed for parameters applicable to Category I, Subcategory B. The laboratory analytical report is included in Appendix B.

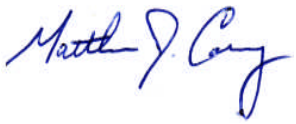
According to the Massachusetts Geographical Information System (MassGIS) and the tables and maps shown in Appendix I of the RGP-NOI, the Site and the storm drain discharge location (Belle Isle Inlet) are located within an Area of Critical Environmental Concern (ACEC). Neither the Site nor the discharge area is located within a Habitats of Rare Wetland Wildlife. A review of information on the U.S. Fish and Wildlife Service website indicates that the project will not impact federally-listed threatened or endangered species, and no further coordination with the U.S. Fish and Wildlife Service was needed. A copy of the “no species present” letter is attached (Appendix C).

According to the National Park Service’s National Register Information System, and the Massachusetts Historical Commission’s Massachusetts Cultural Resource Information System (MACRIS), no historical sites are listed for the facility or discharge location (Appendix D).

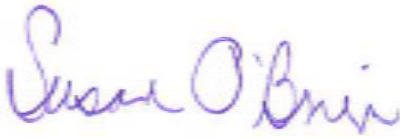
If you have any questions or require additional information, please contact the undersigned.

Sincerely,

ENVIRONMENTAL COMPLIANCE SERVICES, INC.



Matthew Carey
Senior Project Manager



Susan O'Brien, LSP
Senior Project Manager

cc: MassDEP, Division of Watershed Management
City of Revere, School Department

APPENDIX A
RGP-NOI

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:** Beachmont Elementary School		**Facility/site** mailing address:		
Location of **facility/site:** longitude: 42.395556 latitude: 70.992222	Facility SIC code(s): 8211	Street: 15 Everard Avenue		
b) Name of **facility/site owner:**		Town: Revere		
Email address of facility/site owner: Revere Public Schools (Paul Dakin)-pdakin@revere.mec.edu		State: MA	Zip: 02151	County: Suffolk
Telephone no. of facility/site **owner:** 781-286-8226				
Fax no. of facility/site **owner:**		**Owner** is (check one): 1. Federal ○ 2. State/Tribal ◉ 3. Private ○ 4. Other ○ if so, describe:		
Address of **owner** (if different from site):				
Street: 101 School Street				
Town: Revere	State: Ma	Zip: 02151	County: Suffolk	
c) Legal name of **operator:** Environmental Compliance Services		**Operator** telephone no: 781-246-8897		
		Operator fax no.: 413-789-2776	**Operator** email: sobrien@ecsconsult.com	
Operator contact name and title: Susan O'Brien, Senior Project Manager				
Address of **operator** (if different from owner):	Street: 10 State Street			
Town: Woburn	State: MA	Zip: 01801	County: 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: RTN 3-22311 and RTN 3-30912
2. permit or license # assigned:
3. state agency contact information: name, location, and telephone number:
MassDEP BWSC, Northeast Region Office, Wilmington, MA
978-694-3200

f) Is the site/facility covered by any other EPA permit, including:
1. Multi-Sector General Permit? Y ○ N ◉,
if Y, number:
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:

Dewatering of excavation during water line repair.

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 0.134 Is maximum flow a **design value**? Y ◉ N ○
Average flow (include units) 0.089 Is average flow a design value or estimate? estimate

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

pt.1: lat	70 59' 35.51"	long	42 23' 35.51"	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 7/23/2012 end 8/30/2012

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). Groundwater pumped from excavation. See attached figures for treatment and discharge points. Receiving water is Belle Isle Inlet.

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	1664 Rev. A	1,000	<1,000	0	<1,000	0
4. Cyanide (CN)	57125	☐	☐								
5. Benzene (B)	71432	☒	☐	1	grab	SW846 5030	1.00	<1.00	0	<1.00	0
6. Toluene (T)	108883	☒	☐	1	grab	SW846 5030	1.00	<1.00	0	<1.00	0
7. Ethylbenzene (E)	100414	☒	☐	1	grab	SW846 5030	1.00	<1.00	0	<1.00	0
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207	☒	☐	1	grab	SW846 5030	1.00	<1.00	0	<1.00	0
9. Total BTEX [2]	n/a	☒	☐	1	grab	SW846 5030	1.00	<1.00	0	<1.00	0
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) [3]	106934	☐	☐								
11. Methyl-tert-Butyl Ether (MtBE)	1634044	☐	☐								
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	☐	☐								
14. Naphthalene	91203	☐	☒	1	grab	SW846 5030	1.00	1.20	2.6e-4	1.20	2.6e-4
15. Carbon Tetrachloride	56235	☐	☐								
16. 1,2 Dichlorobenzene (o-DCB)	95501	☐	☐								
17. 1,3 Dichlorobenzene (m-DCB)	541731	☐	☐								
18. 1,4 Dichlorobenzene (p-DCB)	106467	☐	☐								
18a. Total dichlorobenzene		☐	☐								
19. 1,1 Dichloroethane (DCA)	75343	☐	☐								
20. 1,2 Dichloroethane (DCA)	107062	☐	☐								
21. 1,1 Dichloroethene (DCE)	75354	☐	☐								
22. cis-1,2 Dichloroethene (DCE)	156592	☐	☐								
23. Methylene Chloride	75092	☐	☐								
24. Tetrachloroethene (PCE)	127184	☐	☐								
25. 1,1,1 Trichloro-ethane (TCA)	71556	☐	☐								
26. 1,1,2 Trichloro-ethane (TCA)	79005	☐	☐								
27. Trichloroethene (TCE)	79016	☐	☐								

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	☐	☐								
29. Acetone	67641	☒	☐	1	grab	SW846 5030	10.0	<10.0	0	<10.0	0
30. 1,4 Dioxane	123911	☐	☐								
31. Total Phenols	108952	☐	☐								
32. Pentachlorophenol (PCP)	87865	☐	☐								
33. Total Phthalates (Phthalate esters) [4]		☐	☐								
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117817	☐	☐								
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐	1	grab	SW846 351(	6.10	<6.10	0	<6.10	0
a. Benzo(a) Anthracene	56553	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
b. Benzo(a) Pyrene	50328	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
c. Benzo(b)Fluoranthene	205992	☒	☐	1	grab	SW846 351(	6.10	<6.10	0	<6.10	0
d. Benzo(k)Fluoranthene	207089	☒	☐	1	grab	SW846 351(	6.10	<6.10	0	<6.10	0
e. Chrysene	21801	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
f. Dibenzo(a,h)anthracene	53703	☒	☐	1	grab	SW846 351(	6.10	<6.10	0	<6.10	0
g. Indeno(1,2,3-cd) Pyrene	193395	☒	☐	1	grab	SW846 351(	6.10	<6.10	0	<6.10	0
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		☒	☐	1	grab	SW846 351(	6.10	<6.10	0	<6.10	0

[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	SW846 3510C	6.10	<6.10	0	<6.10	0
i. Acenaphthylene	208968	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
j. Anthracene	120127	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
k. Benzo(ghi) Perylene	191242	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
l. Fluoranthene	206440	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
m. Fluorene	86737	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
n. Naphthalene	91203	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
o. Phenanthrene	85018	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
p. Pyrene	129000	☒	☐	1	grab	SW846 3510C	6.10	<6.10	0	<6.10	0
37. Total Polychlorinated Biphenyls (PCBs)	85687; 84742; 117840; 84662; 131113; 117817.	☐	☐								
38. Chloride	16887006	☐	☐								
39. Antimony	7440360	☐	☐								
40. Arsenic	7440382	☐	☐								
41. Cadmium	7440439	☐	☐								
42. Chromium III (trivalent)	16065831	☐	☒	1	grab	Calculation	5	20.2	0.0044	20.2	0.0044
43. Chromium VI (hexavalent)	18540299	☒	☐	1	grab	7196A	125	<125	0	<125	0
44. Copper	7440508	☐	☐								
45. Lead	7439921	☐	☐								
46. Mercury	7439976	☐	☐								
47. Nickel	7440020	☐	☒	1	grab	SW846 6010C	5	19.7	.0043	19.7	0.0043
48. Selenium	7782492	☐	☐								
49. Silver	7440224	☐	☐								
50. Zinc	7440666	☐	☒	1	grab	SW846 6010C	5	193	0.0421	193	0.0421
51. Iron	7439896	☐	☒	1	grab	SW846 6010C	5,000	15,900	3.47	15,900	3.47
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)
1,2,4-trimethylbenzene	95636	☐	☒	1	grab	SW846 8260C	1.00	2.10	4.5e-4	2.10	4.5e-4
1,3,5-trimethylbenzene	108678	☐	☐	1	grab	SW846 8260C	1.00	1.63	3.5e-4	1.63	3.5e-4

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? Iron, Nickel and Zinc but discharging to salt water
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:

Water will be pumped to a fractionation tank, then through a filter to two 2,000-lb granular activated carbon units.

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):			

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 40 gpm Maximum flow rate of treatment system 60 gpm
Design flow rate of treatment system 40 gpm

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

No chemical additives are being used or planned to be used.

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:

Discharge to storm drain located on school property, near Bennington Street, which flows south approximately 600 feet and discharges to Belle Isle Inlet

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 SA

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

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

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

6. ESA and NHPA Eligibility.

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

a) Using the instructions in Appendix VII and information on Appendix II, under which criterion listed in Part I.C are you eligible for coverage under this general permit?
A ◉ B ○ C ○ D ○ E ○ F ○

b) If you selected Criterion D or F, has consultation with the federal services been completed? Y ○ N ○ Underway ○

c) If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received? Y ○ N ○

d) Attach documentation of ESA eligibility as described in the NOI instructions and required by Appendix VII, Part I.C, Step 4.

e) Using the instructions in Appendix VII, under which criterion listed in Part II.C are you eligible for coverage under this general permit?
1 ◉ 2 ○ 3 ○

f) If Criterion 3 was selected, attach all written correspondence with the State or Tribal historic preservation officers, including any terms and conditions that outline measures the applicant must follow to mitigate or prevent adverse effects due to activities regulated by the RGP.

7. Supplemental information.

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

ESA eligibility - the facility and discharge location are not located in a town with a federally-listed endangered species. Piping plover are listed for Suffolk County, but for the town of Winthrop only.

Discharge is to tidal saltwater inlet. No 7Q10 flow data available.

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:

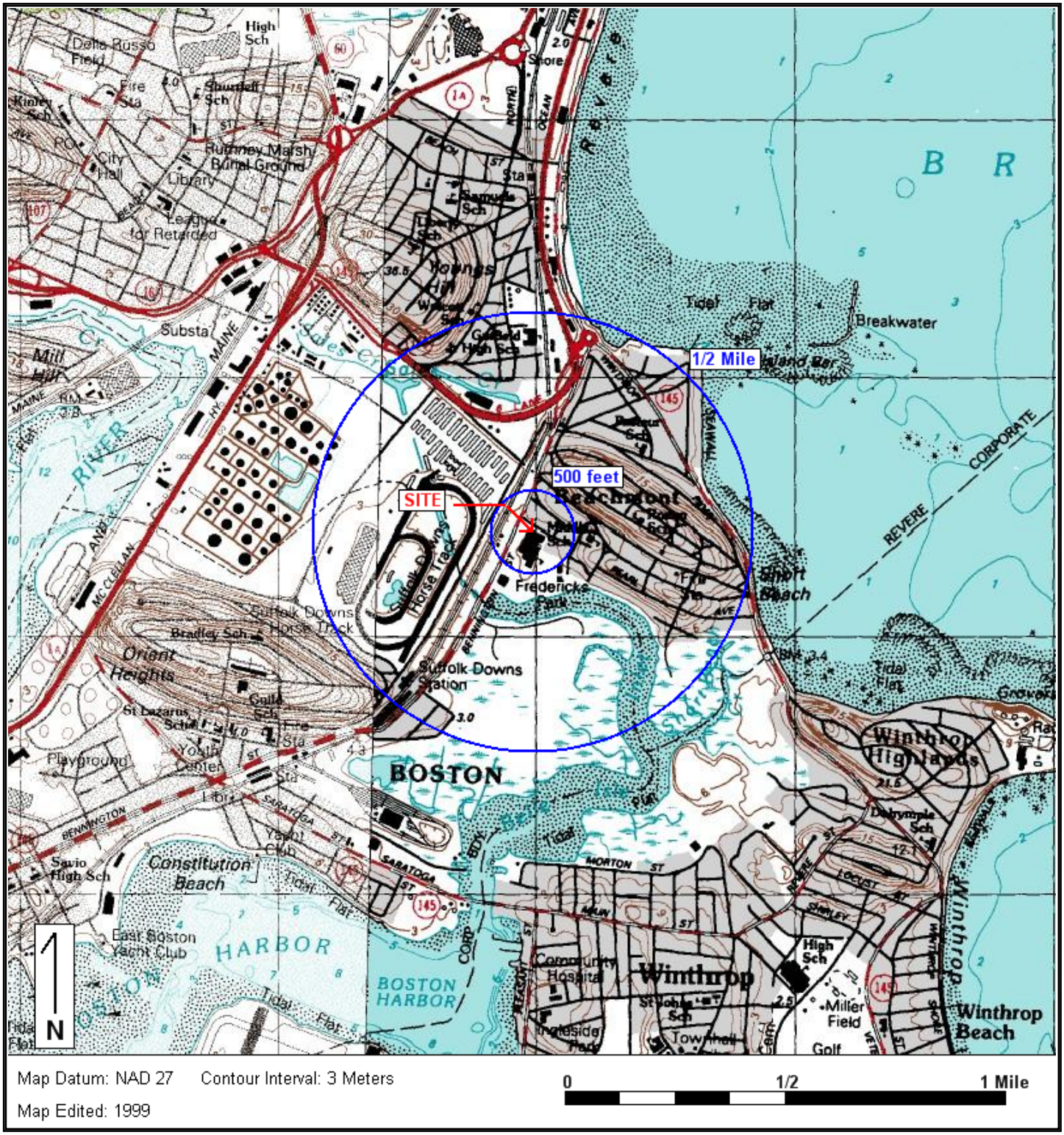
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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:	Beachmont School, Revere, MA
Operator signature:	Susan O'Brien
Printed Name &Title:	Susan O'Brien, LSP and Senior Project Manager
Date:	July 17, 2012

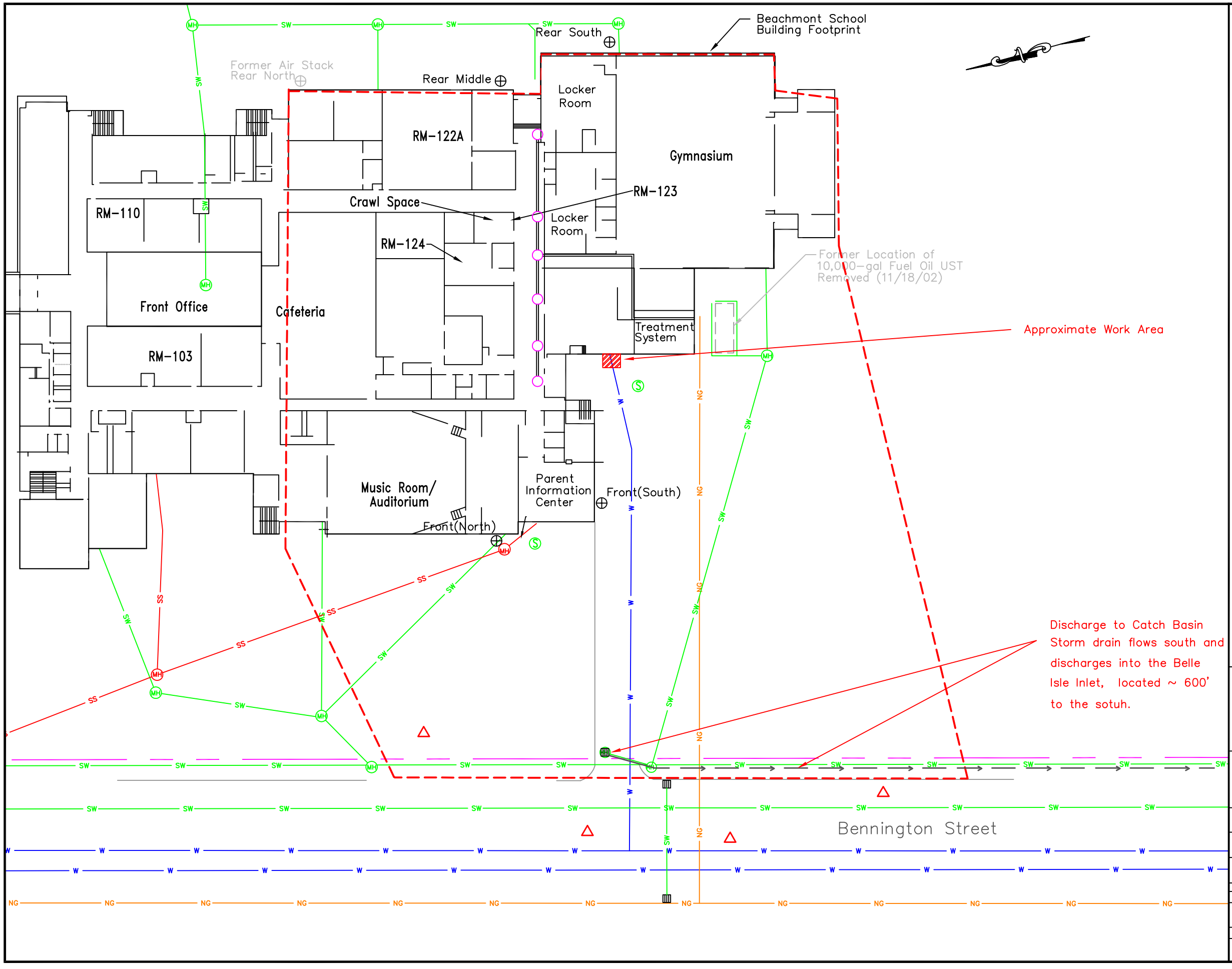
Environmental Compliance Services, Inc.
10 State Street
Woburn, MA 01801
Phone 781.246.8897 Fax 781.246.8950
www.ecsconsult.com

Beachmont Elementary School
15 Everard Street
Revere, MA 02151

Figure 1: SITE LOCUS



Base Map: U.S. Geological Survey; Quadrangle Location: Lynn, MA
Lat/Lon: 42° 23' 44" NORTH, 70° 59' 32" WEST - UTM Coordinates: 19 336033 EAST / 4695623 NORTH
Generated By: Christine DiMaio



Legend

- Approximate Property Line
- SS — Sanitary Sewer Line
- SW — Storm Sewer Line
- W — Water Line
- NG — Natural Gas Line
- OE — Overhead Electric Line
- Estimated Disposal Site Boundary

General Notes:

1.0 Site plan prepared from "Site Drainage Plan & Site Details" prepared by S.E. Architects of Somerville, Massachusetts and measurements obtained during site reconnaissance by ECSMarin

2.0 All locations, dimensions, and property lines depicted on this plan are approximate. This plan should not be used for construction or land conveyance purposes.

ecs
10 State Street • Woburn, MA 01801
Phone: 781-246-8897 Fax: 781-246-8950

PROJECT:
Beachmont School
15 Everard Avenue
Revere, Massachusetts

TITLE:
SITE PLAN - RGP DISCHARGE

CLIENT:
City of Revere

GRAPHIC SCALE: 50 25 0 25 50

COMPUTER CADFILE: PROJECTS\05-203823\CAD\SITEPLAN

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
AG	--	MC	SD
SCALE:	**DATE:**	**JOB NO.:**	**FIGURE NO.:**
1"= 50ft	JUNE 2010	05-203823	3

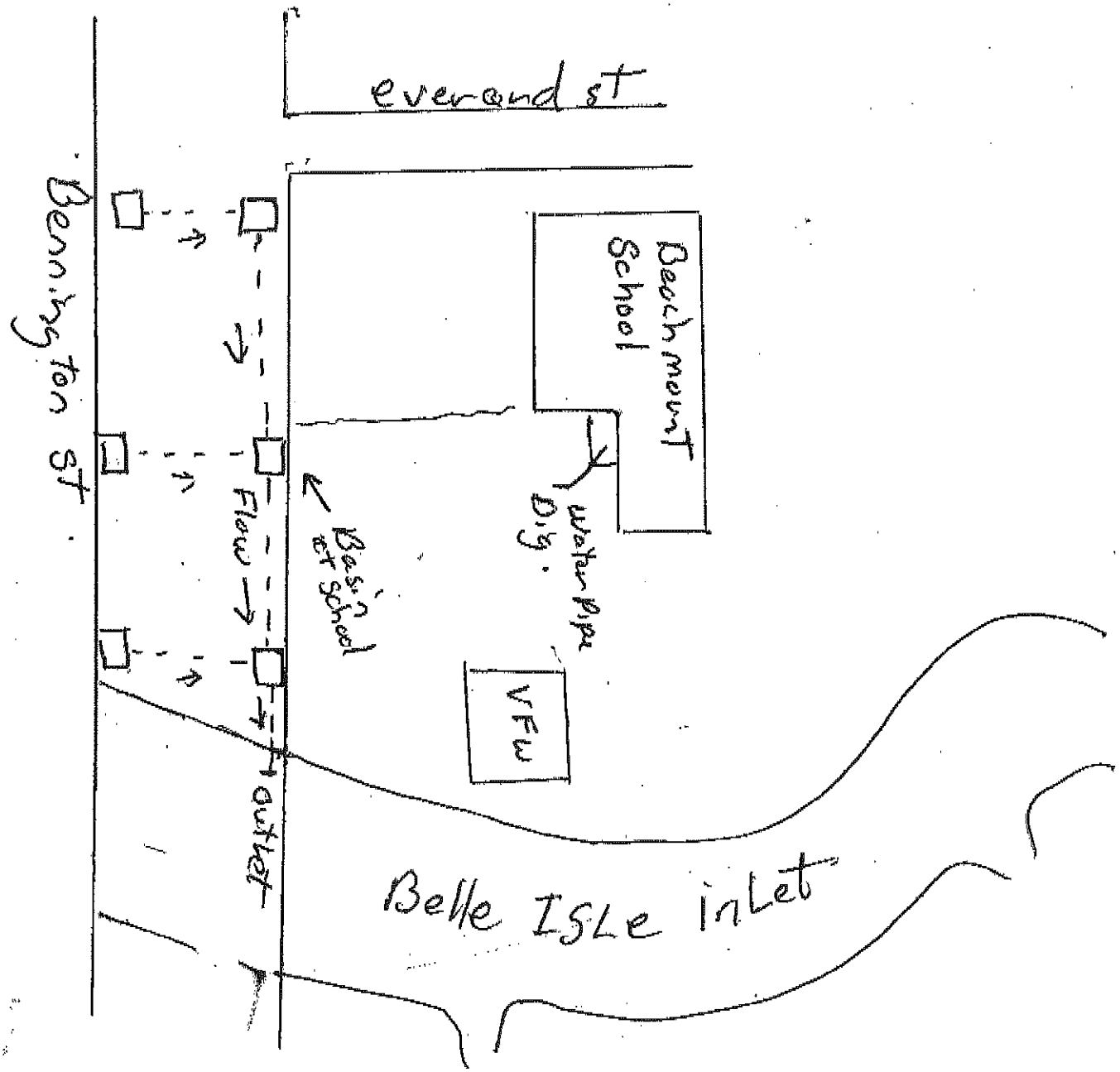
The City of REVERE, MASSACHUSETTS

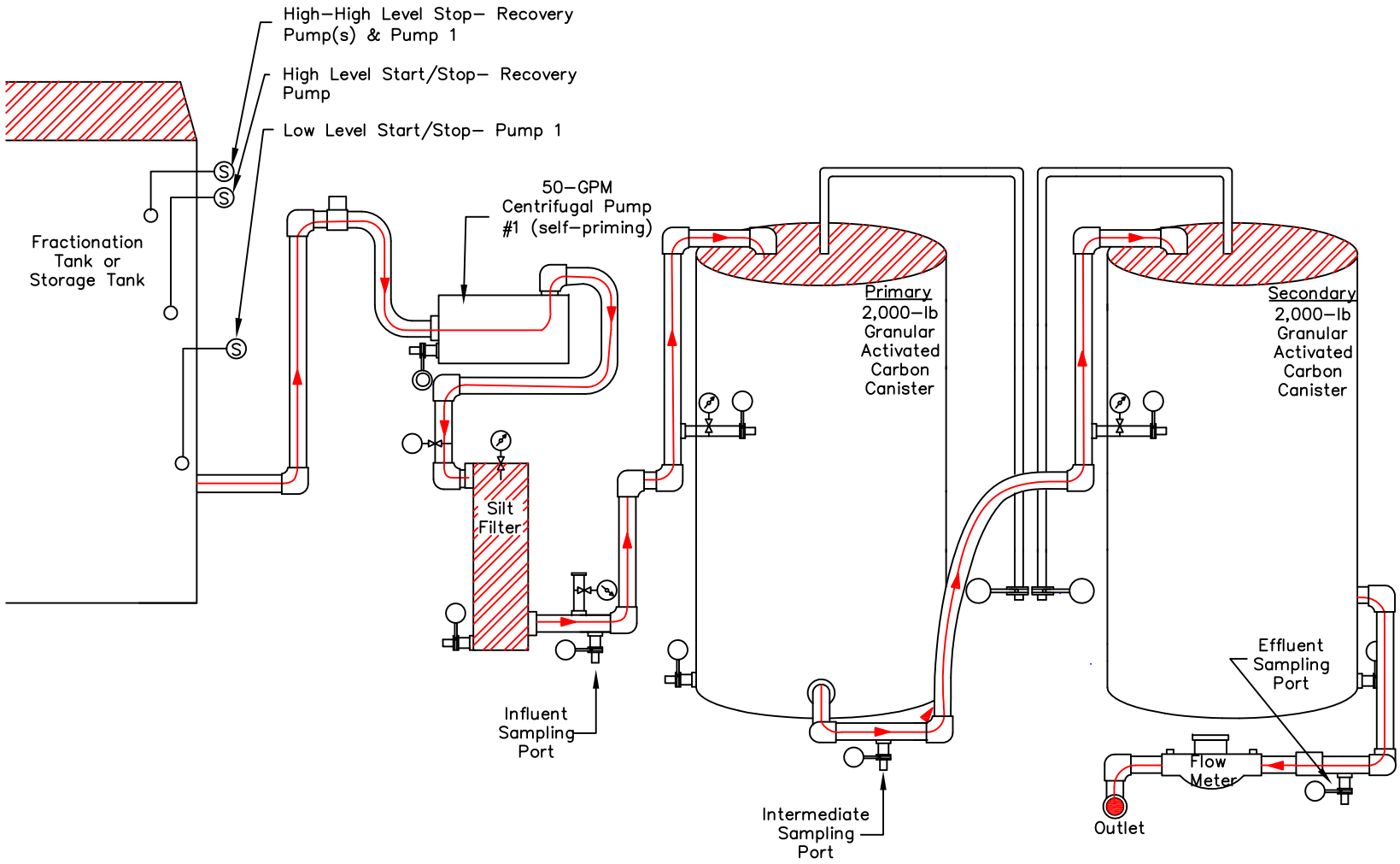
DEPARTMENT OF PUBLIC WORKS
DONALD E. GOODWIN • SUPERINTENDENT
321R CHARGER STREET, REVERE, MA 02151

Daniel Rizzo
Mayor

(781) 286-8149 • FAX (781) 286-3108

To Kathy Baxter · From Matt Martelli sewer Drain Dept Rever D.P.W.
Beach mont school – Drain System · (I Hope this Helps –
781-853-9426 · My Number.





Legend

Drain Valve

Pressure Guage

Float Switch

Valve

Red Indicates the Flow Through the Treatment System

ENPRO Services, Inc.
12 Mulliken Way, Newburyport, MA 01950
(978)465-1595 Fax (978)465-2050

TITLE

50 Gallon per Minute, Trailer-Mounted Groundwater Treatment System Schematic

DATE: July 13, 2012	DRAWN BY: GJV
SCALE: Not to Scale	APPROVED BY: GJV
PROJECT LOCATION: Beachmont School Revere, MA	JOB NUMBER: 6210-12
FILE NAME: N:\6210-12\Revere Public Schools\GW Treatment System Schematic.dwg	DRAWING NUMBER: FIGURE 1

APPENDIX B
LABORATORY ANALYTICAL REPORTS

Report Date:
13-Jul-12 17:20

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

Environmental Compliance Services
10 State Street
Woburn, MA 01801
Attn: Matthew Carey

Project: Beachmont School - Revere, MA
Project #: 05.203823.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB52670-01	Frac Tank	Ground Water	12-Jul-12 11:45	12-Jul-12 16:20

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.
Please note that this report contains 26 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.	**Project #:** 05.203823.01
Project Location: Beachmont School - Revere, MA	**RTN:**
This form provides certifications for the following data set: SB52670-01	
Matrices: Ground Water	

CAM Protocol

✓ 8260 VOC CAM II A	7470/7471 Hg CAM III B	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	7010 Metals CAM III C	MassDEP EPH CAM IV B	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	9012 Total Cyanide/PAC CAM VI A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B

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

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

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

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes ✓ No

<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 performance standards specified in the CAM protocol(s) achieved?	Yes ✓ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ✓ No

All negative responses are addressed in a case narrative on the cover page of this report.

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.

Nicole Leja
Laboratory Director
Date: 7/13/2012

CASE NARRATIVE:

The samples were received 1.6 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method. Regulatory limits may not be achieved if specific method and/or technique was not requested on the Chain of Custody.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

NELAC and EPA method requirements mandate aqueous samples be preserved 24-hours prior to digestion and analysis to dissolve any metals that adsorb to container walls. The laboratory has proceeded with the rush as requested.

The laboratory has set in-house acceptance limits of 20% for ICV standards. These limits are stricter criteria than MA DEP CAM for organic test methods; therefore, the end user should evaluate the narrated deviations based on the program requirements he or she is sampling under.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 6010C

Spikes:

1216651-MS1 *Source: SB52670-01*

The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Iron

1216651-MSD1 *Source: SB52670-01*

The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Iron

SW846 7196A/SM3500CrD

Spikes:

1216641-MSD1 *Source: SB52670-01*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Hexavalent Chromium

Samples:

SB52670-01 *Frac Tank*

SW846 7196A/SM3500CrD

Samples:

SB52670-01 *Frac Tank*

The Reporting Limit has been raised to account for matrix interference.

Hexavalent Chromium

SW846 8260C

Calibration:

1207045

Analyte quantified by quadratic equation type calibration.

1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
2-Hexanone (MBK)
4-Isopropyltoluene
4-Methyl-2-pentanone (MIBK)
Naphthalene
n-Butylbenzene
Styrene
trans-1,3-Dichloropropene
Vinyl chloride

This affected the following samples:

1216708-BLK1
1216708-BS1
1216708-BSD1
Frac Tank
S208409-ICV1
S208444-CCV1

S208409-ICV1

Analyte percent recovery is outside individual acceptance criteria (80-120).

Dichlorodifluoromethane (Freon12) (74%)

This affected the following samples:

1216708-BLK1
1216708-BS1
1216708-BSD1
Frac Tank
S208444-CCV1

Laboratory Control Samples:

1216708 BS/BSD

2,2-Dichloropropane percent recoveries (159/194) are outside individual acceptance criteria (70-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

Frac Tank

Samples:

S208444-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

2,2-Dichloropropane (59.1%)
Chloroethane (-24.5%)
Chloromethane (-23.3%)

SW846 8260C

Samples:

S208444-CCV1

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

Dichlorodifluoromethane (Freon12) (-29.8%)

This affected the following samples:

1216708-BLK1
1216708-BS1
1216708-BSD1
Frac Tank

SW846 8270D

Calibration:

1206074

Analyte quantified by quadratic equation type calibration.

Benzidine

This affected the following samples:

1216676-BLK1
1216676-BS1
1216676-BSD1
Frac Tank
S207780-ICV1
S208452-CCV1
S208456-CCV1

S207780-ICV1

Analyte percent recovery is outside individual acceptance criteria (80-120).

Bis(2-chloroethyl)ether (77%)

This affected the following samples:

1216676-BLK1
1216676-BS1
1216676-BSD1
Frac Tank
S208452-CCV1
S208456-CCV1

Laboratory Control Samples:

1216676 BS/BSD

4-Nitrophenol percent recoveries (30/36) are outside individual acceptance criteria (40-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Frac Tank

Benzidine percent recoveries (0/0) are outside individual acceptance criteria (40-140), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Frac Tank

Benzoic acid percent recoveries (30/35) are outside individual acceptance criteria (40-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Frac Tank

SW846 8270D

Laboratory Control Samples:

1216676 BS/BSD

Bis(2-chloroethyl)ether percent recoveries (39/44) are outside individual acceptance criteria (40-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Frac Tank

N-Nitrosodimethylamine percent recoveries (33/37) are outside individual acceptance criteria (40-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Frac Tank

Phenol percent recoveries (24/27) are outside individual acceptance criteria (40-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Frac Tank

Pyridine percent recoveries (25/26) are outside individual acceptance criteria (40-140), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Frac Tank

Samples:

S208452-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

4-Nitrophenol (-22.3%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

Benzidine (-23.5%)

This affected the following samples:

1216676-BS1
1216676-BSD1

S208456-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

4-Nitroaniline (-21.8%)
4-Nitrophenol (-22.7%)
Benzyl alcohol (-21.3%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

Benzidine (-32.2%)

This affected the following samples:

1216676-BLK1
Frac Tank

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Frac Tank	05.203823.01	Ground Water	12-Jul-12 11:45	12-Jul-12
SB52670-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds													
Prepared by method SW846 5030 Water MS													
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	< 1.00		µg/l	1.00	0.65	1	SW846 8260C	13-Jul-12	13-Jul-12	GMA	1216708	
67-64-1	Acetone	< 10.0		µg/l	10.0	2.56	1	"	"	"	"	"	
107-13-1	Acrylonitrile	< 0.50		µg/l	0.50	0.46	1	"	"	"	"	"	
71-43-2	Benzene	< 1.00		µg/l	1.00	0.67	1	"	"	"	"	"	
108-86-1	Bromobenzene	< 1.00		µg/l	1.00	0.72	1	"	"	"	"	"	
74-97-5	Bromochloromethane	< 1.00		µg/l	1.00	0.71	1	"	"	"	"	"	
75-27-4	Bromodichloromethane	< 0.50		µg/l	0.50	0.48	1	"	"	"	"	"	
75-25-2	Bromoform	< 1.00		µg/l	1.00	0.60	1	"	"	"	"	"	
74-83-9	Bromomethane	< 2.00		µg/l	2.00	1.14	1	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	< 10.0		µg/l	10.0	1.73	1	"	"	"	"	"	
104-51-8	n-Butylbenzene	< 1.00		µg/l	1.00	0.56	1	"	"	"	"	"	
135-98-8	sec-Butylbenzene	< 1.00		µg/l	1.00	0.82	1	"	"	"	"	"	
98-06-6	tert-Butylbenzene	< 1.00		µg/l	1.00	0.74	1	"	"	"	"	"	
75-15-0	Carbon disulfide	< 2.00		µg/l	2.00	0.63	1	"	"	"	"	"	
56-23-5	Carbon tetrachloride	< 1.00		µg/l	1.00	0.55	1	"	"	"	"	"	
108-90-7	Chlorobenzene	< 1.00		µg/l	1.00	0.65	1	"	"	"	"	"	
75-00-3	Chloroethane	< 2.00		µg/l	2.00	1.03	1	"	"	"	"	"	
67-66-3	Chloroform	**1.32**		µg/l	1.00	0.69	1	"	"	"	"	"	
74-87-3	Chloromethane	< 2.00		µg/l	2.00	1.47	1	"	"	"	"	"	
95-49-8	2-Chlorotoluene	< 1.00		µg/l	1.00	0.79	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	< 1.00		µg/l	1.00	0.73	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	< 2.00		µg/l	2.00	0.93	1	"	"	"	"	"	
124-48-1	Dibromochloromethane	< 0.50		µg/l	0.50	0.29	1	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	< 0.50		µg/l	0.50	0.33	1	"	"	"	"	"	
74-95-3	Dibromomethane	< 1.00		µg/l	1.00	0.67	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 1.00		µg/l	1.00	0.67	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 1.00		µg/l	1.00	0.71	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 1.00		µg/l	1.00	0.62	1	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	< 2.00		µg/l	2.00	0.45	1	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	< 1.00		µg/l	1.00	0.68	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 1.00		µg/l	1.00	0.78	1	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	< 1.00		µg/l	1.00	0.49	1	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	< 1.00		µg/l	1.00	0.72	1	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	< 1.00		µg/l	1.00	0.68	1	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	< 1.00		µg/l	1.00	0.71	1	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	< 1.00		µg/l	1.00	0.81	1	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	< 1.00		µg/l	1.00	0.60	1	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	< 1.00		µg/l	1.00	0.64	1	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	< 0.50		µg/l	0.50	0.25	1	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	< 0.50		µg/l	0.50	0.50	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 1.00		µg/l	1.00	0.73	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	< 0.50		µg/l	0.50	0.45	1	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	< 10.0		µg/l	10.0	0.54	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Frac Tank SB52670-01	05.203823.01	Ground Water	12-Jul-12 11:45	12-Jul-12

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds Prepared by method SW846 5030 Water MS													
98-82-8	Isopropylbenzene	< 1.00		µg/l	1.00	0.62	1	SW846 8260C	13-Jul-12	13-Jul-12	GMA	1216708	
99-87-6	4-Isopropyltoluene	< 1.00		µg/l	1.00	0.61	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 1.00		µg/l	1.00	0.65	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 10.0		µg/l	10.0	0.93	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 2.00		µg/l	2.00	0.69	1	"	"	"	"	"	
91-20-3	Naphthalene	**1.20**		µg/l	1.00	0.33	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 1.00		µg/l	1.00	0.76	1	"	"	"	"	"	
100-42-5	Styrene	< 1.00		µg/l	1.00	0.62	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 1.00		µg/l	1.00	0.63	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 0.50		µg/l	0.50	0.35	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 1.00		µg/l	1.00	0.74	1	"	"	"	"	"	
108-88-3	Toluene	< 1.00		µg/l	1.00	0.81	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 1.00		µg/l	1.00	0.38	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 1.00		µg/l	1.00	0.36	1	"	"	"	"	"	
108-70-3	1,3,5-Trichlorobenzene	< 1.00		µg/l	1.00	0.78	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	< 1.00		µg/l	1.00	0.58	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	< 1.00		µg/l	1.00	0.64	1	"	"	"	"	"	
79-01-6	Trichloroethene	< 1.00		µg/l	1.00	0.76	1	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	< 1.00		µg/l	1.00	0.63	1	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	< 1.00		µg/l	1.00	0.74	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	**2.10**		µg/l	1.00	0.76	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	**1.63**		µg/l	1.00	0.74	1	"	"	"	"	"	
75-01-4	Vinyl chloride	< 1.00		µg/l	1.00	0.81	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 2.00		µg/l	2.00	1.64	1	"	"	"	"	"	
95-47-6	o-Xylene	< 1.00		µg/l	1.00	0.88	1	"	"	"	"	"	
109-99-9	Tetrahydrofuran	< 2.00		µg/l	2.00	1.44	1	"	"	"	"	"	
60-29-7	Ethyl ether	< 1.00		µg/l	1.00	0.69	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 1.00		µg/l	1.00	0.72	1	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	< 1.00		µg/l	1.00	0.78	1	"	"	"	"	"	
108-20-3	Di-isopropyl ether	< 1.00		µg/l	1.00	0.73	1	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0	8.64	1	"	"	"	"	"	
123-91-1	1,4-Dioxane	< 20.0		µg/l	20.0	14.0	1	"	"	"	"	"	
110-57-6	trans-1,4-Dichloro-2-butene	< 5.00		µg/l	5.00	0.77	1	"	"	"	"	"	
64-17-5	Ethanol	< 400		µg/l	400	35.7	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*99*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*100*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*102*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*100*			*70-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds Prepared by method SW846 3510C													

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Frac Tank	05.203823.01	Ground Water	12-Jul-12 11:45	12-Jul-12
SB52670-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds													
Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 6.10		µg/l	6.10	0.988	1	SW846 8270D	12-Jul-12	13-Jul-12	MSL	1216676	
208-96-8	Acenaphthylene	< 6.10		µg/l	6.10	1.23	1	"	"	"	"	"	
62-53-3	Aniline	< 6.10		µg/l	6.10	2.60	1	"	"	"	"	"	
120-12-7	Anthracene	< 6.10		µg/l	6.10	0.902	1	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	< 6.10		µg/l	6.10	1.30	1	"	"	"	"	"	
92-87-5	Benzidine	< 6.10		µg/l	6.10	3.62	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	< 6.10		µg/l	6.10	0.683	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	< 6.10		µg/l	6.10	1.02	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	< 6.10		µg/l	6.10	1.17	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 6.10		µg/l	6.10	1.77	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	< 6.10		µg/l	6.10	1.85	1	"	"	"	"	"	
65-85-0	Benzoic acid	< 6.10		µg/l	6.10	1.91	1	"	"	"	"	"	
100-51-6	Benzyl alcohol	< 6.10		µg/l	6.10	1.87	1	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	< 6.10		µg/l	6.10	1.29	1	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	< 6.10		µg/l	6.10	1.37	1	"	"	"	"	"	
108-60-1	Bis(2-chloroisopropyl)ether	< 6.10		µg/l	6.10	1.50	1	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	< 6.10		µg/l	6.10	2.05	1	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	< 6.10		µg/l	6.10	1.60	1	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	< 6.10		µg/l	6.10	0.915	1	"	"	"	"	"	
86-74-8	Carbazole	< 6.10		µg/l	6.10	2.46	1	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	< 6.10		µg/l	6.10	1.77	1	"	"	"	"	"	
106-47-8	4-Chloroaniline	< 6.10		µg/l	6.10	1.44	1	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	< 6.10		µg/l	6.10	0.805	1	"	"	"	"	"	
95-57-8	2-Chlorophenol	< 6.10		µg/l	6.10	1.02	1	"	"	"	"	"	
7005-72-3	4-Chlorophenyl phenyl ether	< 6.10		µg/l	6.10	1.20	1	"	"	"	"	"	
218-01-9	Chrysene	< 6.10		µg/l	6.10	0.805	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 6.10		µg/l	6.10	1.60	1	"	"	"	"	"	
132-64-9	Dibenzofuran	< 6.10		µg/l	6.10	0.805	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 6.10		µg/l	6.10	1.04	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 6.10		µg/l	6.10	1.65	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 6.10		µg/l	6.10	0.878	1	"	"	"	"	"	
91-94-1	3,3´-Dichlorobenzidine	< 6.10		µg/l	6.10	2.46	1	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	< 6.10		µg/l	6.10	1.62	1	"	"	"	"	"	
84-66-2	Diethyl phthalate	< 6.10		µg/l	6.10	1.50	1	"	"	"	"	"	
131-11-3	Dimethyl phthalate	< 6.10		µg/l	6.10	1.04	1	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	< 6.10		µg/l	6.10	1.28	1	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	< 6.10		µg/l	6.10	1.63	1	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	< 6.10		µg/l	6.10	2.34	1	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	< 6.10		µg/l	6.10	3.91	1	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	< 6.10		µg/l	6.10	1.56	1	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	< 6.10		µg/l	6.10	1.33	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Frac Tank	05.203823.01	Ground Water	12-Jul-12 11:45	12-Jul-12
SB52670-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds													
Prepared by method SW846 3510C													
117-84-0	Di-n-octyl phthalate	< 6.10		µg/l	6.10	1.61	1	SW846 8270D	12-Jul-12	13-Jul-12	MSL	1216676	
206-44-0	Fluoranthene	< 6.10		µg/l	6.10	2.61	1	"	"	"	"	"	
86-73-7	Fluorene	< 6.10		µg/l	6.10	1.11	1	"	"	"	"	"	
118-74-1	Hexachlorobenzene	< 6.10		µg/l	6.10	1.48	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	< 6.10		µg/l	6.10	1.61	1	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	< 6.10		µg/l	6.10	1.65	1	"	"	"	"	"	
67-72-1	Hexachloroethane	< 6.10		µg/l	6.10	1.37	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 6.10		µg/l	6.10	1.63	1	"	"	"	"	"	
78-59-1	Isophorone	< 6.10		µg/l	6.10	1.30	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 6.10		µg/l	6.10	1.56	1	"	"	"	"	"	
95-48-7	2-Methylphenol	< 6.10		µg/l	6.10	1.04	1	"	"	"	"	"	
108-39-4, 106-44-5	3 & 4-Methylphenol	< 12.2		µg/l	12.2	1.33	1	"	"	"	"	"	
91-20-3	Naphthalene	< 6.10		µg/l	6.10	0.915	1	"	"	"	"	"	
88-74-4	2-Nitroaniline	< 6.10		µg/l	6.10	1.29	1	"	"	"	"	"	
99-09-2	3-Nitroaniline	< 6.10		µg/l	6.10	1.94	1	"	"	"	"	"	
100-01-6	4-Nitroaniline	< 24.4		µg/l	24.4	5.57	1	"	"	"	"	"	
98-95-3	Nitrobenzene	< 6.10		µg/l	6.10	1.17	1	"	"	"	"	"	
88-75-5	2-Nitrophenol	< 6.10		µg/l	6.10	1.60	1	"	"	"	"	"	
100-02-7	4-Nitrophenol	< 24.4		µg/l	24.4	3.13	1	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	< 6.10		µg/l	6.10	2.55	1	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	< 6.10		µg/l	6.10	1.35	1	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	< 6.10		µg/l	6.10	1.39	1	"	"	"	"	"	
87-86-5	Pentachlorophenol	< 24.4		µg/l	24.4	2.17	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 6.10		µg/l	6.10	0.732	1	"	"	"	"	"	
108-95-2	Phenol	< 6.10		µg/l	6.10	1.28	1	"	"	"	"	"	
129-00-0	Pyrene	< 6.10		µg/l	6.10	3.01	1	"	"	"	"	"	
110-86-1	Pyridine	< 6.10		µg/l	6.10	2.23	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 6.10		µg/l	6.10	1.21	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	< 6.10		µg/l	6.10	1.34	1	"	"	"	"	"	
95-95-4	2,4,5-Trichlorophenol	< 6.10		µg/l	6.10	1.79	1	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	< 6.10		µg/l	6.10	1.18	1	"	"	"	"	"	
82-68-8	Pentachloronitrobenzene	< 6.10		µg/l	6.10	1.96	1	"	"	"	"	"	
95-94-3	1,2,4,5-Tetrachlorobenzene	< 6.10		µg/l	6.10	0.841	1	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*49*			*30-130 %*			"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*33*			*15-110 %*			"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*50*			*30-130 %*			"	"	"	"	"	
4165-62-2	*Phenol-d5*	*23*			*15-110 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*67*			*30-130 %*			"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*65*			*15-110 %*			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
	Non-polar material (SGT-HEM)	< 1.0		mg/l	1.0	0.6	1	EPA 1664 Rev. A	13-Jul-12	13-Jul-12	JK	1216664	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Frac Tank SB52670-01	05.203823.01	Ground Water	12-Jul-12 11:45	12-Jul-12

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 200/6000 Series Methods													
	Preservation	**Field Preserved**		N/A			1	EPA 200/6000 methods			BJW	1216589	
Total Metals by EPA 6000/7000 Series Methods													
7440-47-3	Chromium	**0.0202**		mg/l	0.0050	0.0034	1	SW846 6010C	12-Jul-12	12-Jul-12	EDT	1216651	
7439-89-6	Iron	**15.9**		mg/l	5.00	0.0046	1	"	"	"	"	"	
7440-02-0	Nickel	**0.0197**		mg/l	0.0050	0.0008	1	"	"	"	"	"	
7440-66-6	Zinc	**0.193**		mg/l	0.0050	0.0025	1	"	"	"	"	"	
General Chemistry Parameters													
16065-83-1	Trivalent Chromium	**0.0202**		mg/l	0.0050	0.0034	1	Calculation	12-Jul-12	12-Jul-12	EDT	1216651	
18540-29-9	Hexavalent Chromium	< 0.125	R01	mg/l	0.125	0.062	1	SW846 7196A/SM3500CrD	12-Jul-12 16:31	12-Jul-12 18:10	TDD/	1216641	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216708 - SW846 5030 Water MS										
Blank (1216708-BLK1)					Prepared & Analyzed: 13-Jul-12					
1,1,2-Trichlorotrifluoroethane (Freon 113)	< 1.00		µg/l	1.00						
Acetone	< 10.0		µg/l	10.0						
Acrylonitrile	< 0.50		µg/l	0.50						
Benzene	< 1.00		µg/l	1.00						
Bromobenzene	< 1.00		µg/l	1.00						
Bromochloromethane	< 1.00		µg/l	1.00						
Bromodichloromethane	< 0.50		µg/l	0.50						
Bromoform	< 1.00		µg/l	1.00						
Bromomethane	< 2.00		µg/l	2.00						
2-Butanone (MEK)	< 10.0		µg/l	10.0						
n-Butylbenzene	< 1.00		µg/l	1.00						
sec-Butylbenzene	< 1.00		µg/l	1.00						
tert-Butylbenzene	< 1.00		µg/l	1.00						
Carbon disulfide	< 2.00		µg/l	2.00						
Carbon tetrachloride	< 1.00		µg/l	1.00						
Chlorobenzene	< 1.00		µg/l	1.00						
Chloroethane	< 2.00		µg/l	2.00						
Chloroform	< 1.00		µg/l	1.00						
Chloromethane	< 2.00		µg/l	2.00						
2-Chlorotoluene	< 1.00		µg/l	1.00						
4-Chlorotoluene	< 1.00		µg/l	1.00						
1,2-Dibromo-3-chloropropane	< 2.00		µg/l	2.00						
Dibromochloromethane	< 0.50		µg/l	0.50						
1,2-Dibromoethane (EDB)	< 0.50		µg/l	0.50						
Dibromomethane	< 1.00		µg/l	1.00						
1,2-Dichlorobenzene	< 1.00		µg/l	1.00						
1,3-Dichlorobenzene	< 1.00		µg/l	1.00						
1,4-Dichlorobenzene	< 1.00		µg/l	1.00						
Dichlorodifluoromethane (Freon12)	< 2.00		µg/l	2.00						
1,1-Dichloroethane	< 1.00		µg/l	1.00						
1,2-Dichloroethane	< 1.00		µg/l	1.00						
1,1-Dichloroethene	< 1.00		µg/l	1.00						
cis-1,2-Dichloroethene	< 1.00		µg/l	1.00						
trans-1,2-Dichloroethene	< 1.00		µg/l	1.00						
1,2-Dichloropropane	< 1.00		µg/l	1.00						
1,3-Dichloropropane	< 1.00		µg/l	1.00						
2,2-Dichloropropane	< 1.00		µg/l	1.00						
1,1-Dichloropropene	< 1.00		µg/l	1.00						
cis-1,3-Dichloropropene	< 0.50		µg/l	0.50						
trans-1,3-Dichloropropene	< 0.50		µg/l	0.50						
Ethylbenzene	< 1.00		µg/l	1.00						
Hexachlorobutadiene	< 0.50		µg/l	0.50						
2-Hexanone (MBK)	< 10.0		µg/l	10.0						
Isopropylbenzene	< 1.00		µg/l	1.00						
4-Isopropyltoluene	< 1.00		µg/l	1.00						
Methyl tert-butyl ether	< 1.00		µg/l	1.00						
4-Methyl-2-pentanone (MIBK)	< 10.0		µg/l	10.0						
Methylene chloride	< 2.00		µg/l	2.00						
Naphthalene	< 1.00		µg/l	1.00						
n-Propylbenzene	< 1.00		µg/l	1.00						
Styrene	< 1.00		µg/l	1.00						
1,1,1,2-Tetrachloroethane	< 1.00		µg/l	1.00						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216708 - SW846 5030 Water MS										
Blank (1216708-BLK1)					Prepared & Analyzed: 13-Jul-12					
1,1,2,2-Tetrachloroethane	< 0.50		µg/l	0.50						
Tetrachloroethene	< 1.00		µg/l	1.00						
Toluene	< 1.00		µg/l	1.00						
1,2,3-Trichlorobenzene	< 1.00		µg/l	1.00						
1,2,4-Trichlorobenzene	< 1.00		µg/l	1.00						
1,3,5-Trichlorobenzene	< 1.00		µg/l	1.00						
1,1,1-Trichloroethane	< 1.00		µg/l	1.00						
1,1,2-Trichloroethane	< 1.00		µg/l	1.00						
Trichloroethene	< 1.00		µg/l	1.00						
Trichlorofluoromethane (Freon 11)	< 1.00		µg/l	1.00						
1,2,3-Trichloropropane	< 1.00		µg/l	1.00						
1,2,4-Trimethylbenzene	< 1.00		µg/l	1.00						
1,3,5-Trimethylbenzene	< 1.00		µg/l	1.00						
Vinyl chloride	< 1.00		µg/l	1.00						
m,p-Xylene	< 2.00		µg/l	2.00						
o-Xylene	< 1.00		µg/l	1.00						
Tetrahydrofuran	< 2.00		µg/l	2.00						
Ethyl ether	< 1.00		µg/l	1.00						
Tert-amyl methyl ether	< 1.00		µg/l	1.00						
Ethyl tert-butyl ether	< 1.00		µg/l	1.00						
Di-isopropyl ether	< 1.00		µg/l	1.00						
Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0						
1,4-Dioxane	< 20.0		µg/l	20.0						
trans-1,4-Dichloro-2-butene	< 5.00		µg/l	5.00						
Ethanol	< 400		µg/l	400						
Surrogate: 4-Bromofluorobenzene	*48.6*		µg/l		*50.0*		*97*	*70-130*		
Surrogate: Toluene-d8	*49.9*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*50.2*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: Dibromofluoromethane	*49.2*		µg/l		*50.0*		*98*	*70-130*		
LCS (1216708-BS1)					Prepared & Analyzed: 13-Jul-12					
1,1,2-Trichlorotrifluoroethane (Freon 113)	**17.6**		µg/l		20.0		88	70-130		
Acetone	**17.8**		µg/l		20.0		89	70-130		
Acrylonitrile	**18.6**		µg/l		20.0		93	70-130		
Benzene	**19.2**		µg/l		20.0		96	70-130		
Bromobenzene	**19.5**		µg/l		20.0		98	70-130		
Bromochloromethane	**18.8**		µg/l		20.0		94	70-130		
Bromodichloromethane	**19.5**		µg/l		20.0		97	70-130		
Bromoform	**20.6**		µg/l		20.0		103	70-130		
Bromomethane	**17.6**		µg/l		20.0		88	70-130		
2-Butanone (MEK)	**22.5**		µg/l		20.0		112	70-130		
n-Butylbenzene	**18.7**		µg/l		20.0		94	70-130		
sec-Butylbenzene	**19.1**		µg/l		20.0		95	70-130		
tert-Butylbenzene	**18.4**		µg/l		20.0		92	70-130		
Carbon disulfide	**18.1**		µg/l		20.0		90	70-130		
Carbon tetrachloride	**17.5**		µg/l		20.0		87	70-130		
Chlorobenzene	**18.9**		µg/l		20.0		94	70-130		
Chloroethane	**15.1**		µg/l		20.0		76	70-130		
Chloroform	**17.3**		µg/l		20.0		86	70-130		
Chloromethane	**15.3**		µg/l		20.0		77	70-130		
2-Chlorotoluene	**19.4**		µg/l		20.0		97	70-130		
4-Chlorotoluene	**20.3**		µg/l		20.0		102	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216708 - SW846 5030 Water MS										
LCS (1216708-BS1)						Prepared & Analyzed: 13-Jul-12				
1,2-Dibromo-3-chloropropane	**20.0**		µg/l		20.0		100	70-130		
Dibromochloromethane	**19.8**		µg/l		20.0		99	70-130		
1,2-Dibromoethane (EDB)	**20.2**		µg/l		20.0		101	70-130		
Dibromomethane	**19.6**		µg/l		20.0		98	70-130		
1,2-Dichlorobenzene	**19.0**		µg/l		20.0		95	70-130		
1,3-Dichlorobenzene	**19.7**		µg/l		20.0		99	70-130		
1,4-Dichlorobenzene	**18.8**		µg/l		20.0		94	70-130		
Dichlorodifluoromethane (Freon12)	**14.0**		µg/l		20.0		70	70-130		
1,1-Dichloroethane	**18.6**		µg/l		20.0		93	70-130		
1,2-Dichloroethane	**18.6**		µg/l		20.0		93	70-130		
1,1-Dichloroethene	**17.2**		µg/l		20.0		86	70-130		
cis-1,2-Dichloroethene	**18.6**		µg/l		20.0		93	70-130		
trans-1,2-Dichloroethene	**19.1**		µg/l		20.0		95	70-130		
1,2-Dichloropropane	**19.2**		µg/l		20.0		96	70-130		
1,3-Dichloropropane	**19.1**		µg/l		20.0		96	70-130		
2,2-Dichloropropane	**31.8**	QC2	µg/l		20.0		159	70-130		
1,1-Dichloropropene	**19.1**		µg/l		20.0		96	70-130		
cis-1,3-Dichloropropene	**21.6**		µg/l		20.0		108	70-130		
trans-1,3-Dichloropropene	**20.2**		µg/l		20.0		101	70-130		
Ethylbenzene	**19.6**		µg/l		20.0		98	70-130		
Hexachlorobutadiene	**20.5**		µg/l		20.0		102	70-130		
2-Hexanone (MBK)	**19.2**		µg/l		20.0		96	70-130		
Isopropylbenzene	**20.3**		µg/l		20.0		102	70-130		
4-Isopropyltoluene	**19.1**		µg/l		20.0		95	70-130		
Methyl tert-butyl ether	**18.7**		µg/l		20.0		93	70-130		
4-Methyl-2-pentanone (MIBK)	**19.7**		µg/l		20.0		98	70-130		
Methylene chloride	**18.8**		µg/l		20.0		94	70-130		
Naphthalene	**19.5**		µg/l		20.0		97	70-130		
n-Propylbenzene	**20.5**		µg/l		20.0		102	70-130		
Styrene	**18.8**		µg/l		20.0		94	70-130		
1,1,1,2-Tetrachloroethane	**19.9**		µg/l		20.0		100	70-130		
1,1,2,2-Tetrachloroethane	**19.7**		µg/l		20.0		98	70-130		
Tetrachloroethene	**18.7**		µg/l		20.0		93	70-130		
Toluene	**19.4**		µg/l		20.0		97	70-130		
1,2,3-Trichlorobenzene	**20.8**		µg/l		20.0		104	70-130		
1,2,4-Trichlorobenzene	**20.8**		µg/l		20.0		104	70-130		
1,3,5-Trichlorobenzene	**19.9**		µg/l		20.0		99	70-130		
1,1,1-Trichloroethane	**18.8**		µg/l		20.0		94	70-130		
1,1,2-Trichloroethane	**19.9**		µg/l		20.0		100	70-130		
Trichloroethene	**18.6**		µg/l		20.0		93	70-130		
Trichlorofluoromethane (Freon 11)	**17.2**		µg/l		20.0		86	70-130		
1,2,3-Trichloropropane	**20.0**		µg/l		20.0		100	70-130		
1,2,4-Trimethylbenzene	**19.0**		µg/l		20.0		95	70-130		
1,3,5-Trimethylbenzene	**18.8**		µg/l		20.0		94	70-130		
Vinyl chloride	**16.2**		µg/l		20.0		81	70-130		
m,p-Xylene	**40.4**		µg/l		40.0		101	70-130		
o-Xylene	**20.1**		µg/l		20.0		100	70-130		
Tetrahydrofuran	**19.8**		µg/l		20.0		99	70-130		
Ethyl ether	**18.2**		µg/l		20.0		91	70-130		
Tert-amyl methyl ether	**19.7**		µg/l		20.0		99	70-130		
Ethyl tert-butyl ether	**18.9**		µg/l		20.0		94	70-130		
Di-isopropyl ether	**19.2**		µg/l		20.0		96	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216708 - SW846 5030 Water MS										
LCS (1216708-BS1)						Prepared & Analyzed: 13-Jul-12				
Tert-Butanol / butyl alcohol	**210**		µg/l		200		105	70-130		
1,4-Dioxane	**200**		µg/l		200		100	70-130		
trans-1,4-Dichloro-2-butene	**22.4**		µg/l		20.0		112	70-130		
Ethanol	**391**		µg/l		400		98	70-130		
Surrogate: 4-Bromofluorobenzene	*50.3*		µg/l		*50.0*		*101*	*70-130*		
Surrogate: Toluene-d8	*50.1*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*50.2*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: Dibromofluoromethane	*49.9*		µg/l		*50.0*		*100*	*70-130*		
LCS Dup (1216708-BSD1)						Prepared & Analyzed: 13-Jul-12				
1,1,2-Trichlorotrifluoroethane (Freon 113)	**21.8**		µg/l		20.0		109	70-130	21	25
Acetone	**17.0**		µg/l		20.0		85	70-130	5	50
Acrylonitrile	**19.5**		µg/l		20.0		97	70-130	4	25
Benzene	**21.0**		µg/l		20.0		105	70-130	9	25
Bromobenzene	**20.9**		µg/l		20.0		104	70-130	7	25
Bromochloromethane	**20.2**		µg/l		20.0		101	70-130	7	25
Bromodichloromethane	**20.9**		µg/l		20.0		104	70-130	7	25
Bromoform	**20.9**		µg/l		20.0		104	70-130	2	25
Bromomethane	**20.5**		µg/l		20.0		103	70-130	15	50
2-Butanone (MEK)	**23.1**		µg/l		20.0		116	70-130	3	50
n-Butylbenzene	**22.4**		µg/l		20.0		112	70-130	18	25
sec-Butylbenzene	**20.1**		µg/l		20.0		101	70-130	5	25
tert-Butylbenzene	**20.1**		µg/l		20.0		100	70-130	9	25
Carbon disulfide	**21.4**		µg/l		20.0		107	70-130	17	25
Carbon tetrachloride	**19.6**		µg/l		20.0		98	70-130	11	25
Chlorobenzene	**20.3**		µg/l		20.0		102	70-130	7	25
Chloroethane	**18.7**		µg/l		20.0		94	70-130	21	50
Chloroform	**19.3**		µg/l		20.0		97	70-130	11	25
Chloromethane	**19.0**		µg/l		20.0		95	70-130	21	25
2-Chlorotoluene	**21.0**		µg/l		20.0		105	70-130	8	25
4-Chlorotoluene	**21.8**		µg/l		20.0		109	70-130	7	25
1,2-Dibromo-3-chloropropane	**20.3**		µg/l		20.0		102	70-130	1	25
Dibromochloromethane	**21.1**		µg/l		20.0		105	70-130	6	50
1,2-Dibromoethane (EDB)	**21.0**		µg/l		20.0		105	70-130	4	25
Dibromomethane	**20.1**		µg/l		20.0		101	70-130	2	25
1,2-Dichlorobenzene	**21.0**		µg/l		20.0		105	70-130	10	25
1,3-Dichlorobenzene	**21.0**		µg/l		20.0		105	70-130	6	25
1,4-Dichlorobenzene	**20.8**		µg/l		20.0		104	70-130	11	25
Dichlorodifluoromethane (Freon12)	**21.0**		µg/l		20.0		105	70-130	40	50
1,1-Dichloroethane	**20.6**		µg/l		20.0		103	70-130	11	25
1,2-Dichloroethane	**19.5**		µg/l		20.0		98	70-130	5	25
1,1-Dichloroethene	**20.2**		µg/l		20.0		101	70-130	16	25
cis-1,2-Dichloroethene	**20.3**		µg/l		20.0		102	70-130	9	25
trans-1,2-Dichloroethene	**20.7**		µg/l		20.0		104	70-130	8	25
1,2-Dichloropropane	**20.5**		µg/l		20.0		103	70-130	7	25
1,3-Dichloropropane	**20.5**		µg/l		20.0		103	70-130	7	25
2,2-Dichloropropane	**38.9**	QC2	µg/l		20.0		194	70-130	20	25
1,1-Dichloropropene	**21.8**		µg/l		20.0		109	70-130	13	25
cis-1,3-Dichloropropene	**22.7**		µg/l		20.0		114	70-130	5	25
trans-1,3-Dichloropropene	**22.1**		µg/l		20.0		110	70-130	9	25
Ethylbenzene	**21.6**		µg/l		20.0		108	70-130	10	25
Hexachlorobutadiene	**23.7**		µg/l		20.0		118	70-130	15	50

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216708 - SW846 5030 Water MS										
LCS Dup (1216708-BSD1)					Prepared & Analyzed: 13-Jul-12					
2-Hexanone (MBK)	**20.7**		µg/l		20.0		104	70-130	8	25
Isopropylbenzene	**22.0**		µg/l		20.0		110	70-130	8	25
4-Isopropyltoluene	**21.8**		µg/l		20.0		109	70-130	13	25
Methyl tert-butyl ether	**19.4**		µg/l		20.0		97	70-130	4	25
4-Methyl-2-pentanone (MIBK)	**20.4**		µg/l		20.0		102	70-130	4	50
Methylene chloride	**20.3**		µg/l		20.0		102	70-130	8	25
Naphthalene	**20.5**		µg/l		20.0		103	70-130	5	25
n-Propylbenzene	**22.7**		µg/l		20.0		114	70-130	10	25
Styrene	**20.4**		µg/l		20.0		102	70-130	8	25
1,1,1,2-Tetrachloroethane	**21.0**		µg/l		20.0		105	70-130	5	25
1,1,2,2-Tetrachloroethane	**21.1**		µg/l		20.0		106	70-130	7	25
Tetrachloroethene	**21.4**		µg/l		20.0		107	70-130	14	25
Toluene	**20.9**		µg/l		20.0		105	70-130	8	25
1,2,3-Trichlorobenzene	**22.3**		µg/l		20.0		111	70-130	7	25
1,2,4-Trichlorobenzene	**22.5**		µg/l		20.0		113	70-130	8	25
1,3,5-Trichlorobenzene	**23.4**		µg/l		20.0		117	70-130	16	25
1,1,1-Trichloroethane	**21.0**		µg/l		20.0		105	70-130	11	25
1,1,2-Trichloroethane	**21.4**		µg/l		20.0		107	70-130	7	25
Trichloroethene	**20.6**		µg/l		20.0		103	70-130	10	25
Trichlorofluoromethane (Freon 11)	**20.9**		µg/l		20.0		104	70-130	19	50
1,2,3-Trichloropropane	**21.3**		µg/l		20.0		106	70-130	6	25
1,2,4-Trimethylbenzene	**20.4**		µg/l		20.0		102	70-130	7	25
1,3,5-Trimethylbenzene	**20.9**		µg/l		20.0		104	70-130	10	25
Vinyl chloride	**20.8**		µg/l		20.0		104	70-130	25	25
m,p-Xylene	**44.5**		µg/l		40.0		111	70-130	10	25
o-Xylene	**22.1**		µg/l		20.0		110	70-130	9	25
Tetrahydrofuran	**19.9**		µg/l		20.0		100	70-130	0.6	25
Ethyl ether	**19.2**		µg/l		20.0		96	70-130	5	50
Tert-amyl methyl ether	**20.5**		µg/l		20.0		103	70-130	4	25
Ethyl tert-butyl ether	**19.8**		µg/l		20.0		99	70-130	5	25
Di-isopropyl ether	**20.0**		µg/l		20.0		100	70-130	4	25
Tert-Butanol / butyl alcohol	**202**		µg/l		200		101	70-130	4	25
1,4-Dioxane	**192**		µg/l		200		96	70-130	4	25
trans-1,4-Dichloro-2-butene	**24.2**		µg/l		20.0		121	70-130	8	25
Ethanol	**412**		µg/l		400		103	70-130	5	30
Surrogate: 4-Bromofluorobenzene	*49.7*		µg/l		*50.0*		*99*	*70-130*		
Surrogate: Toluene-d8	*49.9*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*49.8*		µg/l		*50.0*		*100*	*70-130*		
Surrogate: Dibromofluoromethane	*49.8*		µg/l		*50.0*		*100*	*70-130*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216676 - SW846 3510C										
Blank (1216676-BLK1)					Prepared: 12-Jul-12 Analyzed: 13-Jul-12					
Acenaphthene	< 5.00		µg/l	5.00						
Acenaphthylene	< 5.00		µg/l	5.00						
Aniline	< 5.00		µg/l	5.00						
Anthracene	< 5.00		µg/l	5.00						
Azobenzene/Diphenyldiazine	< 5.00		µg/l	5.00						
Benzidine	< 5.00		µg/l	5.00						
Benzo (a) anthracene	< 5.00		µg/l	5.00						
Benzo (a) pyrene	< 5.00		µg/l	5.00						
Benzo (b) fluoranthene	< 5.00		µg/l	5.00						
Benzo (g,h,i) perylene	< 5.00		µg/l	5.00						
Benzo (k) fluoranthene	< 5.00		µg/l	5.00						
Benzoic acid	< 5.00		µg/l	5.00						
Benzyl alcohol	< 5.00		µg/l	5.00						
Bis(2-chloroethoxy)methane	< 5.00		µg/l	5.00						
Bis(2-chloroethyl)ether	< 5.00		µg/l	5.00						
Bis(2-chloroisopropyl)ether	< 5.00		µg/l	5.00						
Bis(2-ethylhexyl)phthalate	< 5.00		µg/l	5.00						
4-Bromophenyl phenyl ether	< 5.00		µg/l	5.00						
Butyl benzyl phthalate	< 5.00		µg/l	5.00						
Carbazole	< 5.00		µg/l	5.00						
4-Chloro-3-methylphenol	< 5.00		µg/l	5.00						
4-Chloroaniline	< 5.00		µg/l	5.00						
2-Chloronaphthalene	< 5.00		µg/l	5.00						
2-Chlorophenol	< 5.00		µg/l	5.00						
4-Chlorophenyl phenyl ether	< 5.00		µg/l	5.00						
Chrysene	< 5.00		µg/l	5.00						
Dibenzo (a,h) anthracene	< 5.00		µg/l	5.00						
Dibenzofuran	< 5.00		µg/l	5.00						
1,2-Dichlorobenzene	< 5.00		µg/l	5.00						
1,3-Dichlorobenzene	< 5.00		µg/l	5.00						
1,4-Dichlorobenzene	< 5.00		µg/l	5.00						
3,3´-Dichlorobenzidine	< 5.00		µg/l	5.00						
2,4-Dichlorophenol	< 5.00		µg/l	5.00						
Diethyl phthalate	< 5.00		µg/l	5.00						
Dimethyl phthalate	< 5.00		µg/l	5.00						
2,4-Dimethylphenol	< 5.00		µg/l	5.00						
Di-n-butyl phthalate	< 5.00		µg/l	5.00						
4,6-Dinitro-2-methylphenol	< 5.00		µg/l	5.00						
2,4-Dinitrophenol	< 5.00		µg/l	5.00						
2,4-Dinitrotoluene	< 5.00		µg/l	5.00						
2,6-Dinitrotoluene	< 5.00		µg/l	5.00						
Di-n-octyl phthalate	< 5.00		µg/l	5.00						
Fluoranthene	< 5.00		µg/l	5.00						
Fluorene	< 5.00		µg/l	5.00						
Hexachlorobenzene	< 5.00		µg/l	5.00						
Hexachlorobutadiene	< 5.00		µg/l	5.00						
Hexachlorocyclopentadiene	< 5.00		µg/l	5.00						
Hexachloroethane	< 5.00		µg/l	5.00						
Indeno (1,2,3-cd) pyrene	< 5.00		µg/l	5.00						
Isophorone	< 5.00		µg/l	5.00						
2-Methylnaphthalene	< 5.00		µg/l	5.00						
2-Methylphenol	< 5.00		µg/l	5.00						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216676 - SW846 3510C										
Blank (1216676-BLK1)					Prepared: 12-Jul-12 Analyzed: 13-Jul-12					
3 & 4-Methylphenol	< 10.0		µg/l	10.0						
Naphthalene	< 5.00		µg/l	5.00						
2-Nitroaniline	< 5.00		µg/l	5.00						
3-Nitroaniline	< 5.00		µg/l	5.00						
4-Nitroaniline	< 20.0		µg/l	20.0						
Nitrobenzene	< 5.00		µg/l	5.00						
2-Nitrophenol	< 5.00		µg/l	5.00						
4-Nitrophenol	< 20.0		µg/l	20.0						
N-Nitrosodimethylamine	< 5.00		µg/l	5.00						
N-Nitrosodi-n-propylamine	< 5.00		µg/l	5.00						
N-Nitrosodiphenylamine	< 5.00		µg/l	5.00						
Pentachlorophenol	< 20.0		µg/l	20.0						
Phenanthrene	< 5.00		µg/l	5.00						
Phenol	< 5.00		µg/l	5.00						
Pyrene	< 5.00		µg/l	5.00						
Pyridine	< 5.00		µg/l	5.00						
1,2,4-Trichlorobenzene	< 5.00		µg/l	5.00						
1-Methylnaphthalene	< 5.00		µg/l	5.00						
2,4,5-Trichlorophenol	< 5.00		µg/l	5.00						
2,4,6-Trichlorophenol	< 5.00		µg/l	5.00						
Pentachloronitrobenzene	< 5.00		µg/l	5.00						
1,2,4,5-Tetrachlorobenzene	< 5.00		µg/l	5.00						
Surrogate: 2-Fluorobiphenyl	*23.0*		µg/l		*50.0*		*46*	*30-130*		
Surrogate: 2-Fluorophenol	*17.6*		µg/l		*50.0*		*35*	*15-110*		
Surrogate: Nitrobenzene-d5	*26.7*		µg/l		*50.0*		*53*	*30-130*		
Surrogate: Phenol-d5	*11.2*		µg/l		*50.0*		*22*	*15-110*		
Surrogate: Terphenyl-dl4	*34.9*		µg/l		*50.0*		*70*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*32.8*		µg/l		*50.0*		*66*	*15-110*		
LCS (1216676-BS1)					Prepared & Analyzed: 12-Jul-12					
Acenaphthene	**26.8**		µg/l	5.00	50.0		54	40-130		
Acenaphthylene	**25.2**		µg/l	5.00	50.0		50	40-130		
Aniline	**21.5**		µg/l	5.00	50.0		43	40-130		
Anthracene	**28.5**		µg/l	5.00	50.0		57	40-130		
Azobenzene/Diphenyldiazine	**25.7**		µg/l	5.00	50.0		51	40-130		
Benzidine	< 5.00	QC2	µg/l	5.00	50.0			40-140		
Benzo (a) anthracene	**30.2**		µg/l	5.00	50.0		60	40-130		
Benzo (a) pyrene	**31.3**		µg/l	5.00	50.0		63	40-130		
Benzo (b) fluoranthene	**33.9**		µg/l	5.00	50.0		68	40-130		
Benzo (g,h,i) perylene	**32.5**		µg/l	5.00	50.0		65	40-130		
Benzo (k) fluoranthene	**31.7**		µg/l	5.00	50.0		63	40-130		
Benzoic acid	**15.2**	QC2	µg/l	5.00	50.0		30	40-130		
Benzyl alcohol	**22.9**		µg/l	5.00	50.0		46	40-130		
Bis(2-chloroethoxy)methane	**20.1**		µg/l	5.00	50.0		40	40-130		
Bis(2-chloroethyl)ether	**19.6**	QM9	µg/l	5.00	50.0		39	40-130		
Bis(2-chloroisopropyl)ether	**25.2**		µg/l	5.00	50.0		50	40-130		
Bis(2-ethylhexyl)phthalate	**26.7**		µg/l	5.00	50.0		53	40-130		
4-Bromophenyl phenyl ether	**28.6**		µg/l	5.00	50.0		57	40-130		
Butyl benzyl phthalate	**25.6**		µg/l	5.00	50.0		51	40-130		
Carbazole	**26.0**		µg/l	5.00	50.0		52	40-130		
4-Chloro-3-methylphenol	**28.6**		µg/l	5.00	50.0		57	40-130		
4-Chloroaniline	**24.7**		µg/l	5.00	50.0		49	40-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216676 - SW846 3510C										
LCS (1216676-BS1)					Prepared & Analyzed: 12-Jul-12					
2-Chloronaphthalene	**26.4**		µg/l	5.00	50.0		53	40-130		
2-Chlorophenol	**24.5**		µg/l	5.00	50.0		49	40-130		
4-Chlorophenyl phenyl ether	**29.9**		µg/l	5.00	50.0		60	40-130		
Chrysene	**28.4**		µg/l	5.00	50.0		57	40-130		
Dibenzo (a,h) anthracene	**34.5**		µg/l	5.00	50.0		69	40-130		
Dibenzofuran	**27.2**		µg/l	5.00	50.0		54	40-130		
1,2-Dichlorobenzene	**23.9**		µg/l	5.00	50.0		48	40-130		
1,3-Dichlorobenzene	**22.9**		µg/l	5.00	50.0		46	40-130		
1,4-Dichlorobenzene	**23.9**		µg/l	5.00	50.0		48	40-130		
3,3´-Dichlorobenzidine	**30.8**		µg/l	5.00	50.0		62	40-130		
2,4-Dichlorophenol	**28.5**		µg/l	5.00	50.0		57	40-130		
Diethyl phthalate	**28.2**		µg/l	5.00	50.0		56	40-130		
Dimethyl phthalate	**27.4**		µg/l	5.00	50.0		55	40-130		
2,4-Dimethylphenol	**24.2**		µg/l	5.00	50.0		48	40-130		
Di-n-butyl phthalate	**28.1**		µg/l	5.00	50.0		56	40-130		
4,6-Dinitro-2-methylphenol	**31.0**		µg/l	5.00	50.0		62	40-130		
2,4-Dinitrophenol	**29.7**		µg/l	5.00	50.0		59	40-130		
2,4-Dinitrotoluene	**29.9**		µg/l	5.00	50.0		60	40-130		
2,6-Dinitrotoluene	**29.6**		µg/l	5.00	50.0		59	40-130		
Di-n-octyl phthalate	**28.3**		µg/l	5.00	50.0		57	40-130		
Fluoranthene	**28.8**		µg/l	5.00	50.0		58	40-130		
Fluorene	**28.2**		µg/l	5.00	50.0		56	40-130		
Hexachlorobenzene	**31.9**		µg/l	5.00	50.0		64	40-130		
Hexachlorobutadiene	**25.0**		µg/l	5.00	50.0		50	40-130		
Hexachlorocyclopentadiene	**24.6**		µg/l	5.00	50.0		49	40-130		
Hexachloroethane	**22.3**		µg/l	5.00	50.0		45	40-130		
Indeno (1,2,3-cd) pyrene	**35.2**		µg/l	5.00	50.0		70	40-130		
Isophorone	**24.4**		µg/l	5.00	50.0		49	40-130		
2-Methylnaphthalene	**26.0**		µg/l	5.00	50.0		52	40-130		
2-Methylphenol	**23.3**		µg/l	5.00	50.0		47	40-130		
3 & 4-Methylphenol	**23.3**		µg/l	10.0	50.0		47	40-130		
Naphthalene	**23.9**		µg/l	5.00	50.0		48	40-130		
2-Nitroaniline	**24.8**		µg/l	5.00	50.0		50	40-130		
3-Nitroaniline	**24.8**		µg/l	5.00	50.0		50	40-130		
4-Nitroaniline	**23.6**		µg/l	20.0	50.0		47	40-130		
Nitrobenzene	**25.2**		µg/l	5.00	50.0		50	40-130		
2-Nitrophenol	**26.3**		µg/l	5.00	50.0		53	40-130		
4-Nitrophenol	**15.1**	QC2	µg/l	20.0	50.0		30	40-130		
N-Nitrosodimethylamine	**16.6**	QC2	µg/l	5.00	50.0		33	40-130		
N-Nitrosodi-n-propylamine	**22.5**		µg/l	5.00	50.0		45	40-130		
N-Nitrosodiphenylamine	**28.6**		µg/l	5.00	50.0		57	40-130		
Pentachlorophenol	**30.1**		µg/l	20.0	50.0		60	40-130		
Phenanthrene	**27.7**		µg/l	5.00	50.0		55	40-130		
Phenol	**12.2**	QC2	µg/l	5.00	50.0		24	40-130		
Pyrene	**28.3**		µg/l	5.00	50.0		57	40-130		
Pyridine	**12.3**	QC2	µg/l	5.00	50.0		25	40-140		
1,2,4-Trichlorobenzene	**25.6**		µg/l	5.00	50.0		51	40-130		
1-Methylnaphthalene	**25.7**		µg/l	5.00	50.0		51	40-140		
2,4,5-Trichlorophenol	**32.0**		µg/l	5.00	50.0		64	40-130		
2,4,6-Trichlorophenol	**27.4**		µg/l	5.00	50.0		55	40-130		
Pentachloronitrobenzene	**37.3**		µg/l	5.00	50.0		75	40-140		
1,2,4,5-Tetrachlorobenzene	**29.1**		µg/l	5.00	50.0		58	40-140		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216676 - SW846 3510C										
LCS (1216676-BS1)						Prepared & Analyzed: 12-Jul-12				
Surrogate: 2-Fluorobiphenyl	*26.1*		µg/l		*50.0*		*52*	*30-130*		
Surrogate: 2-Fluorophenol	*16.1*		µg/l		*50.0*		*32*	*15-110*		
Surrogate: Nitrobenzene-d5	*24.6*		µg/l		*50.0*		*49*	*30-130*		
Surrogate: Phenol-d5	*12.0*		µg/l		*50.0*		*24*	*15-110*		
Surrogate: Terphenyl-dl4	*34.0*		µg/l		*50.0*		*68*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*33.6*		µg/l		*50.0*		*67*	*15-110*		
LCS Dup (1216676-BSD1)		QC2				Prepared & Analyzed: 12-Jul-12				
Acenaphthene	**30.0**		µg/l	5.00	50.0		60	40-130	11	20
Acenaphthylene	**28.5**		µg/l	5.00	50.0		57	40-130	12	20
Aniline	**24.3**		µg/l	5.00	50.0		49	40-130	12	20
Anthracene	**31.8**		µg/l	5.00	50.0		64	40-130	11	20
Azobenzene/Diphenyldiazine	**28.7**		µg/l	5.00	50.0		57	40-130	11	20
Benzidine	< 5.00	QC2	µg/l	5.00	50.0			40-140		20
Benzo (a) anthracene	**33.9**		µg/l	5.00	50.0		68	40-130	12	20
Benzo (a) pyrene	**35.2**		µg/l	5.00	50.0		70	40-130	12	20
Benzo (b) fluoranthene	**39.8**		µg/l	5.00	50.0		80	40-130	16	20
Benzo (g,h,i) perylene	**36.6**		µg/l	5.00	50.0		73	40-130	12	20
Benzo (k) fluoranthene	**33.0**		µg/l	5.00	50.0		66	40-130	4	20
Benzoic acid	**17.3**	QC2	µg/l	5.00	50.0		35	40-130	13	20
Benzyl alcohol	**25.1**		µg/l	5.00	50.0		50	40-130	9	20
Bis(2-chloroethoxy)methane	**22.8**		µg/l	5.00	50.0		46	40-130	13	20
Bis(2-chloroethyl)ether	**22.2**		µg/l	5.00	50.0		44	40-130	12	20
Bis(2-chloroisopropyl)ether	**28.6**		µg/l	5.00	50.0		57	40-130	12	20
Bis(2-ethylhexyl)phthalate	**30.6**		µg/l	5.00	50.0		61	40-130	14	20
4-Bromophenyl phenyl ether	**32.0**		µg/l	5.00	50.0		64	40-130	11	20
Butyl benzyl phthalate	**29.1**		µg/l	5.00	50.0		58	40-130	13	20
Carbazole	**29.7**		µg/l	5.00	50.0		59	40-130	13	20
4-Chloro-3-methylphenol	**32.6**		µg/l	5.00	50.0		65	40-130	13	20
4-Chloroaniline	**27.3**		µg/l	5.00	50.0		55	40-130	10	20
2-Chloronaphthalene	**29.3**		µg/l	5.00	50.0		59	40-130	10	20
2-Chlorophenol	**27.7**		µg/l	5.00	50.0		55	40-130	12	20
4-Chlorophenyl phenyl ether	**33.3**		µg/l	5.00	50.0		67	40-130	11	20
Chrysene	**32.0**		µg/l	5.00	50.0		64	40-130	12	20
Dibenzo (a,h) anthracene	**38.7**		µg/l	5.00	50.0		77	40-130	11	20
Dibenzofuran	**30.3**		µg/l	5.00	50.0		61	40-130	11	20
1,2-Dichlorobenzene	**27.0**		µg/l	5.00	50.0		54	40-130	12	20
1,3-Dichlorobenzene	**26.6**		µg/l	5.00	50.0		53	40-130	15	20
1,4-Dichlorobenzene	**27.4**		µg/l	5.00	50.0		55	40-130	14	20
3,3´-Dichlorobenzidine	**35.1**		µg/l	5.00	50.0		70	40-130	13	20
2,4-Dichlorophenol	**32.3**		µg/l	5.00	50.0		65	40-130	12	20
Diethyl phthalate	**32.1**		µg/l	5.00	50.0		64	40-130	13	20
Dimethyl phthalate	**30.9**		µg/l	5.00	50.0		62	40-130	12	20
2,4-Dimethylphenol	**28.8**		µg/l	5.00	50.0		58	40-130	17	20
Di-n-butyl phthalate	**31.8**		µg/l	5.00	50.0		64	40-130	13	20
4,6-Dinitro-2-methylphenol	**35.7**		µg/l	5.00	50.0		71	40-130	14	20
2,4-Dinitrophenol	**34.8**		µg/l	5.00	50.0		70	40-130	16	20
2,4-Dinitrotoluene	**33.6**		µg/l	5.00	50.0		67	40-130	12	20
2,6-Dinitrotoluene	**33.8**		µg/l	5.00	50.0		68	40-130	13	20
Di-n-octyl phthalate	**32.2**		µg/l	5.00	50.0		64	40-130	13	20
Fluoranthene	**32.6**		µg/l	5.00	50.0		65	40-130	12	20
Fluorene	**31.5**		µg/l	5.00	50.0		63	40-130	11	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216676 - SW846 3510C										
LCS Dup (1216676-BSD1)		QC2			Prepared & Analyzed: 12-Jul-12					
Hexachlorobenzene	**35.1**		µg/l	5.00	50.0		70	40-130	10	20
Hexachlorobutadiene	**29.2**		µg/l	5.00	50.0		58	40-130	15	20
Hexachlorocyclopentadiene	**28.9**		µg/l	5.00	50.0		58	40-130	16	20
Hexachloroethane	**25.9**		µg/l	5.00	50.0		52	40-130	15	20
Indeno (1,2,3-cd) pyrene	**39.7**		µg/l	5.00	50.0		79	40-130	12	20
Isophorone	**27.6**		µg/l	5.00	50.0		55	40-130	12	20
2-Methylnaphthalene	**29.2**		µg/l	5.00	50.0		58	40-130	12	20
2-Methylphenol	**25.7**		µg/l	5.00	50.0		51	40-130	10	20
3 & 4-Methylphenol	**25.7**		µg/l	10.0	50.0		51	40-130	10	20
Naphthalene	**27.0**		µg/l	5.00	50.0		54	40-130	12	20
2-Nitroaniline	**27.9**		µg/l	5.00	50.0		56	40-130	12	20
3-Nitroaniline	**27.9**		µg/l	5.00	50.0		56	40-130	12	20
4-Nitroaniline	**26.6**		µg/l	20.0	50.0		53	40-130	12	20
Nitrobenzene	**28.4**		µg/l	5.00	50.0		57	40-130	12	20
2-Nitrophenol	**30.0**		µg/l	5.00	50.0		60	40-130	13	20
4-Nitrophenol	**17.9**	QC2	µg/l	20.0	50.0		36	40-130	17	20
N-Nitrosodimethylamine	**18.7**	QC2	µg/l	5.00	50.0		37	40-130	12	20
N-Nitrosodi-n-propylamine	**25.1**		µg/l	5.00	50.0		50	40-130	11	20
N-Nitrosodiphenylamine	**32.3**		µg/l	5.00	50.0		65	40-130	12	20
Pentachlorophenol	**35.6**		µg/l	20.0	50.0		71	40-130	17	20
Phenanthrene	**31.0**		µg/l	5.00	50.0		62	40-130	11	20
Phenol	**13.5**	QC2	µg/l	5.00	50.0		27	40-130	10	20
Pyrene	**31.8**		µg/l	5.00	50.0		64	40-130	12	20
Pyridine	**13.0**		µg/l	5.00	50.0		26	40-140	5	20
1,2,4-Trichlorobenzene	**29.4**		µg/l	5.00	50.0		59	40-130	14	20
1-Methylnaphthalene	**28.6**		µg/l	5.00	50.0		57	40-140	11	20
2,4,5-Trichlorophenol	**35.6**		µg/l	5.00	50.0		71	40-130	11	20
2,4,6-Trichlorophenol	**30.8**		µg/l	5.00	50.0		62	40-130	11	20
Pentachloronitrobenzene	**41.4**		µg/l	5.00	50.0		83	40-140	10	20
1,2,4,5-Tetrachlorobenzene	**33.0**		µg/l	5.00	50.0		66	40-140	13	20
Surrogate: 2-Fluorobiphenyl	*28.9*		µg/l		*50.0*		*58*	*30-130*		
Surrogate: 2-Fluorophenol	*18.6*		µg/l		*50.0*		*37*	*15-110*		
Surrogate: Nitrobenzene-d5	*27.9*		µg/l		*50.0*		*56*	*30-130*		
Surrogate: Phenol-d5	*13.3*		µg/l		*50.0*		*27*	*15-110*		
Surrogate: Terphenyl-dl4	*37.5*		µg/l		*50.0*		*75*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*38.1*		µg/l		*50.0*		*76*	*15-110*		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216664 - SW846 3510C										
Blank (1216664-BLK1)						Prepared & Analyzed: 13-Jul-12				
Non-polar material (SGT-HEM)	< 1.0		mg/l	1.0						
LCS (1216664-BS1)						Prepared & Analyzed: 13-Jul-12				
Non-polar material (SGT-HEM)	**29.0**		mg/l		34.3		85	83-101		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216651 - SW846 3005A										
Blank (1216651-BLK1)					Prepared & Analyzed: 12-Jul-12					
Nickel	< 0.0050		mg/l	0.0050						
Iron	< 5.00		mg/l	5.00						
Zinc	< 0.0050		mg/l	0.0050						
Chromium	< 0.0050		mg/l	0.0050						
LCS (1216651-BS1)					Prepared & Analyzed: 12-Jul-12					
Nickel	**1.25**		mg/l	0.0050	1.25		100	85-115		
Zinc	**1.19**		mg/l	0.0050	1.25		95	85-115		
Iron	**1.38**		mg/l	5.00	1.25		111	85-115		
Chromium	**1.28**		mg/l	0.0050	1.25		102	85-115		
LCS Dup (1216651-BSD1)					Prepared & Analyzed: 12-Jul-12					
Iron	**1.36**		mg/l	5.00	1.25		109	85-115	2	20
Nickel	**1.23**		mg/l	0.0050	1.25		98	85-115	1	20
Zinc	**1.17**		mg/l	0.0050	1.25		93	85-115	2	20
Chromium	**1.26**		mg/l	0.0050	1.25		100	85-115	2	20
Duplicate (1216651-DUP1)			**Source: SB52670-01**		Prepared & Analyzed: 12-Jul-12					
Zinc	**0.196**		mg/l	0.0050		0.193			2	20
Nickel	**0.0196**		mg/l	0.0050		0.0197			0.3	20
Iron	**15.9**		mg/l	5.00		15.9			0.06	20
Chromium	**0.0202**		mg/l	0.0050		0.0202			0.2	20
Matrix Spike (1216651-MS1)			**Source: SB52670-01**		Prepared & Analyzed: 12-Jul-12					
Iron	**17.6**	QM4X	mg/l	5.00	1.25	15.9	142	75-125		
Nickel	**1.12**		mg/l	0.0050	1.25	0.0197	88	75-125		
Zinc	**1.25**		mg/l	0.0050	1.25	0.193	85	75-125		
Chromium	**1.17**		mg/l	0.0050	1.25	0.0202	92	75-125		
Matrix Spike Dup (1216651-MSD1)			**Source: SB52670-01**		Prepared & Analyzed: 12-Jul-12					
Iron	**18.1**	QM4X	mg/l	5.00	1.25	15.9	182	75-125	3	20
Nickel	**1.13**		mg/l	0.0050	1.25	0.0197	89	75-125	0.6	20
Zinc	**1.26**		mg/l	0.0050	1.25	0.193	86	75-125	0.6	20
Chromium	**1.19**		mg/l	0.0050	1.25	0.0202	93	75-125	2	20
Post Spike (1216651-PS1)			**Source: SB52670-01**		Prepared & Analyzed: 12-Jul-12					
Iron	**17.3**		mg/l	5.00	1.25	15.9	118	80-120		
Nickel	**1.21**		mg/l	0.0050	1.25	0.0197	95	80-120		
Zinc	**1.35**		mg/l	0.0050	1.25	0.193	92	80-120		
Chromium	**1.25**		mg/l	0.0050	1.25	0.0202	99	80-120		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1216641 - General Preparation										
Blank (1216641-BLK1)						Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	< 0.005		mg/l	0.005						
LCS (1216641-BS1)						Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	**0.051**		mg/l	0.005	0.0500		102	80-120		
Duplicate (1216641-DUP1)			**Source: SB52670-01**			Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	< 0.125		mg/l	0.125		BRL				20
MRL Check (1216641-MRL1)						Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	**0.005**		mg/l	0.005	0.00500		92	70-130		
MRL Check (1216641-MRL2)						Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	**0.004**		mg/l	0.005	0.00500		86	70-130		
MRL Check (1216641-MRL3)						Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	**0.004**		mg/l	0.005	0.00500		74	70-130		
MRL Check (1216641-MRL4)						Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	**0.005**		mg/l	0.005	0.00500		94	70-130		
Matrix Spike (1216641-MS1)			**Source: SB52670-01**			Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	**1.18**		mg/l	0.125	1.25	BRL	95	85-115		
Matrix Spike Dup (1216641-MSD1)			**Source: SB52670-01**			Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	**1.05**	QM7	mg/l	0.125	1.25	BRL	84	85-115	12	20
Reference (1216641-SRM1)						Prepared & Analyzed: 12-Jul-12				
Hexavalent Chromium	**0.024**		mg/l	0.005	0.0250		97	85-115		

Notes and Definitions

QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM4X	The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
R01	The Reporting Limit has been raised to account for matrix interference.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Interpretation of Total Petroleum Hydrocarbon Report

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from analyses of various petroleum products. Possible match categories are as follows:

Gasoline - includes regular, unleaded, premium, etc.
Fuel Oil #2 - includes home heating oil, #2 fuel oil, and diesel
Fuel Oil #4 - includes #4 fuel oil
Fuel Oil #6 - includes #6 fuel oil and bunker "C" oil
Motor Oil - includes virgin and waste automobile oil
Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha
Aviation Fuel - includes kerosene, Jet A and JP-4
Other Oil - includes lubricating and cutting oil, and silicon oil

At times, the unidentified petroleum product is quantified using a calibration that most closely approximates the distribution of compounds in the sample. When this occurs, the result is qualified as Calculated as.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
June O'Connor
Nicole Leja

J SB52670 OK

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 7-13-12
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS - Woburn

Telephone #: 781-246-8897

Project Mgr. Matt Carey

Invoice To: ECS - Agawam

P.O. No.: _____ RQN: 0002

Project No.: 05.203823.01

Site Name: Beachmont School, 15 Everard Ave

Location: Revere State: MA

Sampler(s): J. Rogers

1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= _____ 11= _____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	List preservative code below: 2 / 2 / 4 / 4 — Analyses: * TPH 1664	8260	8270	Total trivalent Cr	Hexavalent Cr	total Fe, Zn, Ni
52670-01	Frac tank	7-12-12	11:45	G	GW	3	2		2	X	X	X	X	X	X

QA/QC Reporting Notes:
* additional charges may apply

MA DEP MCP CAM Report: Yes ☒ No ☐
CT DPH RCP Report: Yes ☐ No ☒

QA/QC Reporting Level
☒ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other _____

State-specific reporting standards:

* Chromium speciation requires 24hr analyses

* per Rush Req

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	7-12-12	1400	
[signature]	JB	7/12/12	16:20	1.6

☐ EDD Format _____

☒ E-mail to MCarey@ECSconsult.com
Sobrien@ECSconsult.com

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ___ °C ☐ Freezer temp ___ °C

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

11 Almgren Drive
Agawam, MA 01001
(413) 789-9018

This preceding chain of custody has been amended to include the client requested additional analyses as noted below:

Laboratory ID	*Client ID*	*Analysis*	*Added*
SB52670-01	Frac Tank	Semivolatile Organic Compounds	7/13/2012

APPENDIX C
ESA ELIGIBILITY

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

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

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

7/31/2008

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

January 17, 2012

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

(http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Mr. Anthony Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

APPENDIX D
NHPA ELIGIBILITY

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Revere; Street Name: Bennington; Resource Type(s): Area, Building, Burial Ground, Object;

Inv. No.	Property Name	Street	Town	Year

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Revere; Street Name: everard; Resource Type(s): Area, Building, Object, Burial Ground, Structure;

Inv. No.	Property Name	Street	Town	Year

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National Park Service
U.S. Department of the Interior

National Register of Historic Places

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Term(s) Searched: Massachusetts and revere
Records Displayed: 1 to 8 of 8

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Sort By: **Title** | Relevancy | Modified

- Church of Christ *[Image]* 8%
- Immaculate Conception Rectory *[Image]* 8%
- Revere Beach Reservation *[Image]* 8%
- Revere Beach Reservation *[Image]* 8%
- Revere Beach Reservation Historic District *[Image]* 8%
- Ronan, Mary, T., School *[Image]* 8%
- Rumney Marsh Burying Ground *[Image]* 8%
- Winthrop Parkway, Metropolitan Parkway System of Greater Boston *[Image]* 8%

Prev | 1 | Next