



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**Region 1**

**5 Post Office Square, Suite 100  
BOSTON, MA 02109-3912**

**CERTIFIED MAIL RETURN RECEIPT REQUESTED**

**AUG 01 2013**

Matthew Young  
Project Manager  
Cumberland Farms, Inc.  
100 Crossing Boulevard  
Framingham, MA 01702

Re: Authorization to discharge under the Remediation General Permit (RGP) –  
MAG910000. Cumberland Farms Store# 2131 site located at 506 Main Street,  
Sturbridge, MA 01518, Worcester County; Authorization # MAG910590

Dear Mr. Young:

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

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

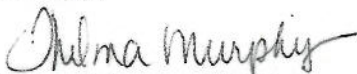
Please note the enclosed checklist includes parameters that exceeded Appendix III limits. Also, please note that the metals included on the checklist are dilution dependent pollutants and subject to limitations based on selected dilution ranges and technology-based ceiling limitations. For each parameter the dilution factor 37.90 for this site is within a dilution range greater than ten to fifty (>10 to 50), established in the RGP. (See the RGP Appendix IV for Massachusetts facilities). Therefore, the limits for lead of 52 ug/L and iron of 1,000 ug/L are required to achieve permit compliance at your site.

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

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

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

Sincerely,



Thelma Murphy, Chief  
Storm Water and Construction  
Permits Section

Enclosure

cc: Robert Kubit, MassDEP  
Greg Morse, Director, Sturbridge PWD  
Michael C. Bricher, ECS Inc.



**2010 Remediation General Permit  
Summary of Monitoring Parameters<sup>[1]</sup>**

<b>NPDES Authorization Number:</b>		<b>MAG910590</b>
Authorization Issued:	July, 2013	
Facility/Site Name:	Cumberland Farms Store#2131	
Facility/Site Address:	506 Main Street, MA 01518	
	Email address of owner: <u>myoung@cumberlandgulf.com</u>	
Legal Name of Operator:	Cumberland Farms, Inc.	
Operator contact name, title, and Address:	Matthew Young, Senior Project Manager	
	Email: <u>myoung@cumberlandgulf.com</u> – same as the owner	
Estimated date of Completion:	November 31, 2013	
Category and Sub-Category:	Category I- Petroleum Related Site Remediation. Sub-category A. Gasoline Only sites	
RGP Termination Date:	September 9, 2015	
Receiving Water:	Quinebaug River	

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

	<u>Parameter</u>	<u>Effluent Limit/Method#/ML</u> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
✓	1. Total Suspended Solids (TSS)	30 milligrams/liter (mg/L) **, 50 mg/L for hydrostatic testing ** Me#160.2/ML5ug/L
	2. Total Residual Chlorine (TRC) <sup>1</sup>	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) <sup>2, 3</sup>	Freshwater = 5.2 ug/l ** Saltwater = 1.0 ug/L **/ Me#335.4/ML 10ug/L
✓	5. Benzene (B)	5ug/L /50.0 ug/L for hydrostatic testing only/ Me#8260C/ML 2 ug/L
	6. Toluene (T)	(limited as ug/L total BTEX)/ Me#8260C/ ML 2ug/L
	7. Ethylbenzene (E)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
	8. (m,p,o) Xylenes (X)	(limited as ug/L total BTEX) Me#8260C/ ML 2ug/L
✓	9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX) <sup>4</sup>	100 ug/L/ Me#8260C/ ML 2ug/L



	<b>Parameter</b>	<b>Effluent Limit/Method# /ML</b> (All Effluent Limits are shown as Daily Maximum Limit, unless denoted by a **, in that case it will be a Monthly Average Limit)
✓	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 <sup>5</sup>	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) <sup>6</sup>	3.0 ug/L ** /Me#8270D/ML 5ug/L, Me#606/ML 10ug/L& Me#625/ML 5ug/L
	34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	6.0 ug/L /Me#8270D/ML 5ug/L,Me#606/ML 10ug/L & Me#625/ML 5ug/L
	35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	10.0 ug/L
	a. Benzo(a) Anthracene <sup>7</sup>	0.0038 ug/L /Me#8270D/ ML 5ug/L, Me#610/ML 5ug/L& Me#625/ML 5ug/L



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



	<b>Metal parameter</b>	<b>Total Recoverable MA/Metal Limit <math>H^{10} = 50 \text{ mg/l}</math> <b>CaCO<sub>3</sub>, Units = ug/l <sup>(11/12)</sup></b></b>		<b>Minimum level=ML</b>	
		<b>Freshwater Limits</b>			
	39. Antimony	5.6		ML	10
	40. Arsenic **	10		ML	20
	41. Cadmium **	0.2		ML	10
	42. Chromium III (trivalent) **	48.8		ML	15
	43. Chromium VI (hexavalent) **	11.4		ML	10
	44. Copper **	5.2		ML	15
✓	45. Lead. **	1.3		ML	20
	46. Mercury **	0.9		ML	02
	47. Nickel **	29		ML	20
	48. Selenium **	5		ML	20
	49. Silver	1.2		ML	10
	50. Zinc **	66.6		ML	15
✓	51. Iron	1,000		ML	20

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

Footnotes:



<sup>1</sup> 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).

<sup>2</sup> 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.

<sup>3</sup> 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).

<sup>4</sup> BTEX = sum of Benzene, Toluene, Ethylbenzene, and total Xylenes.

<sup>5</sup> 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.

<sup>6</sup> 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.*

<sup>7</sup> 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.

<sup>8</sup> 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.

<sup>9</sup>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).

<sup>10</sup> Hardness. Cadmium, Chromium III, Copper, Lead, Nickel, Silver, and Zinc are Hardness Dependent.

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

<sup>12</sup> 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).

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

<sup>14</sup> Temperature sampling per Method 170.1



WHERE BUSINESS AND THE ENVIRONMENT CONVERGE



997 Millbury Street, Unit G, Worcester, MA 01607 tel 508.756.0151 fax 508.757.7063 www.ecsconsult.com

July 10, 2013  
Project No. 93-204810

Mr. Victor Alvarez  
U.S. Environmental Protection Agency  
EPA-Region 1  
5 Post Office Square  
Mail Code OEP06-4  
Boston, MA 02109-3912

**RE: Notice of Intent for Remediation General Permit  
Cumberland Farms Store #2131/V0937  
506 Main Street  
Sturbridge, MA 01518  
MassDEP RTN 2-15914**

Dear Mr. Alvarez:

Environmental Compliance Services, Inc. (ECS) is pleased to provide supporting documentation for the Notice of Intent (NOI) for the Remediation General Permit (RGP) on behalf of Cumberland Farms, Inc. (CFI), for the above-referenced property. This NOI is being submitted in order to obtain a permit for the operation of a temporary groundwater recovery and treatment system (GWTS) at the Site. The GWTS is required to be operated at the Site in order to allow for the removal and replacement of petroleum underground storage tanks (USTs) during site redevelopment. A Site Locus is provided as Figure 1 and a Dewatering Discharge Location Plan is provided as Figure 2. A Flow Schematic of the dewatering treatment plan is included as Figure 3. A copy of the NOI form is provided as Attachment I.

### **System Design**

Groundwater treatment will occur prior to discharge to the storm water manhole located along the southeastern property boundary. A plan detailing the location of the UST system and the proposed storm water manhole discharge location and drainage pathway is depicted on Figure 2.

The groundwater treatment system located on the Site will be composed of the following:

Submersible pneumatic pumps that collect groundwater from the UST excavation area, then recovered groundwater will be pumped into a 20,000 gallon frac tank (to settle out solids) and then processed through particulate filters and two-1,000 lbs. liquid phase granular activated carbon (GAC) units for the treatment of recovered liquids. A line diagram of the groundwater treatment system is provided as Figure 3.



An intermittent stream is located in the northern portion of the Site property and enters a storm water drainage system through a culvert in this area of the Site (Culvert 1). This storm water drainage culvert crosses the Site along the eastern portion of the CFI property and enters a storm water catch basin immediately south of the Site on Main Street. An on-site storm water catch basin (CB-1) discharges to this storm water drainage culvert. The storm water drainage culvert discharges into an outfall located approximately 225 feet south of the Site property boundary (Culvert 2). This culvert eventually discharges into bordering vegetated wetlands abutting the Quinebaug River which is located approximately 485 feet south-southwest of the Site. Please refer to Figure 2 for the estimated storm drain path running toward the Quinebaug River.

Average flow rate of discharge of treated groundwater from the system to the storm water line is expected to be approximately 50 gallons per minute (gpm). The design capacity of the groundwater treatment system is 75 gpm based upon data collected from comparable systems installed at other remedial sites operated/designed by ECS.

### **Influent Sample Analysis**

Groundwater samples were collected from monitoring well ECS-8 on May 31, 2013. These samples were submitted to Spectrum Analytical, Inc. of Agawam, Massachusetts under standard chain of custody protocol for analysis of total petroleum hydrocarbons (TPH) by USEPA Method 8100, volatile organic compounds (VOCs) by USEPA Method 8260B, total metals (iron and lead) by USEPA Method 200.7, and total suspended solids by SM2540D. In addition, groundwater samples collected from site-related monitoring wells on April 30, 2013 were submitted to Spectrum for volatile petroleum hydrocarbon (VPH) analysis via MA DEP methodology. A copy of the laboratory reports and chains of custody record are provided as Attachment II.

Appendix III of the 2010 RGP under NPDES sets the effluent limitations for treatment system discharges. Groundwater analytical results of the samples collected from ECS-8 on May 31, 2013 and from the site-related groundwater monitoring wells on April 30, 2013 were compared to the Appendix III effluent limitations ([www.epa.gov/region1/npdes/rgp.html](http://www.epa.gov/region1/npdes/rgp.html)). These results indicate that the petroleum constituents (i.e., benzene, total benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert butyl ether (MTBE), and naphthalene) were detected in one or more samples at concentrations above the applicable Appendix III effluent limitations for Subcategory A-gasoline only sites.

### **Receiving Waters Information**

The receiving water for the treated groundwater discharge is the Quinebaug River, located approximately 485 feet south-southwest of the Site. ECS consulted the online United States Geological Survey (USGS) Streamstats program to determine the 7Q10 flow rate at the discharge location (<http://ma.water.usgs.gov/streamstats/>, accessed June 12, 2013). Data obtained from the online resource indicated that the 7Q10 flow rate for the Quinebaug River at USGS station #01123360, approximately 1 mile southwest of the Site is 6.2 cubic feet per second (cfs). Based on data available, ECS calculated a 7Q10 flow rate for this area to be 372 cubic feet per minute.

### **Receiving Water Classification**

ECS consulted the Massachusetts Department of Environmental Protection (MassDEP) Division of Water Pollution Control (<http://www.mass.gov/dep/water/laws/tblfig.pdf>) to determine the classification for the receiving waters. The Quinebaug River is listed as Class B surface water.

### **Evaluation of Threatened or Endangered Species or Critical Habitat Located within Receiving Waters**

According to Massachusetts Geographic Information Systems (MassGIS) online maps for the Natural Heritage Endangered Species Program (NHESP) (2008), no Priority Habitat of Rare Species or Estimated Habitats of Rare Wildlife are located within the proposed at or immediately adjacent to the work zone area. The closest NHESP Estimated Habitats of Rare Wildlife in Wetland Areas Protected Open Spaces are located approximately 225 feet south/southwest of the Site, which is proximate to the discharge outfall location area. Given the fact there will be an on-site dewatering treatment system, the potential discharge will not have an adverse affect on the NHESP Estimated Habitats of Rare Wildlife. A copy of the MassGIS Resource Priority and NHESP Maps of the Site area is included in Attachment III.

### **Review of National Register of Historic Places**

Listings of Historic Places within the Town of Sturbridge in the vicinity of the Site were obtained from the Massachusetts Cultural Resources Information System (MACRIS) online database at <http://mhc-macris.net/towns.aspx> (accessed June 3, 2013). Copies of the MACRIS report are provided as Attachment IV. The database indicated that there are no historic places located in close proximity to the Site and proposed discharge area. This project does not involve the demolition or rehabilitation of historic properties.

Lastly, environmental response actions are currently being conducted at this Site in accordance with the Massachusetts Contingency Plan (310 CMR 40.0000) under MassDEP RTN 2-15914. Accordingly, discharges subject to the MCP do not require the completion of state application form BRPWM 12 or pay state fees.

Should you have any questions or concerns regarding the contents of this letter or the NOI for the RGP, please do not hesitate to contact the undersigned at (508) 756-0151.

Sincerely,  
ENVIRONMENTAL COMPLIANCE SERVICES, INC.



Michael C. Bricher, P.G., LSP  
Senior Project Manager

cc: Matthew Young, Cumberland Farms, Inc., 100 Crossing Blvd, Framingham, MA 01702  
Robert Kubit, MassDEP, Division of Watershed Management, 627 Main Street,  
Worcester, MA 01608



Greg Morse, Department of Public Works Director, Town of Sturbridge, PO Box 182,  
Sturbridge, MA 01566  
William M. Clougherty, P.E., MassDOT Highway Division, District 3, 403 Belmont  
Street, Worcester, MA 01604

## **LIST OF ATTACHMENTS**

### Figures

Figure 1: Site Locus

Figure 2: Dewatering Discharge Location Plan

Figure 3: Flow Schematic

Attachment I: NOI for the RGP

Attachment II: Laboratory Analytical Reports and Chain of Custody Records

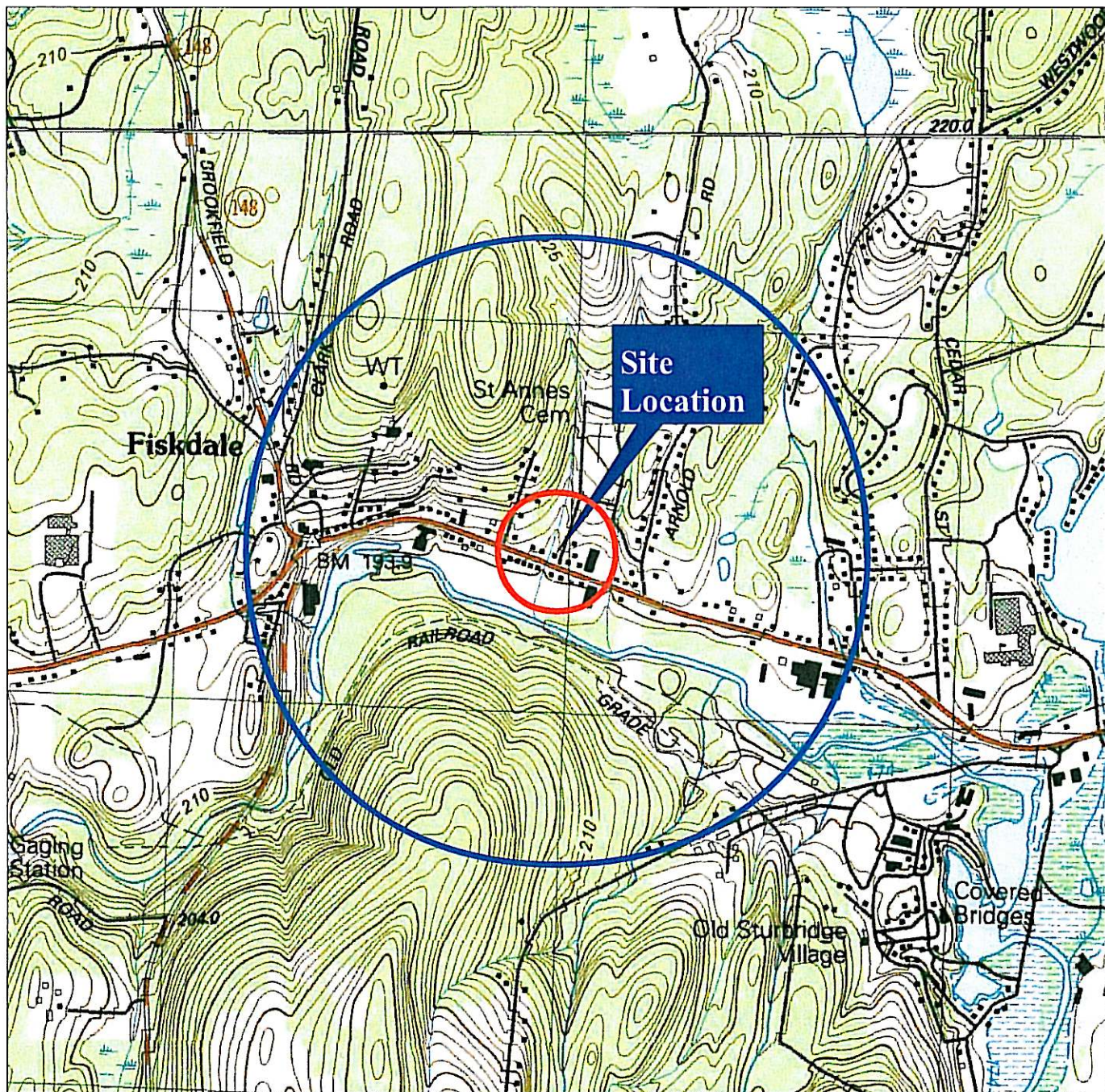
Attachment III: On-line MassGIS Resource Priority & NHESP Maps

Attachment IV: MACRIS Database Search Results

## FIGURES

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## Site Location Map

506 Main Street  
Sturbridge, MA 01518

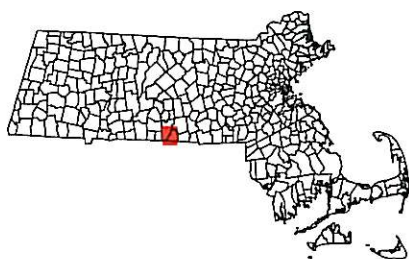
Figure 1

500 0 500 1000 Feet

1 in. = 1250 ft.



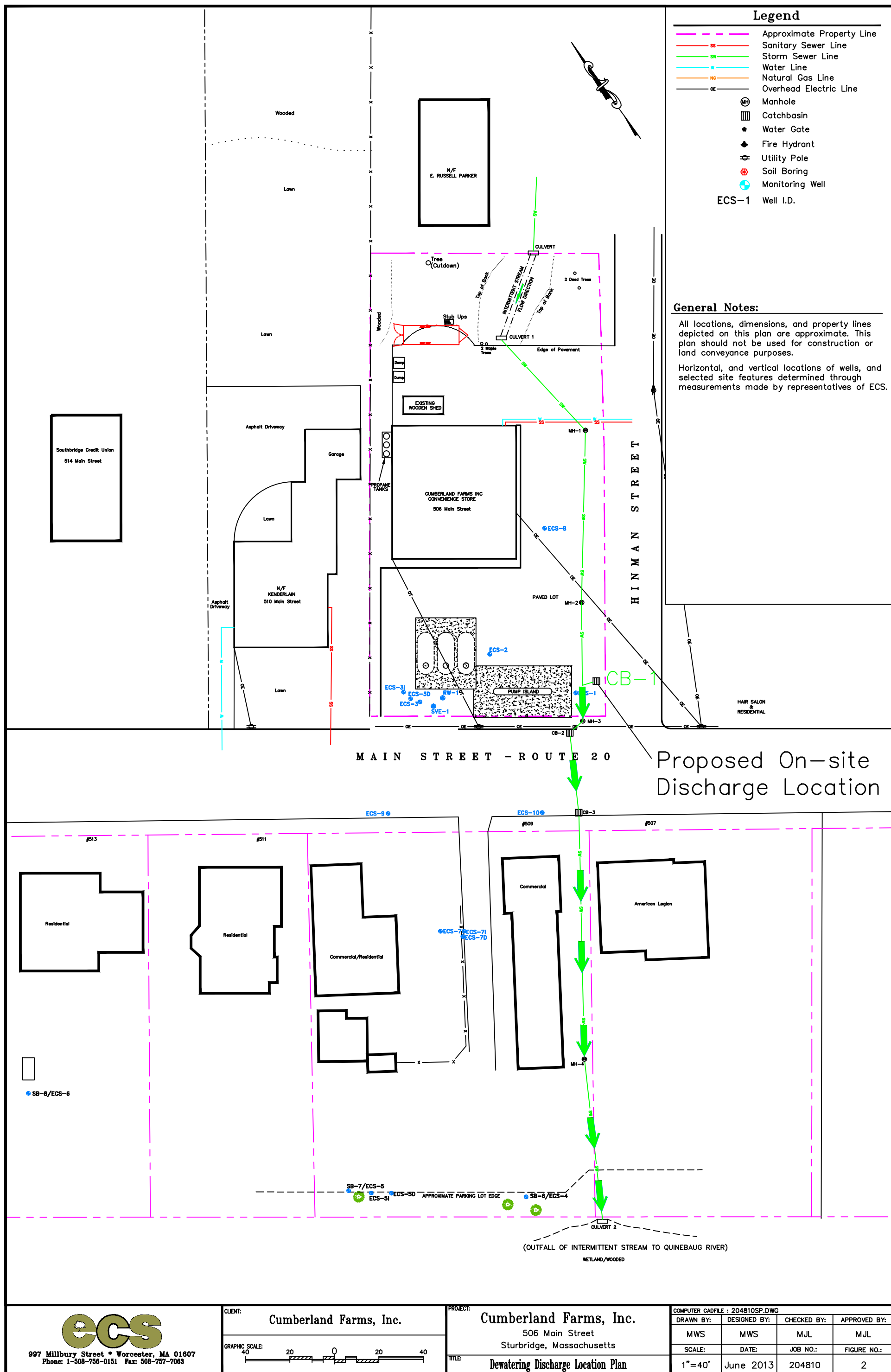
91-204810.00  
11/29/05



Map taken from the USGS 7.5 Minute Southbridge  
Quadrangle, 1981.

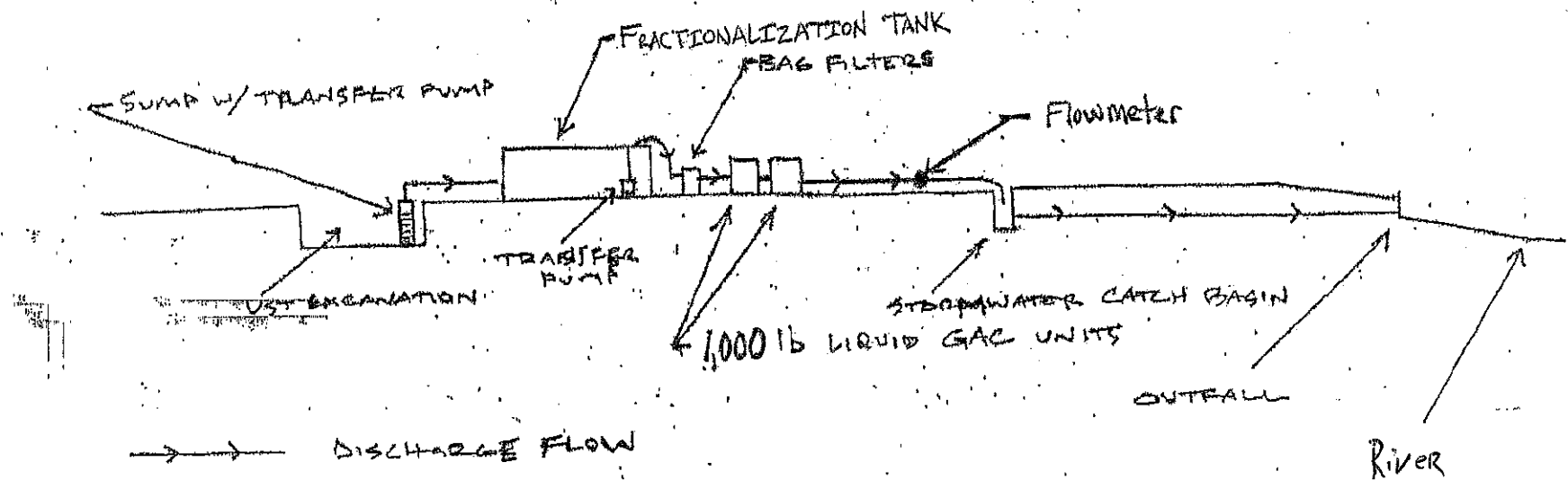
**ecs**







# Flow Schematic - Figure 3



## **ATTACHMENT I**

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

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



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:	
b) Provide the following information about each discharge:	
1) Number of discharge points:	2) What is the <b>maximum</b> and <b>average flow rate</b> of discharge (in cubic feet per second, ft <sup>3</sup> /s)? Max. flow _____ Is maximum flow a <b>design value</b> ? Y___ N___ Average flow (include units) _____ Is average flow a design value or estimate? _____
3) Latitude and longitude of each discharge within 100 feet: pt.1: lat. _____ long. _____; 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 _____ end _____	
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).	

**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.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
1. Total Suspended Solids (TSS)											
2. Total Residual Chlorine (TRC)											
3. Total Petroleum Hydrocarbons (TPH)											
4. Cyanide (CN)	57125										
5. Benzene (B)	71432										
6. Toluene (T)	108883										
7. Ethylbenzene (E)	100414										
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207										
9. Total BTEX <sup>2</sup>	n/a										
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane) <sup>3</sup>	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.

<sup>2</sup> BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

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

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
13. tert-Amyl Methyl Ether (TAME)	9940508										
14. Naphthalene	91203										
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										



<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
28. Vinyl Chloride (Chloroethene)	75014										
29. Acetone	67641										
30. 1,4 Dioxane	123911										
31. Total Phenols	108952										
32. Pentachlorophenol (PCP)	87865										
33. Total Phthalates (Phthalate esters) <sup>4</sup>											
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	117817										
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)											
a. Benzo(a) Anthracene	56553										
b. Benzo(a) Pyrene	50328										
c. Benzo(b)Fluoranthene	205992										
d. Benzo(k)Fluoranthene	207089										
e. Chrysene	21801										
f. Dibenzo(a,h)anthracene	53703										
g. Indeno(1,2,3-cd) Pyrene	193395										
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)											

<sup>4</sup>The sum of individual phthalate compounds.

<u>Parameter *</u>	<u>CAS Number</u>	<u>Believed Absent</u>	<u>Believed Present</u>	<u># of Samples</u>	<u>Sample Type (e.g., grab)</u>	<u>Analytical Method Used (method #)</u>	<u>Minimum Level (ML) of Test Method</u>	<u>Maximum daily value</u>		<u>Average daily value</u>	
								<u>concentration (ug/l)</u>	<u>mass (kg)</u>	<u>concentration (ug/l)</u>	<u>mass (kg)</u>
h. Acenaphthene	83329										
i. Acenaphthylene	208968										
j. Anthracene	120127										
k. Benzo(ghi) Perylene	191242										
l. Fluoranthene	206440										
m. Fluorene	86737										
n. Naphthalene	91203										
o. Phenanthrene	85018										
p. Pyrene	129000										
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										
43. Chromium VI (hexavalent)	18540299										
44. Copper	7440508										
45. Lead	7439921										
46. Mercury	7439976										
47. Nickel	7440020										
48. Selenium	7782492										
49. Silver	7440224										
50. Zinc	7440666										
51. Iron	7439896										
Other (describe):											

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

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

<p><i>Step 1:</i> Do any of the metals in the influent exceed the effluent limits in Appendix III (i.e., the limits set at zero dilution)? Y____ N____</p>	<p>If yes, which metals?</p>
<p><i>Step 2:</i> For any metals which exceed the <b>Appendix III</b> limits, calculate the <b>dilution factor (DF)</b> 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?</p> <p>Metal:_____DF:_____</p> <p>Metal:_____DF:_____</p> <p>Metal:_____DF:_____</p> <p>Metal:_____DF:_____</p> <p>Etc.</p>	<p>Look up the limit calculated at the corresponding dilution factor in <b>Appendix IV</b>. Do any of the metals in the <b>influent</b> have the potential to exceed the corresponding <b>effluent</b> limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)?</p> <p>Y____ N____ If Y, list which metals:</p>

**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:

<p>a) A description of the treatment system, including a schematic of the proposed or existing treatment system:</p>						
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 \_\_\_\_\_ gpm    Maximum flow rate of treatment system \_\_\_\_\_ gpm

Design flow rate of treatment system \_\_\_\_\_ gpm

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

**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:					
c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water: 1. For multiple discharges, number the discharges sequentially. 2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.					
d) Provide the state water quality classification of the receiving water _____					
e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water _____ cfs Please attach any calculation sheets used to support stream flow and dilution calculations.					
f) Is the receiving water a listed 303(d) water quality impaired or limited water? Y____ N____ If yes, for which pollutant(s)? _____					
Is there a final TMDL? Y____ N____ If yes, for which pollutant(s)? _____					

**6. ESA and NHPA Eligibility.**

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


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

**7. Supplemental information.**

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

**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:	Cumberland Farms # 2131
Operator signature:	
Printed Name & Title:	Matthew D. Young
Date:	7/2/13



## **ATTACHMENT II**

---

Report Date:  
07-Jun-13 15:16



**SPECTRUM ANALYTICAL, INC.**

*Featuring*

**HANIBAL TECHNOLOGY**

***Laboratory Report***

- ☒ Final Report  
☐ Re-Issued Report  
☐ Revised Report

Environmental Compliance Services  
997 Millbury Street, Unit G  
Worcester, MA 01607  
Attn: Matt Lyne

Project: CFI # 2131 506 Main St. Sturbridge, MA  
Project #: 93-204810.21

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB70749-01	ECS-8	Ground Water	31-May-13 09:15	03-Jun-13 16:15

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 refer to our website for specific certification holdings in each state.

Please note that this report contains 17 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](http://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).*

*Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.*

## MassDEP Analytical Protocol Certification Form

<b>Laboratory Name:</b> Spectrum Analytical, Inc.			<b>Project #:</b> 93-204810.21			
<b>Project Location:</b> CFI # 2131 506 Main St. Sturbridge, MA			<b>RTN:</b>			
<b>This form provides certifications for the following data set:</b>			SB70749-01			
<b>Matrices:</b> Ground Water						
<b>CAM Protocol</b>						
✓	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
<b>Affirmative responses to questions A through F are required for "Presumptive Certainty" status</b>						
<b>A</b>	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>B</b>	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?					✓ Yes      No
<b>C</b>	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
<b>D</b>	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
<b>E</b>	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
<b>F</b>	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
<b>Responses to questions G, H and I below are required for "Presumptive Certainty" status</b>						
<b>G</b>	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?					✓ Yes      No
<b>Data User Note:</b> 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.						
<b>H</b>	Were all QC performance standards specified in the CAM protocol(s) achieved?					Yes      ✓      No
<b>I</b>	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?					Yes      ✓      No
<b>All negative responses are addressed in a case narrative on the cover page of this report.</b>						
<p><i>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.</i></p> <div style="text-align: right; margin-top: 20px;">   Nicole Leja  Laboratory Director  Date: 6/7/2013 </div>						

## CASE NARRATIVE:

The samples were received 2.1 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.

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

## SW846 8260C

### Calibration:

1306017

---

Analyte quantified by quadratic equation type calibration.

1,2,3-Trichlorobenzene  
1,2,4-Trichlorobenzene  
1,2,4-Trimethylbenzene  
1,2-Dibromo-3-chloropropane  
1,3,5-Trimethylbenzene  
1,3-Dichlorobenzene  
m,p-Xylene  
Naphthalene  
n-Butylbenzene  
n-Propylbenzene  
o-Xylene  
sec-Butylbenzene  
Styrene  
tert-Butylbenzene

This affected the following samples:

1313105-BLK1  
1313105-BS1  
1313105-BSD1  
ECS-8  
S306376-ICV1  
S306424-CCV1

### Samples:

S306424-CCV1

---

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

trans-1,4-Dichloro-2-butene (24.1%)



## **SW846 8260C**

### **Samples:**

S306424-CCV1

---

This affected the following samples:

1313105-BLK1

1313105-BS1

1313105-BSD1

ECS-8

## Sample Acceptance Check Form

Client: Environmental Compliance Services - Worcester, MA  
Project: CFI # 2131 506 Main St. Sturbridge, MA / 93-204810.21  
Work Order: SB70749  
Sample(s) received on: 6/3/2013  
Received by: Jessica Hoffman

*The following outlines the condition of samples for the attached Chain of Custody upon receipt.*

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
1. Were custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Were custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Were samples received at a temperature of $\leq 6^{\circ}\text{C}$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were samples cooled on ice upon transfer to laboratory representative?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Were samples refrigerated upon transfer to laboratory representative?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Were sample containers received intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Were samples accompanied by a Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Did sample container labels agree with Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Were samples received within method-specific holding times?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sample Identification

ECS-8

SB70749-01

Client Project #

93-204810.21

Matrix

Ground Water

Collection Date/Time

31-May-13 09:15

Received

03-Jun-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
<b>Volatile Organic Compounds</b>													
Volatile Organic Compounds by SW846 8260													
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	05-Jun-13	05-Jun-13	GMA	1313105	
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	< 1.00		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	"	"	"	"	"	

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Sample Identification

ECS-8

SB70749-01

Client Project #

93-204810.21

Matrix

Ground Water

Collection Date/Time

31-May-13 09:15

Received

03-Jun-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Volatile Organic Compounds**

Volatile Organic Compounds by SW846 8260

Prepared by method SW846 5030 Water MS

98-82-8	Isopropylbenzene	< 1.00		µg/l	1.00	0.62	1	SW846 8260C	05-Jun-13	05-Jun-13	GMA	1313105	
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	< 1.00		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	< 1.00		µg/l	1.00	0.76	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 1.00		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-buten e	< 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	77			70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	103			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	116			70-130 %			"	"	"	"	"	

**Extractable Petroleum Hydrocarbons**Fingerprinting by GC

Prepared by method SW846 3510C

8006-61-9	Gasoline	< 0.2		mg/l	0.2	0.2	1	SW846 8100Mod.	05-Jun-13	06-Jun-13	SEP	1313064	
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Sample Identification

ECS-8

SB70749-01

Client Project #

93-204810.21

Matrix

Ground Water

Collection Date/Time

31-May-13 09:15

Received

03-Jun-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Extractable Petroleum Hydrocarbons**

Fingerprinting by GC

Prepared by method SW846 3510C

68476-30-2	Fuel Oil #2	< 0.2		mg/l	0.2	0.2	1	SW846 8100Mod.	05-Jun-13	06-Jun-13	SEP	1313064	
68476-31-3	Fuel Oil #4	< 0.2		mg/l	0.2	0.02	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
M09800000	Motor Oil	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
8032-32-4	Ligroin	< 0.2		mg/l	0.2	0.05	1	"	"	"	"	"	
J00100000	Aviation Fuel	< 0.2		mg/l	0.2	0.05	1	"	"	"	"	"	
	Hydraulic Oil	< 0.2		mg/l	0.2	0.02	1	"	"	"	"	"	
	Dielectric Fluid	< 0.2		mg/l	0.2	0.05	1	"	"	"	"	"	
	Unidentified	< 0.2		mg/l	0.2	0.05	1	"	"	"	"	"	
	Other Oil	< 0.2		mg/l	0.2	0.02	1	"	"	"	"	"	
	Total Petroleum Hydrocarbons	< 0.2		mg/l	0.2	0.02	1	"	"	"	"	"	

*Surrogate recoveries:*

3386-33-2	1-Chlorooctadecane	54			40-140 %			"	"	"	"	"	
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**Total Metals by EPA 200/6000 Series Methods**

Preservation	Field Preserved			N/A			1	EPA 200/6000 methods			BJW	1313006	
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**Total Metals by EPA 6000/7000 Series Methods**

7439-89-6	Iron	0.174		mg/l	0.0150	0.0074	1	SW846 6010C	05-Jun-13	05-Jun-13	EDT	1313007	
7439-92-1	Lead	< 0.0075		mg/l	0.0075	0.0020	1	"	"	"	"	"	

**General Chemistry Parameters**

Total Suspended Solids	< 5			mg/l	5	2	1	SM2540D	05-Jun-13	06-Jun-13	BD	1313113	X
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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1313105 - SW846 5030 Water MS</b>										
<b>Blank (1313105-BLK1)</b>	<u>Prepared &amp; Analyzed: 05-Jun-13</u>									
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						

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1313105 - SW846 5030 Water MS</b>										
<b>Blank (1313105-BLK1)</b>					<u>Prepared &amp; Analyzed: 05-Jun-13</u>					
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	37.6		µg/l		50.0		75	70-130		
Surrogate: Toluene-d8	51.5		µg/l		50.0		103	70-130		
Surrogate: Dibromofluoromethane	56.9		µg/l		50.0		114	70-130		
<b>LCS (1313105-BS1)</b>					<u>Prepared &amp; Analyzed: 05-Jun-13</u>					
1,1,2-Trichlorotrifluoroethane (Freon 113)	19.5		µg/l		20.0		98	70-130		
Acetone	17.6		µg/l		20.0		88	70-130		
Acrylonitrile	19.4		µg/l		20.0		97	70-130		
Benzene	21.5		µg/l		20.0		108	70-130		
Bromobenzene	18.3		µg/l		20.0		92	70-130		
Bromochloromethane	19.8		µg/l		20.0		99	70-130		
Bromodichloromethane	20.7		µg/l		20.0		104	70-130		
Bromoform	18.5		µg/l		20.0		93	70-130		
Bromomethane	20.0		µg/l		20.0		100	70-130		
2-Butanone (MEK)	22.7		µg/l		20.0		113	70-130		
n-Butylbenzene	20.0		µg/l		20.0		100	70-130		
sec-Butylbenzene	20.3		µg/l		20.0		101	70-130		
tert-Butylbenzene	19.0		µg/l		20.0		95	70-130		
Carbon disulfide	18.3		µg/l		20.0		91	70-130		
Carbon tetrachloride	20.3		µg/l		20.0		102	70-130		
Chlorobenzene	20.1		µg/l		20.0		100	70-130		
Chloroethane	18.8		µg/l		20.0		94	70-130		
Chloroform	22.7		µg/l		20.0		113	70-130		
Chloromethane	22.0		µg/l		20.0		110	70-130		
2-Chlorotoluene	23.1		µg/l		20.0		115	70-130		
4-Chlorotoluene	22.1		µg/l		20.0		111	70-130		
1,2-Dibromo-3-chloropropane	19.9		µg/l		20.0		99	70-130		

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1313105 - SW846 5030 Water MS</b>										
<b>LCS (1313105-BS1)</b>	<b>Prepared &amp; Analyzed: 05-Jun-13</b>									
Dibromochloromethane	19.2		µg/l		20.0		96	70-130		
1,2-Dibromoethane (EDB)	19.4		µg/l		20.0		97	70-130		
Dibromomethane	20.3		µg/l		20.0		102	70-130		
1,2-Dichlorobenzene	19.7		µg/l		20.0		98	70-130		
1,3-Dichlorobenzene	20.8		µg/l		20.0		104	70-130		
1,4-Dichlorobenzene	19.2		µg/l		20.0		96	70-130		
Dichlorodifluoromethane (Freon12)	20.3		µg/l		20.0		101	70-130		
1,1-Dichloroethane	20.0		µg/l		20.0		100	70-130		
1,2-Dichloroethane	22.3		µg/l		20.0		112	70-130		
1,1-Dichloroethene	18.0		µg/l		20.0		90	70-130		
cis-1,2-Dichloroethene	20.8		µg/l		20.0		104	70-130		
trans-1,2-Dichloroethene	17.4		µg/l		20.0		87	70-130		
1,2-Dichloropropane	21.2		µg/l		20.0		106	70-130		
1,3-Dichloropropane	21.1		µg/l		20.0		105	70-130		
2,2-Dichloropropane	24.7		µg/l		20.0		124	70-130		
1,1-Dichloropropene	20.6		µg/l		20.0		103	70-130		
cis-1,3-Dichloropropene	20.6		µg/l		20.0		103	70-130		
trans-1,3-Dichloropropene	20.8		µg/l		20.0		104	70-130		
Ethylbenzene	20.4		µg/l		20.0		102	70-130		
Hexachlorobutadiene	19.1		µg/l		20.0		96	70-130		
2-Hexanone (MBK)	22.0		µg/l		20.0		110	70-130		
Isopropylbenzene	21.2		µg/l		20.0		106	70-130		
4-Isopropyltoluene	20.6		µg/l		20.0		103	70-130		
Methyl tert-butyl ether	16.7		µg/l		20.0		83	70-130		
4-Methyl-2-pentanone (MIBK)	18.3		µg/l		20.0		91	70-130		
Methylene chloride	17.7		µg/l		20.0		88	70-130		
Naphthalene	18.8		µg/l		20.0		94	70-130		
n-Propylbenzene	19.7		µg/l		20.0		99	70-130		
Styrene	18.4		µg/l		20.0		92	70-130		
1,1,1,2-Tetrachloroethane	19.2		µg/l		20.0		96	70-130		
1,1,1,2,2-Tetrachloroethane	21.7		µg/l		20.0		108	70-130		
Tetrachloroethene	18.5		µg/l		20.0		93	70-130		
Toluene	20.1		µg/l		20.0		101	70-130		
1,2,3-Trichlorobenzene	18.0		µg/l		20.0		90	70-130		
1,2,4-Trichlorobenzene	17.8		µg/l		20.0		89	70-130		
1,3,5-Trichlorobenzene	19.0		µg/l		20.0		95	70-130		
1,1,1-Trichloroethane	21.4		µg/l		20.0		107	70-130		
1,1,2-Trichloroethane	21.2		µg/l		20.0		106	70-130		
Trichloroethene	20.7		µg/l		20.0		103	70-130		
Trichlorofluoromethane (Freon 11)	19.5		µg/l		20.0		98	70-130		
1,2,3-Trichloropropane	21.2		µg/l		20.0		106	70-130		
1,2,4-Trimethylbenzene	20.1		µg/l		20.0		101	70-130		
1,3,5-Trimethylbenzene	19.0		µg/l		20.0		95	70-130		
Vinyl chloride	20.8		µg/l		20.0		104	70-130		
m,p-Xylene	40.0		µg/l		40.0		100	70-130		
o-Xylene	19.5		µg/l		20.0		98	70-130		
Tetrahydrofuran	19.1		µg/l		20.0		95	70-130		
Ethyl ether	18.7		µg/l		20.0		93	70-130		
Tert-amyl methyl ether	23.4		µg/l		20.0		117	70-130		
Ethyl tert-butyl ether	20.6		µg/l		20.0		103	70-130		
Di-isopropyl ether	21.6		µg/l		20.0		108	70-130		
Tert-Butanol / butyl alcohol	223		µg/l		200		111	70-130		

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1313105 - SW846 5030 Water MS</b>										
<b>LCS (1313105-BS1)</b>					<u>Prepared &amp; Analyzed: 05-Jun-13</u>					
1,4-Dioxane	199		µg/l		200		99	70-130		
trans-1,4-Dichloro-2-butene	23.9		µg/l		20.0		120	70-130		
Ethanol	405		µg/l		400		101	70-130		
Surrogate: 4-Bromofluorobenzene	51.9		µg/l		50.0		104	70-130		
Surrogate: Toluene-d8	50.6		µg/l		50.0		101	70-130		
Surrogate: Dibromofluoromethane	50.0		µg/l		50.0		100	70-130		
<b>LCS Dup (1313105-BSD1)</b>					<u>Prepared &amp; Analyzed: 05-Jun-13</u>					
1,1,2-Trichlorotrifluoroethane (Freon 113)	19.3		µg/l		20.0		96	70-130	1	20
Acetone	19.3		µg/l		20.0		96	70-130	9	20
Acrylonitrile	20.3		µg/l		20.0		102	70-130	5	20
Benzene	21.4		µg/l		20.0		107	70-130	0.3	20
Bromobenzene	18.5		µg/l		20.0		92	70-130	0.8	20
Bromochloromethane	20.2		µg/l		20.0		101	70-130	2	20
Bromodichloromethane	21.4		µg/l		20.0		107	70-130	3	20
Bromoform	19.2		µg/l		20.0		96	70-130	4	20
Bromomethane	18.8		µg/l		20.0		94	70-130	6	20
2-Butanone (MEK)	23.0		µg/l		20.0		115	70-130	1	20
n-Butylbenzene	19.9		µg/l		20.0		99	70-130	0.8	20
sec-Butylbenzene	20.1		µg/l		20.0		101	70-130	0.7	20
tert-Butylbenzene	19.0		µg/l		20.0		95	70-130	0.2	20
Carbon disulfide	17.9		µg/l		20.0		89	70-130	2	20
Carbon tetrachloride	20.0		µg/l		20.0		100	70-130	1	20
Chlorobenzene	20.2		µg/l		20.0		101	70-130	0.3	20
Chloroethane	18.6		µg/l		20.0		93	70-130	1	20
Chloroform	22.2		µg/l		20.0		111	70-130	2	20
Chloromethane	21.5		µg/l		20.0		107	70-130	3	20
2-Chlorotoluene	22.7		µg/l		20.0		113	70-130	2	20
4-Chlorotoluene	22.0		µg/l		20.0		110	70-130	0.8	20
1,2-Dibromo-3-chloropropane	20.6		µg/l		20.0		103	70-130	4	20
Dibromochloromethane	19.8		µg/l		20.0		99	70-130	3	20
1,2-Dibromoethane (EDB)	20.2		µg/l		20.0		101	70-130	4	20
Dibromomethane	20.6		µg/l		20.0		103	70-130	1	20
1,2-Dichlorobenzene	19.9		µg/l		20.0		100	70-130	1	20
1,3-Dichlorobenzene	20.7		µg/l		20.0		104	70-130	0.1	20
1,4-Dichlorobenzene	19.7		µg/l		20.0		98	70-130	2	20
Dichlorodifluoromethane (Freon12)	18.8		µg/l		20.0		94	70-130	7	20
1,1-Dichloroethane	19.8		µg/l		20.0		99	70-130	0.8	20
1,2-Dichloroethane	23.4		µg/l		20.0		117	70-130	5	20
1,1-Dichloroethene	18.3		µg/l		20.0		92	70-130	2	20
cis-1,2-Dichloroethene	20.6		µg/l		20.0		103	70-130	1	20
trans-1,2-Dichloroethene	17.3		µg/l		20.0		87	70-130	0.5	20
1,2-Dichloropropane	21.4		µg/l		20.0		107	70-130	0.7	20
1,3-Dichloropropane	21.6		µg/l		20.0		108	70-130	3	20
2,2-Dichloropropane	24.1		µg/l		20.0		120	70-130	3	20
1,1-Dichloropropene	20.2		µg/l		20.0		101	70-130	2	20
cis-1,3-Dichloropropene	20.9		µg/l		20.0		104	70-130	1	20
trans-1,3-Dichloropropene	21.1		µg/l		20.0		106	70-130	2	20
Ethylbenzene	20.4		µg/l		20.0		102	70-130	0.4	20
Hexachlorobutadiene	18.7		µg/l		20.0		94	70-130	2	20
2-Hexanone (MBK)	23.4		µg/l		20.0		117	70-130	6	20
Isopropylbenzene	21.1		µg/l		20.0		106	70-130	0.2	20

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1313105 - SW846 5030 Water MS</b>										
<b>LCS Dup (1313105-BSD1)</b>					<u>Prepared &amp; Analyzed: 05-Jun-13</u>					
4-Isopropyltoluene	20.7		µg/l		20.0		103	70-130	0.3	20
Methyl tert-butyl ether	17.4		µg/l		20.0		87	70-130	5	20
4-Methyl-2-pentanone (MIBK)	19.0		µg/l		20.0		95	70-130	4	20
Methylene chloride	17.3		µg/l		20.0		86	70-130	2	20
Naphthalene	19.7		µg/l		20.0		98	70-130	5	20
n-Propylbenzene	19.6		µg/l		20.0		98	70-130	0.9	20
Styrene	18.4		µg/l		20.0		92	70-130	0.3	20
1,1,1,2-Tetrachloroethane	19.5		µg/l		20.0		98	70-130	2	20
1,1,2,2-Tetrachloroethane	21.5		µg/l		20.0		107	70-130	0.8	20
Tetrachloroethene	18.7		µg/l		20.0		94	70-130	1	20
Toluene	19.8		µg/l		20.0		99	70-130	1	20
1,2,3-Trichlorobenzene	18.6		µg/l		20.0		93	70-130	3	20
1,2,4-Trichlorobenzene	18.2		µg/l		20.0		91	70-130	2	20
1,3,5-Trichlorobenzene	19.3		µg/l		20.0		97	70-130	2	20
1,1,1-Trichloroethane	20.7		µg/l		20.0		103	70-130	3	20
1,1,2-Trichloroethane	21.6		µg/l		20.0		108	70-130	2	20
Trichloroethene	20.8		µg/l		20.0		104	70-130	0.6	20
Trichlorofluoromethane (Freon 11)	19.0		µg/l		20.0		95	70-130	3	20
1,2,3-Trichloropropane	22.0		µg/l		20.0		110	70-130	4	20
1,2,4-Trimethylbenzene	20.1		µg/l		20.0		100	70-130	0.3	20
1,3,5-Trimethylbenzene	19.1		µg/l		20.0		95	70-130	0.3	20
Vinyl chloride	20.2		µg/l		20.0		101	70-130	3	20
m,p-Xylene	39.4		µg/l		40.0		98	70-130	1	20
o-Xylene	20.1		µg/l		20.0		100	70-130	3	20
Tetrahydrofuran	19.1		µg/l		20.0		96	70-130	0.4	20
Ethyl ether	18.5		µg/l		20.0		93	70-130	0.7	20
Tert-amyl methyl ether	23.8		µg/l		20.0		119	70-130	2	20
Ethyl tert-butyl ether	21.5		µg/l		20.0		107	70-130	4	20
Di-isopropyl ether	22.9		µg/l		20.0		114	70-130	5	20
Tert-Butanol / butyl alcohol	207		µg/l		200		103	70-130	7	20
1,4-Dioxane	206		µg/l		200		103	70-130	4	20
trans-1,4-Dichloro-2-butene	25.1		µg/l		20.0		125	70-130	5	20
Ethanol	372		µg/l		400		93	70-130	9	20
Surrogate: 4-Bromofluorobenzene	51.8		µg/l		50.0		104	70-130		
Surrogate: Toluene-d8	49.6		µg/l		50.0		99	70-130		
Surrogate: Dibromofluoromethane	49.4		µg/l		50.0		99	70-130		

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# Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1313064 - SW846 3510C</b>										
<b>Blank (1313064-BLK1)</b>					Prepared: 05-Jun-13 Analyzed: 06-Jun-13					
Gasoline	< 0.2		mg/l	0.2						
Fuel Oil #2	< 0.2		mg/l	0.2						
Fuel Oil #4	< 0.2		mg/l	0.2						
Fuel Oil #6	< 0.2		mg/l	0.2						
Motor Oil	< 0.2		mg/l	0.2						
Ligroin	< 0.2		mg/l	0.2						
Aviation Fuel	< 0.2		mg/l	0.2						
Hydraulic Oil	< 0.2		mg/l	0.2						
Dielectric Fluid	< 0.2		mg/l	0.2						
Unidentified	< 0.2		mg/l	0.2						
Other Oil	< 0.2		mg/l	0.2						
Total Petroleum Hydrocarbons	< 0.2		mg/l	0.2						
Surrogate: 1-Chlorooctadecane	0.0240		mg/l		0.0250		96	40-140		
<b>LCS (1313064-BS2)</b>					Prepared: 05-Jun-13 Analyzed: 06-Jun-13					
Fuel Oil #2	7.8		mg/l	0.2	10.0		78	40-140		
Surrogate: 1-Chlorooctadecane	0.0625		mg/l		0.0500		125	40-140		

**Total Metals by EPA 6000/7000 Series Methods - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1313007 - SW846 3005A</b>										
<u>Blank (1313007-BLK1)</u>										
Iron	< 0.0150		mg/l	0.0150						
Lead	< 0.0075		mg/l	0.0075						
<u>LCS (1313007-BS1)</u>										
Iron	<b>1.31</b>		mg/l	0.0150	1.25		105	85-115		
Lead	<b>1.37</b>		mg/l	0.0075	1.25		109	85-115		
<u>LCS Dup (1313007-BSD1)</u>										
Iron	<b>1.28</b>		mg/l	0.0150	1.25		102	85-115	3	20
Lead	<b>1.31</b>		mg/l	0.0075	1.25		105	85-115	4	20
<u>Duplicate (1313007-DUP1)</u>										
				<b>Source: SB70749-01</b>						
Iron	<b>0.178</b>		mg/l	0.0150		0.174			2	20
Lead	< 0.0075		mg/l	0.0075		BRL				20
<u>Matrix Spike (1313007-MS1)</u>										
				<b>Source: SB70749-01</b>						
Iron	<b>1.41</b>		mg/l	0.0150	1.25	0.174	98	75-125		
Lead	<b>1.28</b>		mg/l	0.0075	1.25	BRL	103	75-125		
<u>Matrix Spike Dup (1313007-MSD1)</u>										
				<b>Source: SB70749-01</b>						
Iron	<b>1.44</b>		mg/l	0.0150	1.25	0.174	101	75-125	2	20
Lead	<b>1.30</b>		mg/l	0.0075	1.25	BRL	104	75-125	1	20
<u>Post Spike (1313007-PS1)</u>										
				<b>Source: SB70749-01</b>						
Lead	<b>1.29</b>		mg/l	0.0075	1.25	BRL	103	80-120		



## General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1313113 - General Preparation</b>										
<u>Blank (1313113-BLK1)</u>								Prepared: 05-Jun-13 Analyzed: 06-Jun-13		
Total Suspended Solids	< 5		mg/l	5						
<u>LCS (1313113-BS1)</u>								Prepared: 05-Jun-13 Analyzed: 06-Jun-13		
Total Suspended Solids	<b>100</b>		mg/l	10	100		100	90-110		

## Notes and Definitions

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.

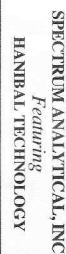
Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

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  
Rebecca Merz



## Page 1 of 1

SB70749 R11

Sampler(s): M. Seery

**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

☐ TIER II\*    ☐ TIER IV\*

☐ Other

State-specific reporting standards:

[illegible]

Temp °C

201

☒ E-mail to 177mc@ccnysa/f.cdm

Condition upon receipt:

<input type="checkbox"/> Ambient	<input type="checkbox"/> Iced	<input checked="" type="checkbox"/> Refrigerated	<input type="checkbox"/> DI VOA Frozen	<input type="checkbox"/> Soil Jar Frozen
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Report Date:  
14-May-13 17:12



**SPECTRUM ANALYTICAL, INC.**

*Featuring*

**HANIBAL TECHNOLOGY**

***Laboratory Report***

Environmental Compliance Services  
997 Millbury Street, Unit G  
Worcester, MA 01607  
Attn: Matt Lyne

Project: CFI # 2131 506 Main St. Sturbridge, MA  
Project #: 93-204810.21

- ☒ Final Report  
☐ Re-Issued Report  
☐ Revised Report

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB68779-01	ECS-2	Ground Water	30-Apr-13 12:25	01-May-13 18:00
SB68779-02	ECS-3	Ground Water	30-Apr-13 10:35	01-May-13 18:00
SB68779-03	ECS-3i	Ground Water	30-Apr-13 10:12	01-May-13 18:00
SB68779-04	ECS-5i	Ground Water	30-Apr-13 09:00	01-May-13 18:00
SB68779-05	ECS-5D	Ground Water	30-Apr-13 08:25	01-May-13 18:00
SB68779-06	ECS-7i	Ground Water	30-Apr-13 09:47	01-May-13 18:00
SB68779-07	ECS-8	Ground Water	30-Apr-13 11:21	01-May-13 18:00

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 refer to our website for specific certification holdings in each state.

Please note that this report contains 29 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](http://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).*

*Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.*

The following outlines the condition of all VPH samples contained within this report upon laboratory receipt.

Matrices	Ground Water		
Containers	✓ Satisfactory		
Sample Preservative	Aqueous (acid preserved)	N/A      ✓ pH≤2      pH>2	
	Soil or Sediment	✓ N/A      Samples not received in Methanol	ml Methanol/g soil 1:1 +/-25% Other
		Samples received in Methanol:      covering soil/sediment not covering soil/sediment	
		Samples received in air-tight container	
Temperature	Received on ice      ✓ Received at 4 ± 2 °C		

Were all QA/QC procedures followed as required by the VPH method? *Yes*

Were any significant modifications made to the VPH method as specified in section 11.3? *No*

Were all performance/acceptance standards for required QA/QC procedures achieved? *Yes*

I attest that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.


Authorized by:



Nicole Leja  
Laboratory Director



## MassDEP Analytical Protocol Certification Form

<b>Laboratory Name:</b> Spectrum Analytical, Inc.			<b>Project #:</b> 93-204810.21		
<b>Project Location:</b> CFI # 2131 506 Main St. Sturbridge, MA			<b>RTN:</b>		
<b>This form provides certifications for the following data set:</b>			SB68779-01 through SB68779-07		
<b>Matrices:</b> Ground Water					
<b>CAM Protocol</b>					
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
<b>Affirmative responses to questions A through F are required for "Presumptive Certainty" status</b>					
<b>A</b>	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>B</b>	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				✓ Yes    No
<b>C</b>	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
<b>D</b>	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
<b>E</b>	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
<b>F</b>	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
<b>Responses to questions G, H and I below are required for "Presumptive Certainty" status</b>					
<b>G</b>	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				Yes    ✓    No
<b>Data User Note:</b> 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.					
<b>H</b>	Were all QC performance standards specified in the CAM protocol(s) achieved?				Yes    ✓    No
<b>I</b>	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				Yes    ✓    No
<b>All negative responses are addressed in a case narrative on the cover page of this report.</b>					
<p><i>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.</i></p> <div style="text-align: right; margin-top: 20px;">   Nicole Leja  Laboratory Director  Date: 5/14/2013 </div>					

**CASE NARRATIVE:**

The samples were received 2.7 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.

**Nitrate EPA Method 300.0 Case Narrative:**

Due to instrument QA issues, samples SB68779-01 through -07 in this work order were analyzed outside of analytical hold time for nitrates via EPA method 300.0. With the exception of SB68779-07, analyzed 3.25 hours past the expiration time, all samples were analyzed within three hours of the hold time expiration.

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

**EPA 300.0****Calibration:**

1309892-CCV2

---

Analyte percent recovery is outside individual acceptance criteria.

Nitrate as N (88%)

Sulfate as SO4 (88%)

Quality Control is outside acceptance range; all affected samples have been re-analyzed.

Nitrate as N

Sulfate as SO4

## **EPA 300.0**

### **Calibration:**

1309892-CCV2

---

This affected the following samples:

1309892-BLK1  
1309892-BS1  
1309892-CCV1  
1309892-CCV2  
1309892-CCV3  
1309892-CCV4  
1309892-CCV5  
1309892-DUP1  
1309892-MS1  
1309892-MSD1  
1309892-SRM1  
ECS-2  
ECS-3  
ECS-3i  
ECS-5D  
ECS-5i  
ECS-7i  
ECS-8

1309892-CCV5

---

Analyte percent recovery is outside individual acceptance criteria.

Nitrate as N (85%)  
Sulfate as SO<sub>4</sub> (84%)

Quality Control is outside acceptance range; all affected samples have been re-analyzed.

Nitrate as N  
Sulfate as SO<sub>4</sub>

This affected the following samples:

1309892-BLK1  
1309892-BS1  
1309892-CCV1  
1309892-CCV2  
1309892-CCV3  
1309892-CCV4  
1309892-CCV5  
1309892-DUP1  
1309892-MS1  
1309892-MSD1  
1309892-SRM1  
ECS-2  
ECS-3  
ECS-3i  
ECS-5D  
ECS-5i  
ECS-7i  
ECS-8

### **Laboratory Control Samples:**

1309892 SRM

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## **EPA 300.0**

### **Laboratory Control Samples:**

#### 1309892 SRM

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Nitrate as N percent recovery is outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

ECS-2  
ECS-3  
ECS-3i  
ECS-5D  
ECS-5i  
ECS-7i  
ECS-8

Sulfate as SO<sub>4</sub> percent recovery is outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

ECS-2  
ECS-8

#### 1311054 SRM

---

Sulfate as SO<sub>4</sub> percent recovery is outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

ECS-3  
ECS-3i  
ECS-5D  
ECS-5i  
ECS-7i

### **Spikes:**

#### 1309892-MS1 *Source: SB68779-07*

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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.

Nitrate as N  
Sulfate as SO<sub>4</sub>

#### 1309892-MSD1 *Source: SB68779-07*

---

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.

Nitrate as N  
Sulfate as SO<sub>4</sub>

#### 1310172-MS2 *Source: SB68779-07RE1*

---

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.

Nitrate as N

#### 1310172-MSD2 *Source: SB68779-07RE1*

---

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.

Nitrate as N

#### 1310817-MS1 *Source: SB68779-05*

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## **EPA 300.0**

### **Spikes:**

1310817-MS1      *Source: SB68779-05*

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

Sulfate as SO4

1310817-MSD1      *Source: SB68779-05*

---

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

Sulfate as SO4

### **Duplicates:**

1310817-DUP1      *Source: SB68779-05*

---

RPD out of acceptance range.

Sulfate as SO4

### **Samples:**

SB68779-01      *ECS-2*

---

This result was analyzed outside of the EPA recommended holding time.

Nitrate as N

SB68779-02      *ECS-3*

---

This flag indicates the concentration for this analyte is an estimated value due to exceeding the calibration range or interferences resulting in a biased final concentration.

Nitrate as N

This result was analyzed outside of the EPA recommended holding time.

Nitrate as N

SB68779-02RE1      *ECS-3*

---

Sample was originally analyzed within the recommended method holding time; however, QC materials for the sample run were out of control. As a result, the sample was immediately re-analyzed (outside the holding time).

Nitrate as N

SB68779-03      *ECS-3i*

---

This flag indicates the concentration for this analyte is an estimated value due to exceeding the calibration range or interferences resulting in a biased final concentration.

Nitrate as N

This result was analyzed outside of the EPA recommended holding time.

Nitrate as N

SB68779-03RE1      *ECS-3i*

---

Sample was originally analyzed within the recommended method holding time; however, QC materials for the sample run were out of control. As a result, the sample was immediately re-analyzed (outside the holding time).

Nitrate as N

SB68779-04      *ECS-5i*

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## **EPA 300.0**

### **Samples:**

SB68779-04      *ECS-5i*

---

This flag indicates the concentration for this analyte is an estimated value due to exceeding the calibration range or interferences resulting in a biased final concentration.

Nitrate as N

This result was analyzed outside of the EPA recommended holding time.

Nitrate as N

SB68779-04RE1      *ECS-5i*

---

Sample was originally analyzed within the recommended method holding time; however, QC materials for the sample run were out of control. As a result, the sample was immediately re-analyzed (outside the holding time).

Nitrate as N

SB68779-05      *ECS-5D*

---

This flag indicates the concentration for this analyte is an estimated value due to exceeding the calibration range or interferences resulting in a biased final concentration.

Nitrate as N

This result was analyzed outside of the EPA recommended holding time.

Nitrate as N

SB68779-05RE1      *ECS-5D*

---

Sample was originally analyzed within the recommended method holding time; however, QC materials for the sample run were out of control. As a result, the sample was immediately re-analyzed (outside the holding time).

Nitrate as N

SB68779-06      *ECS-7i*

---

This flag indicates the concentration for this analyte is an estimated value due to exceeding the calibration range or interferences resulting in a biased final concentration.

Nitrate as N

This result was analyzed outside of the EPA recommended holding time.

Nitrate as N

SB68779-06RE1      *ECS-7i*

---

Sample was originally analyzed within the recommended method holding time; however, QC materials for the sample run were out of control. As a result, the sample was immediately re-analyzed (outside the holding time).

Nitrate as N

SB68779-07      *ECS-8*

---

This result was analyzed outside of the EPA recommended holding time.

Nitrate as N

SB68779-07RE1      *ECS-8*

---

This result was analyzed outside of the EPA recommended holding time.

Nitrate as N

## **MADEP VPH 5/2004 Rev. 1.1**

### **Samples:**

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## **MADEP VPH 5/2004 Rev. 1.1**

### **Samples:**

SB68779-02                      *ECS-3*

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Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

SB68779-03                      *ECS-3i*

---

Analyte concentration is flagged as estimated due to exceeding the calibration range or interferences. The sample is not over the calibration range for the target analytes and/or marker compounds that make up the range therefore not diluted further.

C9-C10 Aromatic Hydrocarbons

This flag indicates the concentration for this analyte is an estimated value due to exceeding the calibration range or interferences resulting in a biased final concentration.

C9-C10 Aromatic Hydrocarbons

## **SW846 6010C**

### **Spikes:**

1310536-MS1                      *Source: SB68779-03*

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The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

Iron

1310536-MSD1                      *Source: SB68779-03*

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The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

Iron

## Sample Acceptance Check Form

Client: Environmental Compliance Services - Worcester, MA  
Project: CFI # 2131 506 Main St. Sturbridge, MA / 93-204810.21  
Work Order: SB68779  
Sample(s) received on: 5/1/2013  
Received by: Tanya Krivolenko

*The following outlines the condition of samples for the attached Chain of Custody upon receipt.*

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
1. Were custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Were custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Were samples received at a temperature of $\leq 6^{\circ}\text{C}$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were samples cooled on ice upon transfer to laboratory representative?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Were samples refrigerated upon transfer to laboratory representative?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Were sample containers received intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Were samples accompanied by a Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Did sample container labels agree with Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Were samples received within method-specific holding times?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sample Identification

ECS-2

SB68779-01

Client Project #

93-204810.21

Matrix

Ground Water

Collection Date/Time

30-Apr-13 12:25

Received

01-May-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Volatile Organic Compounds**

## MADEP VPH

## Prepared by method VPH - EPA 5030C Water

	C5-C8 Aliphatic Hydrocarbons	< 75.0	D	µg/l	75.0	5.55	5	MADEP VPH 5/2004 Rev. 1.1	11-May-13	11-May-13	MP	1310844	
	C9-C12 Aliphatic Hydrocarbons	< 25.0	D	µg/l	25.0	4.22	5	"	"	"	"	"	
	C9-C10 Aromatic Hydrocarbons	< 25.0	D	µg/l	25.0	1.12	5	"	"	"	"	"	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	< 75.0	D	µg/l	75.0	7.10	5	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	< 25.0	D	µg/l	25.0	4.68	5	"	"	"	"	"	
71-43-2	Benzene	< 5.00	D	µg/l	5.00	1.26	5	"	"	"	"	"	
100-41-4	Ethylbenzene	< 5.00	D	µg/l	5.00	1.41	5	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 5.00	D	µg/l	5.00	1.55	5	"	"	"	"	"	
91-20-3	Naphthalene	< 5.00	D	µg/l	5.00	1.17	5	"	"	"	"	"	
108-88-3	Toluene	< 5.00	D	µg/l	5.00	1.28	5	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 10.0	D	µg/l	10.0	2.76	5	"	"	"	"	"	
95-47-6	o-Xylene	< 5.00	D	µg/l	5.00	1.12	5	"	"	"	"	"	

*Surrogate recoveries:*

615-59-8	2,5-Dibromotoluene (FID)	98			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	103			70-130 %			"	"	"	"	"	

**Soluble Metals by EPA 200/6000 Series Methods**

Filtration	Field Filtered		N/A				1	EPA 200.7/3005A/6010			LNB	1309889	
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**Soluble Metals by EPA 6000/7000 Series Methods**

7439-89-6	Iron	< 0.0300		mg/l	0.0300	0.0149	1	SW846 6010C	08-May-13	14-May-13	Ir	1310536	
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**General Chemistry Parameters**

14797-55-8	Nitrate as N	4.28	I02	mg/l	0.100	0.0750	1	EPA 300.0	01-May-13 16:18	02-May-13 14:44	KK	1309892	X
14808-79-8	Sulfate as SO4	18.0		mg/l	1.00	0.177	1	"	"	"	"	"	X

*This laboratory report is not valid without an authorized signature on the cover page.*

Sample Identification

ECS-3

SB68779-02

Client Project #

93-204810.21

Matrix

Ground Water

Collection Date/Time

30-Apr-13 10:35

Received

01-May-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Volatile Organic Compounds**

MADEP VPH

GS1

Prepared by method VPH - EPA 5030C Water

	C5-C8 Aliphatic Hydrocarbons	1,990	D	µg/l	750	55.5	50	MADEP VPH 5/2004 Rev. 1.1	11-May-13	11-May-13	MP	1310844	
	C9-C12 Aliphatic Hydrocarbons	2,840	D	µg/l	250	42.2	50	"	"	"	"	"	
	C9-C10 Aromatic Hydrocarbons	4,320	D	µg/l	250	11.2	50	"	"	"	"	"	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	6,980	D	µg/l	750	71.0	50	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	7,160	D	µg/l	250	46.8	50	"	"	"	"	"	
71-43-2	Benzene	< 50.0	D	µg/l	50.0	12.6	50	"	"	"	"	"	
100-41-4	Ethylbenzene	988	D	µg/l	50.0	14.1	50	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 50.0	D	µg/l	50.0	15.5	50	"	"	"	"	"	
91-20-3	Naphthalene	282	D	µg/l	50.0	11.7	50	"	"	"	"	"	
108-88-3	Toluene	280	D	µg/l	50.0	12.8	50	"	"	"	"	"	
179601-23-1	m,p-Xylene	3,150	D	µg/l	100	27.6	50	"	"	"	"	"	
95-47-6	o-Xylene	495	D	µg/l	50.0	11.2	50	"	"	"	"	"	

Surrogate recoveries:

615-59-8	2,5-Dibromotoluene (FID)	121			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	125			70-130 %			"	"	"	"	"	

**General Chemistry Parameters**Nitrate as N by ICPrepared by method General Preparation

14797-55-8	Nitrate as N	< 0.100	E, I02	mg/l	0.100	0.0750	1	EPA 300.0	01-May-13 16:18	02-May-13 11:36	KK	1309892	X
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Re-analysis of Nitrate as N by ICPrepared by method General Preparation

14797-55-8	Nitrate as N	0.870	HT5	mg/l	0.100	0.0750	1	EPA 300.0	03-May-13 16:28	04-May-13 06:12	KK	1310172	X
14808-79-8	Sulfate as SO4	9.47		mg/l	1.00	0.177	1	EPA 300.0	14-May-13	14-May-13	KK	1311054	X

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Sample Identification

ECS-8

SB68779-07

Client Project #

93-204810.21

Matrix

Ground Water

Collection Date/Time

30-Apr-13 11:21

Received

01-May-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Volatile Organic Compounds**MADEP VPHPrepared by method VPH - EPA 5030C Water

	C5-C8 Aliphatic Hydrocarbons	< 75.0	D	µg/l	75.0	5.55	5	MADEP VPH 5/2004 Rev. 1.1	11-May-13	11-May-13	MP	1310844	
	C9-C12 Aliphatic Hydrocarbons	< 25.0	D	µg/l	25.0	4.22	5	"	"	"	"	"	
	C9-C10 Aromatic Hydrocarbons	< 25.0	D	µg/l	25.0	1.12	5	"	"	"	"	"	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	< 75.0	D	µg/l	75.0	7.10	5	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	< 25.0	D	µg/l	25.0	4.68	5	"	"	"	"	"	
71-43-2	Benzene	< 5.00	D	µg/l	5.00	1.26	5	"	"	"	"	"	
100-41-4	Ethylbenzene	< 5.00	D	µg/l	5.00	1.41	5	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 5.00	D	µg/l	5.00	1.55	5	"	"	"	"	"	
91-20-3	Naphthalene	< 5.00	D	µg/l	5.00	1.17	5	"	"	"	"	"	
108-88-3	Toluene	< 5.00	D	µg/l	5.00	1.28	5	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 10.0	D	µg/l	10.0	2.76	5	"	"	"	"	"	
95-47-6	o-Xylene	< 5.00	D	µg/l	5.00	1.12	5	"	"	"	"	"	

Surrogate recoveries:

615-59-8	2,5-Dibromotoluene (FID)	107			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	110			70-130 %			"	"	"	"	"	

**Soluble Metals by EPA 200/6000 Series Methods**

Filtration

**Field  
Filtered**

N/A

1

EPA  
200.7/3005A/6010

LNB

1309889

**Soluble Metals by EPA 6000/7000 Series Methods**

7439-89-6	Iron	< 0.0300		mg/l	0.0300	0.0149	1	SW846 6010C	08-May-13	14-May-13	Ir	1310536	
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**General Chemistry Parameters**Nitrate as N by ICPrepared by method General Preparation

14797-55-8	Nitrate as N	<b>1.30</b>	I02	mg/l	0.100	0.0750	1	EPA 300.0	01-May-13 16:18	02-May-13 14:28	KK	1309892	X
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Re-analysis of Nitrate as N by ICPrepared by method General Preparation

14797-55-8	Nitrate as N	<b>1.73</b>	I02	mg/l	0.100	0.0750	1	EPA 300.0	03-May-13 16:28	04-May-13 08:31	KK	1310172	X
14808-79-8	Sulfate as SO4	<b>15.3</b>		mg/l	1.00	0.177	1	EPA 300.0	01-May-13	02-May-13	KK	1309892	X

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1310844 - VPH - EPA 5030C Water</b>										
<b>Blank (1310844-BLK1)</b>					<u>Prepared &amp; Analyzed: 11-May-13</u>					
C5-C8 Aliphatic Hydrocarbons	< 75.0		µg/l	75.0						
C9-C12 Aliphatic Hydrocarbons	< 25.0		µg/l	25.0						
C9-C10 Aromatic Hydrocarbons	< 25.0		µg/l	25.0						
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 75.0		µg/l	75.0						
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 25.0		µg/l	25.0						
Benzene	< 5.00		µg/l	5.00						
Ethylbenzene	< 5.00		µg/l	5.00						
Methyl tert-butyl ether	< 5.00		µg/l	5.00						
Naphthalene	< 5.00		µg/l	5.00						
Toluene	< 5.00		µg/l	5.00						
m,p-Xylene	< 10.0		µg/l	10.0						
o-Xylene	< 5.00		µg/l	5.00						
2-Methylpentane	< 5.00		µg/l	5.00						
n-Nonane	< 10.0		µg/l	10.0						
n-Pentane	< 10.0		µg/l	10.0						
1,2,4-Trimethylbenzene	< 5.00		µg/l	5.00						
2,2,4-Trimethylpentane	< 5.00		µg/l	5.00						
n-Butylcyclohexane	< 5.00		µg/l	5.00						
n-Decane	< 5.00		µg/l	5.00						
Surrogate: 2,5-Dibromotoluene (FID)	46.3		µg/l		50.0		93	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	48.6		µg/l		50.0		97	70-130		
<b>LCS (1310844-BS1)</b>					<u>Prepared &amp; Analyzed: 11-May-13</u>					
C5-C8 Aliphatic Hydrocarbons	64.7		µg/l		60.0		108	70-130		
C9-C12 Aliphatic Hydrocarbons	64.9		µg/l		60.0		108	70-130		
C9-C10 Aromatic Hydrocarbons	23.0		µg/l		20.0		115	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	220		µg/l		200		110	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	87.9		µg/l		80.0		110	70-130		
Benzene	22.3		µg/l		20.0		111	70-130		
Ethylbenzene	22.2		µg/l		20.0		111	70-130		
Methyl tert-butyl ether	22.0		µg/l		20.0		110	70-130		
Naphthalene	21.9		µg/l		20.0		109	70-130		
Toluene	21.5		µg/l		20.0		107	70-130		
m,p-Xylene	44.7		µg/l		40.0		112	70-130		
o-Xylene	22.4		µg/l		20.0		112	70-130		
2-Methylpentane	20.4		µg/l		20.0		102	70-130		
n-Nonane	23.1		µg/l		20.0		115	70-130		
n-Pentane	19.6		µg/l		20.0		98	70-130		
1,2,4-Trimethylbenzene	23.2		µg/l		20.0		116	70-130		
2,2,4-Trimethylpentane	21.1		µg/l		20.0		106	70-130		
n-Butylcyclohexane	21.8		µg/l		20.0		109	70-130		
n-Decane	25.3		µg/l		20.0		126	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	53.3		µg/l		50.0		107	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	54.6		µg/l		50.0		109	70-130		
<b>LCS Dup (1310844-BS1)</b>					<u>Prepared &amp; Analyzed: 11-May-13</u>					
C5-C8 Aliphatic Hydrocarbons	58.6		µg/l		60.0		98	70-130	10	25
C9-C12 Aliphatic Hydrocarbons	60.1		µg/l		60.0		100	70-130	8	25
C9-C10 Aromatic Hydrocarbons	24.4		µg/l		20.0		122	70-130	6	25
Unadjusted C5-C8 Aliphatic Hydrocarbons	221		µg/l		200		110	70-130	0.5	25
Unadjusted C9-C12 Aliphatic Hydrocarbons	84.5		µg/l		80.0		106	70-130	4	25

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1310844 - VPH - EPA 5030C Water</b>										
<b>LCS Dup (1310844-BSD1)</b>					<u>Prepared &amp; Analyzed: 11-May-13</u>					
Benzene	23.2		µg/l		20.0		116	70-130	4	25
Ethylbenzene	23.3		µg/l		20.0		117	70-130	5	25
Methyl tert-butyl ether	22.8		µg/l		20.0		114	70-130	4	25
Naphthalene	24.1		µg/l		20.0		120	70-130	10	25
Toluene	22.5		µg/l		20.0		113	70-130	5	25
m,p-Xylene	46.9		µg/l		40.0		117	70-130	5	25
o-Xylene	23.5		µg/l		20.0		118	70-130	5	25
2-Methylpentane	21.0		µg/l		20.0		105	70-130	3	25
n-Nonane	24.4		µg/l		20.0		122	70-130	6	25
n-Pentane	20.2		µg/l		20.0		101	70-130	3	25
1,2,4-Trimethylbenzene	24.6		µg/l		20.0		123	70-130	6	25
2,2,4-Trimethylpentane	21.9		µg/l		20.0		109	70-130	4	25
n-Butylcyclohexane	23.1		µg/l		20.0		116	70-130	6	25
n-Decane	25.4		µg/l		20.0		127	70-130	0.5	25
Surrogate: 2,5-Dibromotoluene (FID)	57.6		µg/l		50.0		115	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	58.9		µg/l		50.0		118	70-130		
<b>Duplicate (1310844-DUP1)</b>					<b>Source: SB68779-01</b>		<u>Prepared &amp; Analyzed: 11-May-13</u>			
C5-C8 Aliphatic Hydrocarbons	52.5	J,D	µg/l	75.0		54.4			4	50
C9-C12 Aliphatic Hydrocarbons	14.1	J,D	µg/l	25.0		13.6			3	50
C9-C10 Aromatic Hydrocarbons	9.97	J,D	µg/l	25.0		9.96			0.2	50
Unadjusted C5-C8 Aliphatic Hydrocarbons	52.5	J,D	µg/l	75.0		54.4			4	50
Unadjusted C9-C12 Aliphatic Hydrocarbons	24.0	J,D	µg/l	25.0		23.6			2	50
Benzene	< 5.00	D	µg/l	5.00		BRL				50
Ethylbenzene	< 5.00	D	µg/l	5.00		BRL				50
Methyl tert-butyl ether	< 5.00	D	µg/l	5.00		BRL				50
Naphthalene	< 5.00	D	µg/l	5.00		BRL				50
Toluene	< 5.00	D	µg/l	5.00		BRL				50
m,p-Xylene	< 10.0	D	µg/l	10.0		BRL				50
o-Xylene	< 5.00	D	µg/l	5.00		BRL				50
Surrogate: 2,5-Dibromotoluene (FID)	50.3		µg/l		50.0		101	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	52.4		µg/l		50.0		105	70-130		
<b>Matrix Spike (1310844-MS1)</b>					<b>Source: SB68779-01</b>		<u>Prepared &amp; Analyzed: 11-May-13</u>			
C5-C8 Aliphatic Hydrocarbons	66.2	D	µg/l		60.0	10.9	92	70-130		
C9-C12 Aliphatic Hydrocarbons	69.4	D	µg/l		60.0	2.72	111	70-130		
C9-C10 Aromatic Hydrocarbons	23.0	D	µg/l		20.0	1.99	105	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	219	D	µg/l		200	10.9	104	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	92.3	D	µg/l		80.0	4.72	110	70-130		
Benzene	22.1	D	µg/l		20.0	BRL	111	70-130		
Ethylbenzene	21.7	D	µg/l		20.0	BRL	108	70-130		
Methyl tert-butyl ether	22.7	D	µg/l		20.0	BRL	113	70-130		
Naphthalene	23.1	D	µg/l		20.0	BRL	115	70-130		
Toluene	21.3	D	µg/l		20.0	BRL	106	70-130		
m,p-Xylene	43.7	D	µg/l		40.0	BRL	109	70-130		
o-Xylene	21.9	D	µg/l		20.0	BRL	110	70-130		
2-Methylpentane	20.5	D	µg/l		20.0	BRL	102	70-130		
n-Nonane	24.4	D	µg/l		20.0	BRL	122	70-130		
n-Pentane	19.4	D	µg/l		20.0	BRL	97	70-130		
1,2,4-Trimethylbenzene	23.2	D	µg/l		20.0	BRL	116	70-130		
2,2,4-Trimethylpentane	22.5	D	µg/l		20.0	BRL	112	70-130		

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1310844 - VPH - EPA 5030C Water</b>										
<u>Matrix Spike (1310844-MS1)</u>				<u>Source: SB68779-01</u>			<u>Prepared &amp; Analyzed: 11-May-13</u>			
n-Butylcyclohexane	22.9	D	µg/l		20.0	BRL	115	70-130		
n-Decane	24.6	D	µg/l		20.0	BRL	123	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	53.8		µg/l		50.0		108	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	55.3		µg/l		50.0		111	70-130		
<b>Batch 1310860 - VPH - EPA 5030C Water</b>										
<u>Blank (1310860-BLK1)</u>							<u>Prepared &amp; Analyzed: 13-May-13</u>			
C5-C8 Aliphatic Hydrocarbons	< 75.0		µg/l	75.0						
C9-C12 Aliphatic Hydrocarbons	< 25.0		µg/l	25.0						
C9-C10 Aromatic Hydrocarbons	< 25.0		µg/l	25.0						
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 75.0		µg/l	75.0						
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 25.0		µg/l	25.0						
Benzene	< 5.00		µg/l	5.00						
Ethylbenzene	< 5.00		µg/l	5.00						
Methyl tert-butyl ether	< 5.00		µg/l	5.00						
Naphthalene	< 5.00		µg/l	5.00						
Toluene	< 5.00		µg/l	5.00						
m,p-Xylene	< 10.0		µg/l	10.0						
o-Xylene	< 5.00		µg/l	5.00						
2-Methylpentane	< 5.00		µg/l	5.00						
n-Nonane	< 10.0		µg/l	10.0						
n-Pentane	< 10.0		µg/l	10.0						
1,2,4-Trimethylbenzene	< 5.00		µg/l	5.00						
2,2,4-Trimethylpentane	< 5.00		µg/l	5.00						
n-Butylcyclohexane	< 5.00		µg/l	5.00						
n-Decane	< 5.00		µg/l	5.00						
Surrogate: 2,5-Dibromotoluene (FID)	46.7		µg/l		50.0		93	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	49.2		µg/l		50.0		98	70-130		
<u>LCS (1310860-BS1)</u>							<u>Prepared &amp; Analyzed: 13-May-13</u>			
C5-C8 Aliphatic Hydrocarbons	56.2		µg/l		60.0		94	70-130		
C9-C12 Aliphatic Hydrocarbons	59.7		µg/l		60.0		99	70-130		
C9-C10 Aromatic Hydrocarbons	23.1		µg/l		20.0		116	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	215		µg/l		200		107	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	82.8		µg/l		80.0		104	70-130		
Benzene	22.8		µg/l		20.0		114	70-130		
Ethylbenzene	22.7		µg/l		20.0		113	70-130		
Methyl tert-butyl ether	22.3		µg/l		20.0		111	70-130		
Naphthalene	21.9		µg/l		20.0		109	70-130		
Toluene	22.0		µg/l		20.0		110	70-130		
m,p-Xylene	45.8		µg/l		40.0		114	70-130		
o-Xylene	22.9		µg/l		20.0		115	70-130		
2-Methylpentane	20.7		µg/l		20.0		103	70-130		
n-Nonane	23.5		µg/l		20.0		117	70-130		
n-Pentane	19.6		µg/l		20.0		98	70-130		
1,2,4-Trimethylbenzene	23.7		µg/l		20.0		119	70-130		
2,2,4-Trimethylpentane	21.3		µg/l		20.0		107	70-130		
n-Butylcyclohexane	22.8		µg/l		20.0		114	70-130		
n-Decane	24.5		µg/l		20.0		123	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	54.1		µg/l		50.0		108	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	56.3		µg/l		50.0		113	70-130		

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1310860 - VPH - EPA 5030C Water</b>										
<b><u>LCS Dup (1310860-BSD1)</u></b>					<b><u>Prepared &amp; Analyzed: 13-May-13</u></b>					
C5-C8 Aliphatic Hydrocarbons	57.6		µg/l		60.0		96	70-130	2	25
C9-C12 Aliphatic Hydrocarbons	61.4		µg/l		60.0		102	70-130	3	25
C9-C10 Aromatic Hydrocarbons	22.4		µg/l		20.0		112	70-130	3	25
Unadjusted C5-C8 Aliphatic Hydrocarbons	210		µg/l		200		105	70-130	2	25
Unadjusted C9-C12 Aliphatic Hydrocarbons	83.8		µg/l		80.0		105	70-130	1	25
Benzene	21.9		µg/l		20.0		109	70-130	4	25
Ethylbenzene	21.8		µg/l		20.0		109	70-130	4	25
Methyl tert-butyl ether	21.7		µg/l		20.0		108	70-130	3	25
Naphthalene	21.1		µg/l		20.0		105	70-130	4	25
Toluene	21.2		µg/l		20.0		106	70-130	4	25
m,p-Xylene	44.1		µg/l		40.0		110	70-130	4	25
o-Xylene	22.1		µg/l		20.0		111	70-130	4	25
2-Methylpentane	19.8		µg/l		20.0		99	70-130	4	25
n-Nonane	22.1		µg/l		20.0		110	70-130	6	25
n-Pentane	18.5		µg/l		20.0		93	70-130	6	25
1,2,4-Trimethylbenzene	22.7		µg/l		20.0		114	70-130	4	25
2,2,4-Trimethylpentane	20.5		µg/l		20.0		103	70-130	4	25
n-Butylcyclohexane	21.5		µg/l		20.0		107	70-130	6	25
n-Decane	24.2		µg/l		20.0		121	70-130	1	25
Surrogate: 2,5-Dibromotoluene (FID)	52.6		µg/l		50.0		105	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	55.2		µg/l		50.0		110	70-130		
<b><u>Duplicate (1310860-DUP1)</u></b>					<b><u>Source: SB68779-04</u></b>		<b><u>Prepared &amp; Analyzed: 13-May-13</u></b>			
C5-C8 Aliphatic Hydrocarbons	51.6	J,D	µg/l	75.0		46.8			10	50
C9-C12 Aliphatic Hydrocarbons	10.5	J,D	µg/l	25.0		10.5			0	50
C9-C10 Aromatic Hydrocarbons	9.88	J,D	µg/l	25.0		10.1			2	50
Unadjusted C5-C8 Aliphatic Hydrocarbons	51.6	J,D	µg/l	75.0		46.8			10	50
Unadjusted C9-C12 Aliphatic Hydrocarbons	20.4	J,D	µg/l	25.0		20.6			1	50
Benzene	< 5.00	D	µg/l	5.00		BRL				50
Ethylbenzene	< 5.00	D	µg/l	5.00		BRL				50
Methyl tert-butyl ether	< 5.00	D	µg/l	5.00		BRL				50
Naphthalene	< 5.00	D	µg/l	5.00		BRL				50
Toluene	< 5.00	D	µg/l	5.00		BRL				50
m,p-Xylene	< 10.0	D	µg/l	10.0		BRL				50
o-Xylene	< 5.00	D	µg/l	5.00		BRL				50
Surrogate: 2,5-Dibromotoluene (FID)	53.6		µg/l		50.0		107	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	56.6		µg/l		50.0		113	70-130		
<b><u>Matrix Spike (1310860-MS1)</u></b>					<b><u>Source: SB68779-04</u></b>		<b><u>Prepared &amp; Analyzed: 13-May-13</u></b>			
C5-C8 Aliphatic Hydrocarbons	51.9	D	µg/l		60.0	9.36	71	70-130		
C9-C12 Aliphatic Hydrocarbons	61.5	D	µg/l		60.0	2.10	99	70-130		
C9-C10 Aromatic Hydrocarbons	20.4	D	µg/l		20.0	2.02	92	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	186	D	µg/l		200	9.36	88	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	81.9	D	µg/l		80.0	4.12	97	70-130		
Benzene	19.3	D	µg/l		20.0	BRL	97	70-130		
Ethylbenzene	18.2	D	µg/l		20.0	BRL	91	70-130		
Methyl tert-butyl ether	21.4	D	µg/l		20.0	BRL	107	70-130		
Naphthalene	23.1	D	µg/l		20.0	BRL	116	70-130		
Toluene	18.1	D	µg/l		20.0	BRL	90	70-130		
m,p-Xylene	37.4	D	µg/l		40.0	BRL	94	70-130		
o-Xylene	19.3	D	µg/l		20.0	BRL	97	70-130		

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1310860 - VPH - EPA 5030C Water</b>										
<u>Matrix Spike (1310860-MS1)</u>				<u>Source: SB68779-04</u>			<u>Prepared &amp; Analyzed: 13-May-13</u>			
2-Methylpentane	15.3	D	µg/l		20.0	BRL	77	70-130		
n-Nonane	22.0	D	µg/l		20.0	BRL	110	70-130		
n-Pentane	14.1	D	µg/l		20.0	BRL	71	70-130		
1,2,4-Trimethylbenzene	20.6	D	µg/l		20.0	BRL	103	70-130		
2,2,4-Trimethylpentane	17.4	D	µg/l		20.0	BRL	87	70-130		
n-Butylcyclohexane	20.4	D	µg/l		20.0	BRL	102	70-130		
n-Decane	24.7	D	µg/l		20.0	BRL	123	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	57.0		µg/l		50.0		114	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	59.5		µg/l		50.0		119	70-130		

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# Soluble Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1310536 - SW846 3005A</b>										
<u>Blank (1310536-BLK1)</u>										
Iron	< 0.0300		mg/l	0.0300						
<u>LCS (1310536-BS1)</u>										
Iron	2.11		mg/l	0.0300	2.00		106	85-115		
<u>LCS Dup (1310536-BSD1)</u>										
Iron	1.94		mg/l	0.0300	2.00		97	85-115	8	20
<u>Duplicate (1310536-DUP1)</u>										
Iron	< 0.0300		mg/l	0.0300		BRL				20
<u>Matrix Spike (1310536-MS1)</u>										
Iron	29.3	QM2	mg/l	0.0300	2.50	28.9	18	75-125		
<u>Matrix Spike Dup (1310536-MSD1)</u>										
Iron	28.1	QM2	mg/l	0.0300	2.50	28.9	-29	75-125	4	20

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# General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1309892 - General Preparation</b>										
<u>Blank (1309892-BLK1)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	< 1.00		mg/l	1.00						
Nitrate as N	< 0.100		mg/l	0.100						
<u>LCS (1309892-BS1)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	18.4		mg/l	1.00	20.0		92	90-110		
Nitrate as N	1.80		mg/l	0.100	2.00		90	90-110		
<u>Calibration Blank (1309892-CCB1)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	-0.174		mg/l							
Nitrate as N	0.00		mg/l							
<u>Calibration Blank (1309892-CCB2)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	-0.174		mg/l							
Nitrate as N	0.00		mg/l							
<u>Calibration Blank (1309892-CCB3)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	-0.176		mg/l							
Nitrate as N	0.00		mg/l							
<u>Calibration Blank (1309892-CCB4)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	-0.171		mg/l							
Nitrate as N	0.00		mg/l							
<u>Calibration Blank (1309892-CCB5)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	-0.173		mg/l							
Nitrate as N	0.00		mg/l							
<u>Calibration Check (1309892-CCV1)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	18.6		mg/l		20.0		93	90-110		
Nitrate as N	1.84		mg/l		2.00		92	90-110		
<u>Calibration Check (1309892-CCV2)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	17.6	R	mg/l		20.0		88	90-110		
Nitrate as N	1.75	R	mg/l		2.00		88	90-110		
<u>Calibration Check (1309892-CCV3)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	18.8		mg/l		20.0		94	90-110		
Nitrate as N	1.85		mg/l		2.00		92	90-110		
<u>Calibration Check (1309892-CCV4)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	18.0		mg/l		20.0		90	90-110		
Nitrate as N	1.81		mg/l		2.00		90	90-110		
<u>Calibration Check (1309892-CCV5)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	16.7	R	mg/l		20.0		84	90-110		
Nitrate as N	1.70	R	mg/l		2.00		85	90-110		
<u>Duplicate (1309892-DUP1)</u>				<u>Source: SB68779-07</u>						<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	15.1		mg/l	1.00		15.3			1	20
Nitrate as N	1.30		mg/l	0.100		1.30			0.08	20
<u>Matrix Spike (1309892-MS1)</u>				<u>Source: SB68779-07</u>						<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	23.1	QM4X	mg/l	1.00	5.00	15.3	157	90-110		
Nitrate as N	2.03	QM4X	mg/l	0.100	0.500	1.30	145	90-110		
<u>Matrix Spike Dup (1309892-MSD1)</u>				<u>Source: SB68779-07</u>						<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	23.2	QM4X	mg/l	1.00	5.00	15.3	159	90-110	0.5	20
Nitrate as N	2.06	QM4X	mg/l	0.100	0.500	1.30	151	90-110	1	20
<u>Reference (1309892-SRM1)</u>										<u>Prepared: 01-May-13 Analyzed: 02-May-13</u>
Sulfate as SO4	20.1	QM9	mg/l	1.00	25.0		80	90-110		
Nitrate as N	2.06	QM9	mg/l	0.100	2.50		82	90-110		
<b>Batch 1310172 - General Preparation</b>										
<u>Blank (1310172-BLK1)</u>										<u>Prepared: 03-May-13 Analyzed: 04-May-13</u>
Nitrate as N	< 0.100		mg/l	0.100						

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## General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1310172 - General Preparation</b>										
<u>LCS (1310172-BS1)</u>								Prepared: 03-May-13 Analyzed: 04-May-13		
Nitrate as N	2.16		mg/l	0.100	2.00		108	90-110		
<u>Duplicate (1310172-DUP2)</u>				<u>Source: SB68779-07RE1</u>				Prepared: 03-May-13 Analyzed: 04-May-13		
Nitrate as N	1.74		mg/l	0.100		1.73			0.6	20
<u>Matrix Spike (1310172-MS2)</u>				<u>Source: SB68779-07RE1</u>				Prepared: 03-May-13 Analyzed: 04-May-13		
Nitrate as N	2.26	QM4X	mg/l	0.100	0.400	1.73	132	90-110		
<u>Matrix Spike Dup (1310172-MSD2)</u>				<u>Source: SB68779-07RE1</u>				Prepared: 03-May-13 Analyzed: 04-May-13		
Nitrate as N	2.23	QM4X	mg/l	0.100	0.400	1.73	125	90-110	1	20
<u>Reference (1310172-SRM1)</u>								Prepared: 03-May-13 Analyzed: 04-May-13		
Nitrate as N	2.71		mg/l	0.100	2.50		108	90-110		
<b>Batch 1310817 - General Preparation</b>										
<u>Blank (1310817-BLK1)</u>								Prepared & Analyzed: 10-May-13		
Sulfate as SO4	< 1.00		mg/l	1.00						
<u>LCS (1310817-BS1)</u>								Prepared & Analyzed: 10-May-13		
Sulfate as SO4	20.9		mg/l	1.00	20.0		105	90-110		
<u>Duplicate (1310817-DUP1)</u>				<u>Source: SB68779-05</u>				Prepared & Analyzed: 10-May-13		
Sulfate as SO4	11.4	QR5	mg/l	1.00		16.2			35	20
<u>Matrix Spike (1310817-MS1)</u>				<u>Source: SB68779-05</u>				Prepared & Analyzed: 10-May-13		
Sulfate as SO4	15.0	QM7	mg/l	1.00	4.00	16.2	-29	90-110		
<u>Matrix Spike Dup (1310817-MSD1)</u>				<u>Source: SB68779-05</u>				Prepared & Analyzed: 10-May-13		
Sulfate as SO4	15.7	QM7	mg/l	1.00	4.00	16.2	-12	90-110	5	20
<u>Reference (1310817-SRM1)</u>								Prepared & Analyzed: 10-May-13		
Sulfate as SO4	25.7		mg/l	1.00	25.0		103	90-110		
<b>Batch 1311054 - General Preparation</b>										
<u>Blank (1311054-BLK1)</u>								Prepared & Analyzed: 14-May-13		
Sulfate as SO4	< 1.00		mg/l	1.00						
<u>LCS (1311054-BS1)</u>								Prepared & Analyzed: 14-May-13		
Sulfate as SO4	21.3		mg/l	1.00	20.0		106	90-110		
<u>Reference (1311054-SRM1)</u>								Prepared & Analyzed: 14-May-13		
Sulfate as SO4	29.5	QM9	mg/l	1.00	25.0		118	90-110		

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## Volatile Organic Compounds - CCV Evaluation Report

Analyte(s)	Average RF	CCRF	% D	Limit
<b>Batch S305325</b>				
<b><u>Calibration Check (S305325-CCV1)</u></b>				
Benzene	103031.1	107278.9	4.1	25
Ethylbenzene	67190.75	67854.55	1.0	25
Methyl tert-butyl ether	49816.42	52586.5	5.6	25
Naphthalene	45395.98	49073.6	8.1	25
Toluene	88942.26	87435.55	-1.7	25
m,p-Xylene	79799.08	80844	1.3	25
o-Xylene	66465.29	67338.2	1.3	25
2-Methylpentane	16077.27	15585.3	-3.1	25
n-Nonane	7381.322	6585.45	-10.8	30
n-Pentane	15972.28	15219.1	-4.7	25
1,2,4-Trimethylbenzene	59089.68	63721.9	7.8	25
2,2,4-Trimethylpentane	14279.88	13364.5	-6.4	25
n-Butylcyclohexane	7993.376	7201.35	-9.9	25
n-Decane	5200.718	5107.45	-1.8	25
<b><u>Calibration Check (S305325-CCV2)</u></b>				
Benzene	103031.1	113426.8	10.1	25
Ethylbenzene	67190.75	71974.7	7.1	25
Methyl tert-butyl ether	49816.42	53602.1	7.6	25
Naphthalene	45395.98	50609	11.5	25
Toluene	88942.26	92765.85	4.3	25
m,p-Xylene	79799.08	85534.88	7.2	25
o-Xylene	66465.29	71028	6.9	25
2-Methylpentane	16077.27	16621.15	3.4	25
n-Nonane	7381.322	6152.05	-16.7	30
n-Pentane	15972.28	16348.35	2.4	25
1,2,4-Trimethylbenzene	59089.68	67523.75	14.3	25
2,2,4-Trimethylpentane	14279.88	13849.25	-3.0	25
n-Butylcyclohexane	7993.376	6895.55	-13.7	25
n-Decane	5200.718	4796.7	-7.8	25
<b>Batch S305374</b>				
<b><u>Calibration Check (S305374-CCV1)</u></b>				
Benzene	103031.1	113116.8	9.8	25
Ethylbenzene	67190.75	72317.95	7.6	25
Methyl tert-butyl ether	49816.42	53126.2	6.6	25
Naphthalene	45395.98	47980.8	5.7	25
Toluene	88942.26	92945.65	4.5	25
m,p-Xylene	79799.08	86217.45	8.0	25
o-Xylene	66465.29	71289.9	7.3	25
2-Methylpentane	16077.27	17345.1	7.9	25
n-Nonane	7381.322	8297.9	12.4	30
n-Pentane	15972.28	16836.65	5.4	25
1,2,4-Trimethylbenzene	59089.68	67539.85	14.3	25
2,2,4-Trimethylpentane	14279.88	14982.55	4.9	25
n-Butylcyclohexane	7993.376	8448.45	5.7	25
n-Decane	5200.718	6183.4	18.9	25
<b><u>Calibration Check (S305374-CCV2)</u></b>				
Benzene	103031.1	110727.1	7.5	25
Ethylbenzene	67190.75	72186.8	7.4	25
Methyl tert-butyl ether	49816.42	53621.35	7.6	25
Naphthalene	45395.98	50326.05	10.9	25
Toluene	88942.26	91120.85	2.4	25

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## Volatile Organic Compounds - CCV Evaluation Report

Analyte(s)	Average RF	CCRF	% D	Limit
<b>Batch S305374</b>				
<b><u>Calibration Check (S305374-CCV2)</u></b>				
m,p-Xylene	79799.08	85409.43	7.0	25
o-Xylene	66465.29	70301.6	5.8	25
2-Methylpentane	16077.27	15734.85	-2.1	25
n-Nonane	7381.322	6164.45	-16.5	30
n-Pentane	15972.28	15340.65	-4.0	25
1,2,4-Trimethylbenzene	59089.68	66581.35	12.7	25
2,2,4-Trimethylpentane	14279.88	13264.05	-7.1	25
n-Butylcyclohexane	7993.376	6623	-17.1	25
n-Decane	5200.718	4725.7	-9.1	25

## Notes and Definitions

CCE	Analyte concentration is flagged as estimated due to exceeding the calibration range or interferences. The sample is not over the calibration range for the target analytes and/or marker compounds that make up the range therefore not diluted further.
D	Data reported from a dilution
E	This flag indicates the concentration for this analyte is an estimated value due to exceeding the calibration range or interferences resulting in a biased final concentration.
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
HT5	Sample was originally analyzed within the recommended method holding time; however, QC materials for the sample run were out of control. As a result, the sample was immediately re-analyzed (outside the holding time).
I02	This result was analyzed outside of the EPA recommended holding time.
QM2	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the 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.
QR5	RPD out of acceptance range.
R	Quality Control is outside acceptance range; all affected samples have been re-analyzed.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

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:  
Kimberly Wisk  
Rebecca Merz



## Page 1 of 1

866879

☒ Standard TAT - 7 to 10 business days

☐ Rush TAT - Date Needed: \_\_\_\_\_

- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Sampler(s): M. Serra

List preservative code below:					
		4			

## Containers:

### Analyses:

Lab Id:	Sample Id:	Date:	Time:	Type
---------	------------	-------	-------	------

Matrix
# of VC
# of An
# of Cl
# of Pla

VPH
Nitrate
Sulfate
Dissolved Iron

**QA/QC Reporting Notes:**  
\* additional charges may apply

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

**QA/QC Reporting Level**

☒ Standard ☐ No QC ☐ DOA\*  
☐ NY ASP A\* ☐ NY ASP B\*  
☐ NJ Reduced\* ☐ NJ Full\*  
☐ TIER II\* ☐ TIER IV\*  
☐ Other \_\_\_\_\_

State-specific reporting standards:

Revised Feb 2012



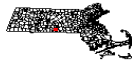
## **ATTACHMENT III**

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# MassDEP - Bureau of Waste Site Cleanup

## MCP Numerical Ranking System Map: 500 feet & 0.5 Mile Radii

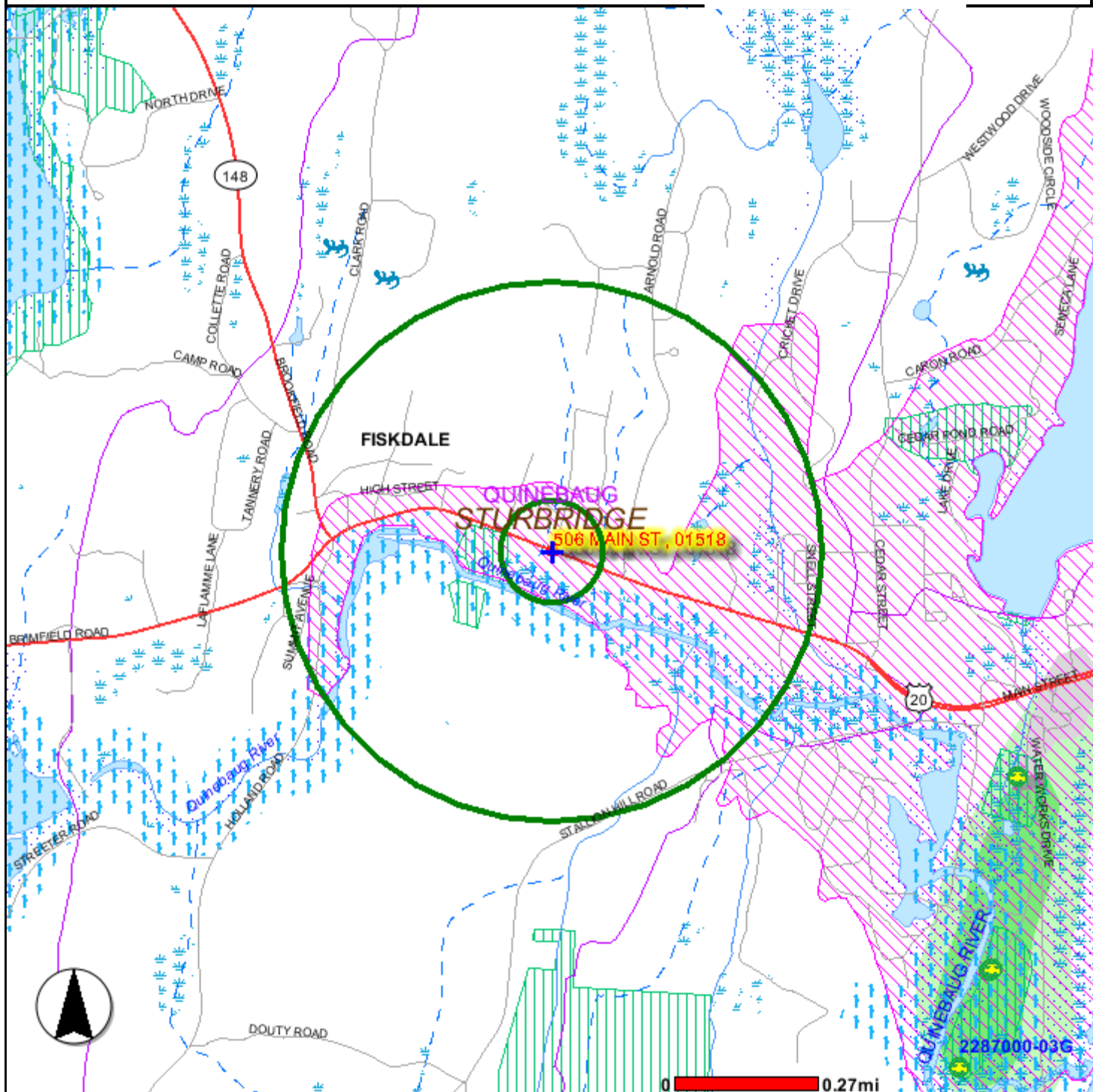
**Site Name:**  
Sturbridge CFI  
506 Main Street  
Sturbridge, MA  
RTN: 2-00015914  
NAD83 MA Coordinates:  
149633mE, 874033mN



The information shown on this map is the best available at the date of printing. For more information please refer to [www.mass.gov/mgis/massgis.htm](http://www.mass.gov/mgis/massgis.htm)



August 29, 2011



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, Sub; Streams: Perennial, Intermittent, Man Made Shore, Dam

Aquifers: Medium Yield, High Yield, EPA Sole Source.....

Non Potential Drinking Water Source Area: Medium, High (Yield)...

PWS Protection Areas: Zone II, IWPA, Zone A .....

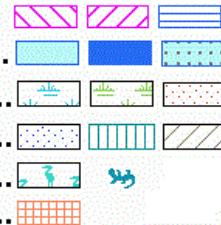
Hydrography: Open Water, PWS Reservoir, Tidal Flat .....

Wetlands: Freshwater, Saltwater, Cranberry Bog .....

FEMA 100yr Floodplain; Protected Open Space; ACEC .....

NHESP: Est Rare Wetland Habitat, Certified Vernal Pool ...

DEP Permitted Solid Waste Landfill.....



Internet Explorer browser window displaying the OLIVER (MassGIS's Online Mapping Tool) interface. The address bar shows the URL: [http://maps.massgis.state.ma.us/map\\_ol/oliver.php](http://maps.massgis.state.ma.us/map_ol/oliver.php). The search bar contains the text "massgis". The user is logged in as Michael Bricher.

The main map area displays a satellite view of a residential area. A large, irregularly shaped area is highlighted with a yellow diagonal hatched pattern and labeled "PH 1461". The map includes street names such as Main Street, Church Street, High Street, and Cedar Road. A scale bar indicates 0 m.

The right sidebar contains the "Available Data Layers" and "Active Data Layers" sections.

**Available Data Layers:**

- Search data layers
- Calves Trails
- Natural Heritage Data
  - BioMap2
    - NHESP Ecoregions
    - NHESP Certified Vernal Pools
    - NHESP Estimated Habitats of Rare Wildlife
    - NHESP Natural Communities
    - NHESP Priority Habitats of Rare Species
    - Potential Vernal Pools
  - Office of Fishing and Boating Access Sites
  - Openspace
  - The Scenic Landscape Inventory

**Active Data Layers:**

Check all | Uncheck all | Remove all

- ☒ NHESP Priority Habitats of Rare Species
- ☒ NHESP Estimated Habitats of Rare Wildlife
- ☒ Parcels Level 3 SDE
- ☒ Detailed Features
- ☒ Tax Parcels
- ☒ Structures

**Legend:**

- NHESP Priority Habitats of Rare Species
  - ☒ [Yellow hatched pattern]
- NHESP Estimated Habitats of Rare Wildlife
  - ☒ [Green hatched pattern]

The bottom status bar shows the system clock: 9:25 AM, 6/7/2013.

## **ATTACHMENT IV**

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# Massachusetts Cultural Resource Information System

## MACRIS

### MACRIS Search Results

Search Criteria: Town(s): Sturbridge; Street No: 506; Street Name: main; Resource Type(s): Area;

Inv. No.	Property Name	Street	Town	Year
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