

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

VIA EMAIL

RE: F. L. Roberts and Company Inc. 399 Northampton Street Amherst, Massachusetts RGP No. MAG910175 MassDEP RTN 1-687

Dear Sir or Madam:

Environmental Compliance Services, Inc. (ECS) is pleased to provide documentation for the reapplication for coverage under the Remediation General Permit (RGP) on behalf of F.L. Roberts and Company Inc. (FLR). This Notice of Intent (NOI) is submitted in order to continue the operation of a groundwater recovery and treatment system (GWTS) located at 399 Northampton Street, Amherst, Hampshire County, Massachusetts (herein referred to as the Site). The GWTS has been operated at the Site since January 2006 to control and eliminate dissolved-phase hydrocarbons in the groundwater. A Site Locus is provided as Figure 1. The NOI form is attached.

System Design

The system design schematic is attached. The groundwater treatment system consists of a recovery well constructed of 18-inch corrugated stainless steel, which was installed during construction activities in the summer of 1998 for dewatering purposes. This well was subsequently fitted with a submersible sump pump, which is controlled by a float switch. When the groundwater elevation within the well reaches a float on the pump, the groundwater is pumped through two, 200-pound LPGAC canisters. Sample ports are located prior to the first canister, at the midpoint, and at the system effluent. These sample ports are provided to monitor both the system efficiency and required permit guidelines. Following carbon treatment, the groundwater is discharged to the stormwater system via a catch basin east of the car wash building. In August 2006, a particulate filter was added to the system prior to discharge to maintain permit requirements.

Following carbon treatment, the groundwater is discharged via 2-inch Schedule 40 polyvinyl chloride (PVC) pipe to a 16-inch PVC roof-drain leader located below grade at the northern corner of the Facility. From this connection, the 16-inch PVC drain discharges to a catch basin located on the north-central portion of the Site on Town of Hadley property, east of the self-service car wash building. From this catch basin, the flow travels northerly to a second catch basin; then travels west to a third catch basin located behind the self-service car wash; then travels south-westerly to a fourth catch basin located northwest of the self-service car wash; then travels southerly along the western boundary of the Site to a fifth catch basin located between the self-service car wash and the automated car wash building; the flow

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continues southerly along the western boundary of the Site to a sixth catch basin located west of the southern corner of the automated car wash building; the flow then travels west to a seventh catch basin located in the parking lot of the western abutting strip mall building and continues westerly through three additional catch basins (8, 9, and 10) across the strip mall parking lot; from the tenth catch basin, the flow continues westerly and discharges into an un-named brook, which is a tributary of the Mill River in the Town of Hadley, Massachusetts. A Site plan detailing the location of the groundwater treatment system and the catch basin for the storm water line is attached.

During operation from January 2010 to September 2010, the measured flow rate from the system ranged from 3.0 to 3.6 gallons per minute (gpm) during active operation. The average flow rate during this time period was calculated to be 3.3 gpm.

Influent Sample Analysis

Samples have been collected on a monthly basis of the untreated influent and treated effluent from the GWTS and submitted for analysis of Total Suspended Solids (TSS) by Method SM2540D, the volatile organic compounds (VOCs) benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MtBE), and naphthalene by the United States Environmental Protection Agency (USEPA) Method 8260B, Total Petroleum Hydrocarbons (TPH) by the USEPA Method 1664A, and for total arsenic, copper and iron by the USEPA Method 6010B.

The table of parameters in the NOI was completed based upon 2010 sampling data. The following parameters are believed present in the potential discharge of the GWTS:

- BTEX
- MtBE
- TPH
- Total Suspended Solids
- Arsenic
- Copper
- Iron

The calculations for the dilution factors for the detected metals are attached. Information regarding the receiving waters and environmental receptors is included in the NOI.

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Copies of this letter and supporting documentation have been forwarded to Mr. David Slowick at the Western Regional Office of the MassDEP. 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 (413) 789-3530.

Sincerely, ENVIRONMENTAL COMPLIANCE SERVICES, INC.

Kelly & Dohert

Kelly L. Doherty Project Manager

KLD/kab Attachments

cc: D. Slowick, MassDEP, WERO

FIGURES



Environmental Compliance Services, Inc. 588 Silver Street Agawam, MA 01001 Phone 413.789.3530 Fax 413.789.2776 www.ecsconsult.com

399 Northampton Street, Amherst, MA 399 Northampton Street Amherst, MA 01002-2547

Figure 1: SITE LOCUS



Base Map: U.S. Geological Survey; Quadrangle Location: Mount Holyoke, MA Lat/Lon: 42° 21' 58" NORTH, 72° 32' 3" WEST - UTM Coordinates: 18 703042 EAST / 4693382 NORTH Generated By: Christine DiMaio

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

1. General facility/site information. Ple	case provide the	le tollowing information	about the site:	
a) Name of facility/site: F.L. Roberts and Com	ipany Inc.	Facility/site mailing ac	ldress:	
Location of facility/site : longitude:[72 32' 08" latitude:[42 21' 57"	Facility SIC code(s): 5541	Street: 399 Northampton	Street (Route 9)	
b) Name of facility/site owner:		Town: Amherst		
Email address of facility/site owner:		State:	Zip: Cou	unty:
		24.0	C0010	
Telephone no. of facility/site owner. (413)7/	81-7444			upsnire
Fax no. of facility/site owner: (413)781-4328		Owner is (check one):	1. Federal O 2. State/T	Iribal O
Address of owner (if different from site):		3. Private O 4. Other	· O if so, describe:	
Street: 93 West Broad Street				
Town: Springfield	State: MA	Zip: 01101	County: Hampden	
c) Legal name of operator :	Operator te	lephone no: (413)789-3530		
Environmental Compliance Services Inc.	Operator fa	x no.: (413)789-2776	Operator email: kdoher	rty@ecsconsult.com
Operator contact name and title: Kelly Doh	erty - Project Ma	nager		
Address of operator (if different from owner):	Street: 588 Si	lver Street		
Town: Agawam	State: MA	Zip:01001	County: Hampden	

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d) Check Y for "yes" or N for "no" for the following: 1. Has a prior NPDES permit exclusion been granted for th 2. Has a prior NPDES application (Form 1 & 2C) ever been Y O N O, if Y, date and tracking #: forms filed for permit exc 3. Is the discharge a "new discharge" as defined by 40 CF 4. For sites in Massachusetts, is the discharge covered und permitting? Y O N O	he discharge? Y O NO, if Y, number 99-033 en filed for the discharge? Ausion R 122.2? Y O N O R 122.2? Y O N O ler the Massachusetts Contingency Plan (MCP) and exempt from state
 e) Is site/facility subject to any State permitting, license, or other action which is causing the generation of discharge? Y O NO If Y, please list: 1. site identification # assigned by the state of NH or MA: [Release Tracking Number 1-687] 2. permit or license # assigned: 3. state agency contact information: name, location, and 	 f) Is the site/facility covered by any other EPA permit, including: 1. Multi-Sector General Permit? Y O N O, if Y, number: 2. Final Dewatering General Permit? Y O N O, if Y, number: 3. EPA Construction General Permit? Y O N O, if Y, number: 4. Individual NPDES permit? Y O N O, if Y, number:
terepriotie number. MassDEP - WERO 436 Dwight St. Springfield, MA 01103 (413) 784-1149	5. any other water quality related individual or general permit? Y O N O, if Y, number:
g) Is the site/facility located within or does it discharge to	an Area of Critical Environmental Concern (ACEC)? Y O N O
h) Based on the facility/site information and any historica discharge falls.	Il sampling data, identify the sub-category into which the potential
Activity Category	Activity Sub-Category
I - Petroleum Related Site Remediation	 A. Gasoline Only Sites X B. Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges) C. Petroleum Sites with Additional Contamination
II - Non Petroleum Site Remediation	A. Volatile Organic Compound (VOC) Only Sites B. VOC Sites with Additional Contamination C. Primarily Heavy Metal Sites
III - Contaminated Construction Dewatering	A. General Urban Fill Sites 🔲 B. Known Contaminated Sites 📙

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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) □
 Discharge information. Please provide information a) Describe the discharge activities for which the owner/a 	about the discharge, (attaching additional sheets as necessary) including: policant is seeking coverage:
An 18-inch diameter perforated stainless steel pipe was installed at building. The pipe is fitted with a float device and sump pump, conr	2 feet below grade adjacent to the foundation of the eastern corner of the ected to a liquid phase granulated activated carbon filtration system. Cont. Att. l
b) Provide the following information about each discharg	
1) Number of discharge 2) What is the maximum a maximum a max. points: 1 Average flow (include unit	nd average flow rate of discharge (in cubic feet per second, ft^3/s)? maximum flow a design value? Y O N O s) 00076 cfs Is average flow a design value or estimate?
 3) Latitude and longitude of each discharge within 100 fept.1: lat ^{42,21'54} long ^{72,32'24} pt.2: lat pt.3: lat pt.3: lat pt.5: lat pt.7: lat long pt.5: lat pt.7: lat pt.7: lat long pt.8: lat. 4) If hydrostatic testing, pt.7: lat long pt.6: lat. 4) If hydrostatic testing, pt.7: lat long pt.6: lat. 6) If hydrostatic testing, pt.7: lat long pt.6: lat. 7) Is the discharge intermit pt.6: lat. 6) Is the discharge intermit long pt.8: lat. 7) Is the discharge intermit of the discharge ongoing? Y discharge (gals): 6) Expected dates of discharge (mm/dd/yy): start[oct 10, 1996 d) Please attach a line drawing or flow schematic showing 1. sources of intake water 2. contributing flow from the owner statement long pt.8: lat. 	tt: long ent O or seasonal O? O N O water flow through the facility including: water flow through the facility including:

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3. Contaminant information.

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

Parameter *	<u>CAS</u> <u>Number</u>	<u>Believed</u> <u>Absent</u>	<u>Believed</u> <u>Present</u>	<u># of</u> <u>Samples</u>	Sample Type (c.g., grab)	Analytical <u>Method</u> <u>Used</u> (method #)	<u>Minimum</u> <u>Level</u> (<u>ML) of</u> <u>Test</u> <u>Method</u>	Maximum dail concentration (ug/l)	y value mass (kg)	Average daily concentration (ug/l)	value mass (kg)
1. Total Suspended Solids (TSS)			X	6	grab	SM25400	5.0 mg/L	0.006	0.012		
2. Total Residual Chlorine (TRC)		X									
 Total Petroleum Hydrocarbons (TPH) 			×	6	grab	1664	1.0 mg/L	<0.001	NA		
4. Cyanide (CN)	57125	X									
5. Benzene (B)	71432		×	6	grab	8260B	1.0 ug/L	<1.0	NA		
6. Toluene (T)	108883		×	6	grab	8260B	1.0 ug/L	<1.0	NA		
7. Ethylbenzene (E)	100414		×	6	grab	8260B	1.0 ug/L	<1.0	NA		
8. (m,p,o) Xylenes (X)	108883; 106423; 95476; 1330207		×	6 _	grab	8260B	1.0 ug/L	<1.0	NA		
9. Total BTEX ²	n/a		×	6	grab	8260B	1.0 ug/L	<1.0	NA		
10. Ethylene Dibromide (EDB) (1,2- Dibromoethane) ³	106934	X									
11. Methyl-tert-Butyl Ether (MtBE)	1634044		X	6	grab	8260B	1.0 ug/L	<1.0	NA		
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75650	X									

^{*} Numbering system is provided to allow cross-referencing to Effluent Limits and Monitoring Requirements by Sub-Category included in Appendix III, as well as the Test Methods and Minimum Levels associated with each parameter provided in Appendix VI. ² BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes. ³ EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

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value	mas (kg)																
Average daily	<u>concentration</u> (<u>ue/l)</u>																
<u>ly value</u>	mass (kg)												and the second se				
Maximum dai	<u>concentration</u> (ug/l)																
Minimum	<u>I.evel</u> (ML) of Test Method																
Anglytical	<u>Method</u> <u>Used</u> (method #)											and a more than					
Samula	<u>Type</u> (e.g., grab)											5					
	<u># of</u> Samples																
	<u>Believed</u> <u>Present</u>																
	<u>Believed</u> <u>Absent</u>	×	×	×	×	×	×	X	×	X	X	×	X	×	×	×	X
	<u>CAS</u> Number	9940508	91203	56235	95501	541731	106467		75343	107062	75354	156592	75092	127184	71556	79005	79016
	Parameter *	13. tert-Amyl Methyl Ether (TAME)	14. Naphthalene	15. Carbon Tetrachloride	16.1,2 Dichlorobenzene (o-DCB)	17. 1,3 Dichlorobenzene (m-DCB)	18. 1,4 Dichlorobenzene (p-DCB)	18a. Total dichlorobenzene	19. 1,1 Dichloroethane (DCA)	20. 1,2 Dichloroethane (DCA)	21. 1,1 Dichloroethene (DCE)	22. cis-1,2 Dichloroethene (DCE)	23. Methylene Chloride	24. Tetrachloroethene (PCE)	25. 1,1,1 Trichloro-ethane (TCA)	26. 1,1,2 Trichloro-ethane (TCA)	27. Trichloroethene (TCE)

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					Comple	Amelodian	Minimum	Maximum dai	ly value	Average daily	value
Parameter *	<u>CAS</u> <u>Number</u>	<u>Believed</u> <u>Absent</u>	Believed <u>Present</u>	<u># of</u> <u>Samples</u>	Type (e.g., grab)	<u>Method</u> <u>Used</u> (method #)	<u>Level</u> (<u>ML) of</u> <u>Test</u> Method	<u>concentration</u> (ug/l)	mass (kg)	<u>concentration</u> (<u>ug/l</u>)	<u>mass</u> (<u>kg</u>)
28. Vinyl Chloride (Chloroethene)	75014	×									
29. Acetone	67641	×									
30. 1,4 Dioxane	123911	×							Z		
31. Total Phenols	108952	×									
32. Pentachlorophenol (PCP)	87865	×									
33. Total Phthalates (Phthalate esters) ⁴		×									
34. Bis (2-Ethylhexyl) Phthalate [Di- (ethylhexyl) Phthalate]	117817	X									
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)		X									
a. Benzo(a) Anthracene	56553	X									
b. Benzo(a) Pyrene	50328	×									
c. Benzo(b)Fluoranthene	205992	X									
d. Benzo(k)Fluoranthene	207089	X									
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)		×									- 1 at 9 line - 1

⁴ The sum of individual phthalate compounds.

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' value	mass (kg)																													
Average daily	<u>concentration</u> (u <u>e/l)</u>												104				And	and a set of the												
<u>ly value</u>	<u>mass</u> (kg)																	0.013				0.006							0.135	
<u>Maximum dai</u>	<u>concentration</u> (ug/l)																	17				8.6		0000 ·					178	
Minimum	Level (ML) of Test Method			and the second se														0.004 mg/L				0.005 mg/L							0.015 mg/L	
Analvtical	<u>Method</u> <u>Used</u> (method #)	and of the second se										6 M + M.		F				6010B	Section () Section () Section ()			6010B							6010B	
Samule	<u>Type</u> (e.g.,																	grab	a presentation of			grab		and the second second					grab	
	<u># of</u> Samples											a mar that						6				6							S	
	<u>Believed</u> <u>Present</u>											[X				×							X	
	<u>Believed</u> <u>Absent</u>	×	×	×	×	×	×	×	×	×		[×			×	×		X	×	×		×	×	×	×	×	X		X
5	CAS Number	83329	208968	120127	191242	206440	86737	91203	85018	129000	85687;	84742;	11/840; 84667.	\$4007	131113; 117817.	16887006	7440360	7440382	7440439	16065831	18540299	7440508	7439921	7439976	7440020	7782492	7440224	7440666	7439896	
	Parameter *	h. Acenaphthene	i. Acenaphthylene	j. Anthracene	k. Benzo(ghi) Perylene	1. Fluoranthene	m. Fluorene	n. Naphthalene	o. Phenanthrene	p. Pyrene					37. Total Polychlorinated Biphenyls (PCBs)	38. Chloride	39. Antimony	40. Arsenic	41. Cadmium	42. Chromium III (trivalent)	43. Chromium VI (hexavalent)	44. Copper	45. Lead	46. Mercury	47. Nickel	48. Selenium	49. Silver	50. Zinc	51. Iron	Other (describe):

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value			
Average daily	<u>concentration</u> (ug/)		
y value	(Kg)		
<u>Maximum dail</u>	<u>concentration</u> (ue/)		
Minimum	<u>Level</u> (ML) of <u>Test</u> <u>Method</u>		
Analotioal	Method Used (method #)		
Samula	Type (e.e., erab)		
	<u># of</u> Samples		
	<u>Believed</u> <u>Present</u>		
	<u>Believed</u> <u>Absent</u>		2
	<u>CAS</u> <u>Number</u>		
	Parameter *		

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

Step 1: Do any of the metals in the influent exceed the effluent limits in Amendix III (i.e., the limits set at zero dilution)? $\mathbf{V} \odot \mathbf{N} \odot$	If ves, which metals?
	מו סכוווכן בטיף בין וו טוו
<i>Step 2</i> : For any metals which exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metal arsenic DF 789 Metal copper DF 789 Metal from DF 789 Metal from DF 789	Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y \odot N O If Y, list which metals:
Etc.	ron- however, measured discharge concentration does not exceed

			An introduction will be a set of the set of	ביות המשמת המשורה שנו בשנו היות להלה אב אלה המשורה של אלם "במשלה אותו להול את להלללוה בלו שובאה לל היות ליו	(i) a set the second second second data of the second spin decision as a suble second s second second se Second second se Second second sec	A COMPANY OF A COM
4. Treatment system inf	ormation. Plea	ase describe the tre	atment system using sepa	rrate sheets as necessary, in	cluding:	
a) A description of the t	reatment system	1, including a sche	matic of the proposed or ϵ	sxisting treatment system:		
See Attachment I and III						
b) Identify each	Frac. tank 🗖	Air stripper 🗖	Oil/water separator	Equalization tanks 🗖	Bag filter X	GAC filter X
applicable treatment unit (check all that apply):	Chlorination	De- chlorination	Other (please describe):			

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				NPDES Permit No. MAG910000 NPDES Permit No. NHG910000
c) Proposed average and maximum flow rates (the treatment system: Average flow rate of discharge ^{3.0} gpm Design flow rate of treatment system	(gallons per minute) f Maximum flow rat gpm	for the discharge an	id the design flow em ^{[3.6}	rate (s) (gallons per minute) of gpm
d) A description of chemical additives being usec	d or planned to be us	ed (attach MSDS sl	neets):	
5. Receiving surface water(s). Please provide in	nformation about the	receiving water(s),	using separate she	ets 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 discharg	ge pathway, including	the name(s) of the	receiving waters:	
see attached				
 c) Attach a detailed map(s) indicating the site loc 1. For multiple discharges, number the discharge 2. For indirect dischargers, indicate the location The map should also include the location and dis on USGS topographical mapping), such as surface 	cation and location or es sequentially. of the discharge to th stance to the nearest : ice waters, drinking w	f the outfall to the r ie indirect conveya sanitary sewer as w vater supplies, and	eceiving water: nce and the discha ell as the locus of wetland areas.	rge to surface water nearby sensitive receptors (based
d) Provide the state water quality classification o	of the receiving water	8		
e) Provide the reported or calculated seven day-t- Please attach any calculation sheets used to supp	ten year low flow (70 sort stream flow and	(10) of the receivind dilution calculation	g water 6.31 S.	cfs
f) Is the receiving water a listed 303(d) water qua	ality impaired or lim	ited water? Y O	N O If yes, for	which pollutant(s)?
Is there a final TMDL? Y O N O If yes, fo	or which pollutant(s)'	Ż		

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NPDES Permit No. MAG910000 NPDES Permit No. NHG910000 NPDES Permit No. NHG910000	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 \bigcirc B \bigcirc C \bigcirc D \bigcirc D \bigcirc D \bigcirc E \bigcirc F \bigcirc b) If you selected Criterion D or F, has consultation with the federal services been completed? Y \bigcirc N \bigcirc Underway \bigcirc	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 \bigcirc N \bigcirc N \bigcirc N \bigcirc M \bigcirc D \bigcirc M \bigcirc D \bigcirc	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 $\bigcirc 2$ $\bigcirc 3$ $\bigcirc 0$ 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.	Discharge is planned to be discontinued in the Spring -Summer of 2011, upon removal of the building.
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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 submitted for submitting false informations.
Facility/Site Name: F.L. Roberts gas station and car wash
Operator signature: ALUY F DONCH
Printed Name & Title: Kelly L. Doherhy - Project Manager
Date: [3][1][D

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Remediation General Permit – Appendix V – Attachment I

2. A.

Continued from text: When groundwater rises to 8 feet the system pumps the groundwater through the carbon to prevent infiltration in the basement of the structure and then discharges to the storm water drainage system.

Maximum Daily Value and Dilution Factor Calculations - 3.

Arsenic (maximum daily value)

0.0002 x 17 x 8.34 = 0.028/2.2 = 0.013 kg

Copper (maximum daily value)

0.002 x 8.6 x 8.34 = 0.014/2.2 = 0.0006 kg

Iron

0.002 x 178 x 8.34 = 0.297/2.2 = 0.135 kg

Dilution Factor

DF= 0.008 + 6.31*/0.008 = 789

*7Q10 of Mill River at Northampton, MA is 6.31 cubic feet per second (cfs) (Reis, 1998) Gage # 0.1171500, obtained from 1 mile downstream of Clement St. (CT River Watershed 2003-2007 Water Quality Assessment Report, Appendix B)

4. A.

The system consists of a submersible sump pump, which is controlled by a float switch. When the water table rises to the float elevation, groundwater is pumped through two, 200-pound liquid phase granular activated carbon (LGAC) canisters. Sample ports are located prior to the first canister, at the midpoint, and at the system effluent. These sample points are provided to monitor both the system efficiency and required permit guidelines. See Attachment III.

5. B.

Following carbon treatment, the groundwater is discharged via 2-inch Schedule 40 polyvinyl chloride (PVC) pipe to a 16-inch PVC roof drain leader located below grade at the northern corner of the facility. From this connection, the 16-inch PVC drain discharges to a catch basin located on the north-central portion of the Site on Town of Hadley property, east of the self-service car wash building. From this catch basin, the flow travels northerly to a second catch basin; then travels west to a third catch basin located behind the self-service car wash; then travels south-westerly to a fourth catch basin located northwest of the self-service car wash; then travels southerly along the western boundary of the Site to

a fifth catch basin located between the self-service car wash and the automated car wash building.; the flow then travels west to a seventh catch basin located in the parking lot of the western abutting strip mall building and continues westerly through three additional catch basins (8, 9. And 10) across the strip mall parking lot; from the tenth catch basin, the flow continues westerly and discharges into an unnamed brook, which is a tributary of the Mill River in the Town of Hadley, Massachusetts. – See Attachment II for sketches.

5. E.

7Q10 of Mill River at Northampton, MA is 6.31 cfs (Reis, 1998) Gage # 0.1171500, obtained from 1 mile downstream of Clement St. (CT River Watershed 2003-2007 Water Quality Assessment Report, Appendix B)







Report Date: 28-Jan-10 14:28



Final Report
 Re-Issued Report
 Revised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY

Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Kelly Doherty

Project: FL Roberts - 399 Northampton Rd - Amherst, MA Project #: J12660.00

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB06882-01	Influent	Ground Water	18-Jan-10 12:45	18-Jan-10 16:30
SB06882-02	Mdpt	Ground Water	18-Jan-10 12:50	18-Jan-10 16:30
SB06882-03	Effluent	Ground Water	18-Jan-10 13:00	18-Jan-10 16:30
SB06882-04	TB	Deionized Water	18-Jan-10 08:00	18-Jan-10 16:30

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 Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.

Please note that this report contains 12 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supercedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report is available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

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

CASE NARRATIVE:

The samples were received 3.8 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

According to WSC-CAM 5/2004 Rev.4, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended 70%-130% recovery range, a range has been set based on historical control limits.

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

SW846 6010B

Samples: SB06882-01 Influent Data confirmed with duplicate analysis. Arsenic SB06882-03 Effluent Data confirmed with duplicate analysis. Arsenic SW846 8260B Samples: SB06882-01 Influent This sample was not able to be analyzed for client requested reporting limits due to high concentrations of target analytes in the sample. SB06882-02 Mdpt Insufficient preservative to reduce the sample pH to less than 2. SB06882-03 Effluent

Insufficient preservative to reduce the sample pH to less than 2.

<u>Samp</u> Influ SB06	Sample Identification Influent SB06882-01		<u>Clien</u> J12	<u>Client Project #</u> J12660.00		<u>Matrix</u> Fround Wate	r <u>Collection</u> r 18-Jan	Collection Date/Time 18-Jan-10 12:45		<u>Received</u> 18-Jan-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.	
Volatile (Organic Compounds											
Volatile (Organic Aromatics by SW846 82	260B	GS									
Prepared	by method SW846 5030 Wate	r MS										
71-43-2	Benzene	54.6		µg/l	20.0	20	SW846 8260B	25-Jan-10	25-Jan-10	1002312		
100-41-4	Ethylbenzene	329		µg/l	20.0	20	"	"	"	"		
1634-04-4	Methyl tert-butyl ether	84.8		µg/l	20.0	20	"	"	"	"		
91-20-3	Naphthalene	150		µg/l	20.0	20		"	"	"		
108-88-3	Toluene	24.8		µg/l	20.0	20		"	"	"		
179601-23-	1m,p-Xylene	962		µg/l	40.0	20		"	"	"		
95-47-6	o-Xylene	220		µg/l	20.0	20	"	"		"		
Surrogate	recoveries:											
460-00-4	4-Bromofluorobenzene	98		70-130	0 %			"	"	"		
2037-26-5	Toluene-d8	103		70-130	0 %			"	"	"		
17060-07-0	1,2-Dichloroethane-d4	96		70-130	0 %			"	"	"		
1868-53-7	Dibromofluoromethane	98		70-130	0 %			"	"	"		
Extractal	ole Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	20-Jan-10	21-Jan-10	1002026		
Total Me	tals by EPA 6000/7000 Series Met	thods										
7440-38-2	Arsenic	0.0047	V11	mg/l	0.0040	1	SW846 6010B	21-Jan-10	22-Jan-10	1001950		
7440-50-8	Copper	0.0628		mg/l	0.0050	1	"	"	"	"		
7439-89-6	Iron	20.0		mg/l	0.0150	1	"	"	"	"		
General (Chemistry Parameters											
	Total Suspended Solids	23.0		mg/l	5.00	1	SM2540D	19-Jan-10	19-Jan-10	1001982	х	

Sample Identification Mdpt SB06882-02		Client Project # J12660.00		<u>Matrix</u> Ground Water		Collection Date/Time 18-Jan-10 12:50		<u>Received</u> 18-Jan-10			
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile (Organic Compounds										
Volatile 0	Drganic Aromatics by SW	846 8260B	PH								
Prepared	by method SW846 5030	Water MS									
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	25-Jan-10	25-Jan-10	1002312	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"		
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"	"		
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	
179601-23-	1m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1		"	"		
Surrogate	recoveries:										
460-00-4	4-Bromofluorobenzene	95		70-130	0%		"	"	"	"	
2037-26-5	Toluene-d8	103		70-130	0%			"	"		
17060-07-0	1,2-Dichloroethane-d4	98		70-130	0%			"	"		
1868-53-7	Dibromofluoromethane	99		70-130	0%		"	"	"	"	

<u>Samp</u> Efflu SB06	Sample Identification Effluent SB06882-03		<u>Clien</u> J12	Client Project # J12660.00		<u>Matrix</u> Fround Wate	r <u>Collectio</u> r 18-Jan	Collection Date/Time 18-Jan-10 13:00		<u>Received</u> 18-Jan-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.	
Volatile (Organic Compounds											
Volatile (Organic Aromatics by SW846 82	260B	PH									
Prepared	l by method SW846 5030 Wate	r MS										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	25-Jan-10	25-Jan-10	1002312		
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"		
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"		
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"		
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"		
179601-23-	1m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"		
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"		"		
Surrogate	recoveries:											
460-00-4	4-Bromofluorobenzene	96		70-130	0 %		"	"	"	"		
2037-26-5	Toluene-d8	104		70-130	0 %		"	"	"	"		
17060-07-0	1,2-Dichloroethane-d4	98		70-130	0 %		"	"	"	"		
1868-53-7	Dibromofluoromethane	98		70-130	0 %		"	"	"	"		
Extractal	ole Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	20-Jan-10	21-Jan-10	1002026		
Total Me	tals by EPA 6000/7000 Series Me	thods										
7440-38-2	Arsenic	0.199	V11	mg/l	0.0400	1	SW846 6010B	21-Jan-10	22-Jan-10	1001950		
7440-50-8	Copper	BRL		mg/l	0.0500	1	"	"	"	"		
7439-89-6	Iron	0.176		mg/l	0.150	1	"	"	"	"		
General (Chemistry Parameters											
	Total Suspended Solids	16.0		mg/l	5.00	1	SM2540D	19-Jan-10	19-Jan-10	1001982	х	

Sample Identification TB SB06882-04		<u>Client Proj</u> J12660.0	<u>ect #</u>)0 I	<u>Matrix</u> Deionized Wa	<u>Collectic</u> ater 18-Jar	Collection Date/Time 18-Jan-10 08:00		<u>e Received</u> 18-Jan-10		
CAS No.	Analyte(s)	Result	Flag Uni	its *RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile (Organic Compounds									
Volatile C	Drganic Aromatics by SW	<u>846 8260B</u>								
Prepared	by method SW846 5030	Water MS								
71-43-2	Benzene	BRL	μg	/I 1.0	1	SW846 8260B	25-Jan-10	26-Jan-10	1002318	
100-41-4	Ethylbenzene	BRL	μg	/I 1.0	1	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL	μg	/I 1.0	1	"	"	"	"	
91-20-3	Naphthalene	BRL	μg	/I 1.0	1	"	"	"	"	
108-88-3	Toluene	BRL	μg	/I 1.0	1	"	"	"	"	
179601-23-	1m,p-Xylene	BRL	μg	/I 2.0	1	"	"	"	"	
95-47-6	o-Xylene	BRL	μg	/I 1.0	1	"	"	"	"	
Surrogate	recoveries:									
460-00-4	4-Bromofluorobenzene	96		70-130 %		"	"	"	"	
2037-26-5	Toluene-d8	104		70-130 %		"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	97		70-130 %		"	"	"	"	
1868-53-7	Dibromofluoromethane	100		70-130 %		"	"	"	"	

Volatile Organic Compounds - Quality Control

					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1002312 - SW846 5030 Water MS										
Blank (1002312-BLK1)										
Prepared & Analyzed: 25-Jan-10										
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
Naphthalene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	48.2		µg/l		50.0		96	70-130		
Surrogate: Toluene-d8	51.3		µg/l		50.0		103	70-130		
Surrogate: 1,2-Dichloroethane-d4	48.5 50.4		µg/l		50.0		97 101	70-130		
Surrogate. Dibromonuorometriane	50.4		μg/i		50.0		101	70-130		
<u>LCS (1002312-BS1)</u>										
Prepared & Analyzed: 25-Jan-10										
Benzene	19.8		µg/l		20.0		99	70-130		
Ethylbenzene	19.5		µg/l		20.0		97	70-130		
Methyl tert-butyl ether	18.4		µg/l		20.0		92	70-130		
Naphthalene	18.6		µg/l		20.0		93	70-130		
Toluene	20.1		µg/l		20.0		100	70-130		
m,p-Xylene	39.9		µg/l		40.0		100	70-130		
o-Xylene	20.8		µg/l		20.0		104	70-130		
Surrogate: 4-Bromofluorobenzene	49.7		µg/l		50.0		99	70-130		
Surrogate: 1 Oluene-08 Surrogate: 1 2-Dichloroethane-d4	51.1 47 7		µg/i		50.0 50.0		102	70-130 70-130		
Surrogate: Dibromofluoromethane	50.1		µg/l		50.0		95 100	70-130		
L CS Dup (1002212 BSD1)										
Dropared & Applyzed: 25 Jap 10										
Prepared & Analyzed, 25-Jan-10	10.2		ug/l		20.0		06	70 120	2	25
	19.2		µg/i		20.0		90	70-130	ა ი	25
Ethylbelizerie Mathyl tart hutul athar	10.0		µy/i		20.0		94	70-130	2	25
Nephthelene	19.1		µg/i		20.0		95	70-130	3 2	25
Toluono	10.5		µy/i		20.0		92	70-130	2	25
	19.5		µg/i		20.0		98	70-130	3	25
ni,p-Aylene	30.0 20.2		µg/i		40.0		97	70-130	ა ი	25
	20.3		μg/ι		20.0		102	70-130	3	25
Surrogate: 4-вгототиогорепzene Surrogate: Toluene-d8	49.4 51 2		µg/I µg/I		50.0 50.0		99 102	70-130 70-130		
Surrogate: 1,2-Dichloroethane-d4	47.5		µg/l		50.0		95	70-130		
Surrogate: Dibromofluoromethane	49.8		µg/l		50.0		100	70-130		
Batch 1002318 - SW846 5030 Water MS										
Blank (1002318-BLK1)										
Prepared & Analyzed: 25-Jan-10										
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		μg/l	1.0						
A Methyl tert-butyl ether	BRL		µg/l	1.0						
Nanhthalana	BRL		μα/Ι	1.0						
Nauliulaielle			- J' '							
Toluene	BRI		ua/l	10						
Toluene m.p-Xylene	BRL BRI		µg/l ua/l	1.0 2.0						

Volatile Organic Compounds - Quality Control

					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1002318 - SW846 5030 Water MS										
Blank (1002318-BLK1)										
Prepared & Analyzed: 25-Jan-10										
Chlorobenzene	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	47.8		µg/l		50.0		96	70-130		
Surrogate: Toluene-d8	52.1		µg/l		50.0		104	70-130		
Surrogate: 1,2-Dichloroethane-d4	48.2		µg/l		50.0		96	70-130		
Surrogate: Dibromofluoromethane	49.4		µg/l		50.0		99	70-130		
LCS (1002318-BS1)										
Prepared & Analyzed: 25-Jan-10										
Benzene	19.6		µg/l		20.0		98	70-130		
Ethylbenzene	19.5		µg/l		20.0		97	70-130		
Methyl tert-butyl ether	19.2		µg/l		20.0		96	70-130		
Naphthalene	18.1		µg/l		20.0		90	70-130		
Toluene	19.9		µg/l		20.0		99	70-130		
m,p-Xylene	40.1		µg/l		40.0		100	70-130		
o-Xylene	20.8		µg/l		20.0		104	70-130		
Surrogate: 4-Bromofluorobenzene	49.6		µg/l		50.0		99	70-130		
Surrogate: Toluene-d8	51.6		µg/l		50.0		103	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.2		µg/l		50.0		94	70-130		
Surrogate: Dibromofluoromethane	49.8		µg/I		50.0		100	70-130		
LCS Dup (1002318-BSD1)										
Prepared & Analyzed: 25-Jan-10										
Benzene	20.5		µg/l		20.0		102	70-130	4	25
Ethylbenzene	20.4		µg/l		20.0		102	70-130	5	25
Methyl tert-butyl ether	20.4		µg/l		20.0		102	70-130	6	25
Naphthalene	18.8		µg/l		20.0		94	70-130	4	25
Toluene	20.8		µg/l		20.0		104	70-130	5	25
m,p-Xylene	42.2		µg/l		40.0		106	70-130	5	25
o-Xylene	21.8		µg/l		20.0		109	70-130	5	25
Surrogate: 4-Bromofluorobenzene	49.2		µg/l		50.0		98	70-130		
Surrogate: Toluene-d8	51.3		µg/l		50.0		103	70-130		
Surrogate: 1,2-Dichloroethane-d4	46.8		µg/l		50.0		94	70-130		
Surrogate: Dibromotiuoromethane	49.7		µg/I		50.0		99	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDI	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
7 mar 9 co (6)	rtesurt	Thug	emits	IDL	Level	rtesurt	/mee	Linito	IU D	Linit
Batch 1002026 - SW846 3510C										
<u>Blank (1002026-BLK1)</u>										
Prepared: 20-Jan-10 Analyzed: 21-Jan-10										
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (1002026-BS1)										
Prepared: 20-Jan-10 Analyzed: 21-Jan-10										
Non-polar material (SGT-HEM)	28.8		mg/l		33.3		86	83-101		

Total Metals by EPA	6000/7000 Series	Methods -	Quality	Control
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					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1001950 - SW846 3005A										
<u>Blank (1001950-BLK1)</u>										
Prepared: 21-Jan-10 Analyzed: 22-Jan-10										
Iron	BRL		mg/l	0.0150						
Arsenic	BRL		mg/l	0.0040						
Copper	BRL		mg/l	0.0050						
LCS (1001950-BS1)										
Prepared: 21-Jan-10 Analyzed: 22-Jan-10										
Iron	1.28		mg/l	0.0150	1.25		103	85-115		
Copper	1.41		mg/l	0.0050	1.25		113	85-115		
Arsenic	1.29		mg/l	0.0040	1.25		103	85-115		
LCS Dup (1001950-BSD1)										
Prepared: 21-Jan-10 Analyzed: 22-Jan-10										
Iron	1.41		mg/l	0.0150	1.25		113	85-115	9	20
Arsenic	1.29		mg/l	0.0040	1.25		103	85-115	0.3	20
Copper	1.42		mg/l	0.0050	1.25		113	85-115	0.2	20
	Gene	ral Che	mistry Pa	rameters - (Quality Co	ontrol				
					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit

Batch 1001982 - General Preparation

Blank (1001982-BLK1)									
Prepared & Analyzed: 19-Jan-10									
Total Suspended Solids	BRL	mg/l	5.00						
Blank (1001982-BLK2)									
Prepared & Analyzed: 19-Jan-10									
Total Suspended Solids	BRL	mg/l	5.00						
LCS (1001982-BS1)									
Prepared & Analyzed: 19-Jan-10									
Total Suspended Solids	86.0	mg/l	10.0	92.3		93	90-110		
LCS (1001982-BS2)									
Prepared & Analyzed: 19-Jan-10									
Total Suspended Solids	96.0	mg/l	10.0	92.3		104	90-110		
Duplicate (1001982-DUP2)	Source: SB06882-03								
Prepared & Analyzed: 19-Jan-10									
Total Suspended Solids	14.0	mg/l	5.00		16.0			13	20

Notes and Definitions

- GS This sample was not able to be analyzed for client requested reporting limits due to high concentrations of target analytes in the sample.
- PH Insufficient preservative to reduce the sample pH to less than 2.
- V11 Data confirmed with duplicate analysis.
- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- NR Not Reported
- RPD Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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.

Validated by: Hanibal C. Tayeh, Ph.D. Nicole Leja

MADEP MCP ANALYTICAL METHOD REPORT CERTIFICATION FOR	Μ
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Laboratory Name: Spectrum Analytical, Inc Agawam, MA Project #: J12660.00								
Project Location: FL Roberts - 399 Northampton Rd - Amherst, MA MADEP RTN ¹ :								
This form provides certifications for the following data set: SB06882-01 through SB06882-04								
Samp	ole matrices:	Deionized Water Grou	nd Water					
		☑ 8260B	□ 8151A	□ 8330	☑ 6010B	□ 7470A/1A		
MCF	P SW-846 ods Used	□ 8270C	□ 8081A	□ VPH	□ 6020	□ 9014M ²		
□ 8082 □ 8021B □ EPH □ 7000S ³ □ 7196A								
 List Release Tracking Number (RTN), if known M - SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method S - SW-846 Methods 7000 Series List individual method and analyte 								
An affirmative response to questions A, B, C and D is required for "Presumptive Certainty" status								
A	A Were all samples received by the laboratory in a condition consistent with that described on the Chain of Custody documentation for the data set? Image: Chain of Custody documentation for the data set?							
BWere all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?Image: Comparison of the specified analytical method(s) included in this report								🗆 No
С	C Does the data included in this report meet all the analytical requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? ☑ Yes □ No							
D	D <u>VPH and EPH methods only</u> : Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective methods)? □ Yes □ No							
A response to questions E and F below is required for "Presumptive Certainty" status								
E Were all analytical QC performance standards and recommendations for the specified methods achieved?							🗹 Yes	🛛 No
F	F Were results for all analyte-list compounds/elements for the specified method(s) reported? □ Yes ☑ No							🗹 No
All negative responses are addressed in a case narrative on the cover page of this report.								
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete. Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 1/28/2010								

□ Fridge temp°C □ Freezer temp	Ambient Priced Refrigement									
THE FOSCIMUMIT. COM	TE-mail to Koottek	3.6	1620		1/18/11			She	1 MIL	and
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State specific reporting standards $GW - 1/6w - 2/6w - 3$	TOJAL AN TOTAL CON TOTAL J	TRH (1	# of Clean # of Plasti	# of Amb	Matrix # of VOA	Туре	Time:	=Composite	G=GraB C Sample Id:	Lab Id:
Drovide CT DPH RCP Report OAVQC Reporting Level A Standard D No QC	2ex72(45) 2ex72(45) 2c/(C4) 2c/(C4) 2c/(C4)	564) 2003 Fill	c THO 2 540 A	er Glass	Vials		3e A=Air	O=Soil SL=Sludg X3=	Alter Stater States	=0il SW
(check as needed)	49494949	39 29	iners'	Conta	= =	0-1am	Vastewater	undwater) WW-V	Value - Value	I – ING2 8= NaHSO W=Drinkir
DAUDO Banadian Natas	apler(s): TIM Assia	- San	0003	RQN	22 A 22 A	- A 0000	P.O. No.	R	Keily DOHER	oject Mgr.
TS AMHEVAT	ation: JA Mathamatic Ro	Loc						522	(- POT 101)	
1.00	ject No.: J12660	Pro	m	SAWA	ECS-A	Fo:	Invoice	VAM	ECS - AgAr	port To:
Special Handling: TAT - 7 to 10 business days T - Date Needed: s subject to laboratory approval our notification needed for rushes. disposed of after 60 days unless instructed.	ORD All TAT Samples d otherwise	REC	1 DY	of	CUS	OF (IAIN	CH	CTRUM ANALYTICAL INC.	

F.L. Robert Amherst M J12660.00 Phase 05	c	Groundwat Remedia	er Treatm tion Gene	ent Syste ral Permit	m			
			Gla	issware				
Parmeters	Matrix	oint of Sample or Measurement	10-ml HCl preserved vials	500 mL preserved with HNO_3	500 mL unpreserved	l amber liter H₂SO₄ preserved	Reportable Detction Limit	Analytical Method
T dimitero				4/	47			
SS	GW	influent & effluent	2		1		5 mg/L	Method SM2540D
otal Arsenic (As)	GW	influent & effluent					5 ug/L	
otal Copper (Cu)	GW	influent & effluent		1			5ug/L	ICP
otal Iron (Fe)	GW	influent & effluent					5ug/L	p = 1
PH	GW	influent & effluent				1	5 mg/L	Method 1664
TEX, MtBE, naphthalene	GW	influent, midpoint, effluent -	3				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only
rip Blank	DI	in cooler	1	-			2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only
Notes:								
Method Detection Limits specifie	ed							
leasure and Record the follo	wing:					~		
nstantaneous Flow	3.5 gpm	system						1
Fotal Flow	(13757%	system	5 Mm					
pH	6.8	effluent		Uar				

System Sampling



Final Report
 Re-Issued Report
 Revised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY

Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Virginia Irvine

Project:	FL Roberts - Amherst, MA	ł
Project #:	J12660	

Laboratory ID	Client Sample ID	<u>Matrix</u>	Date Sampled	Date Received
SB08071-01	Influent	Ground Water	15-Feb-10 14:15	16-Feb-10 08:40
SB08071-02	Midpt	Ground Water	15-Feb-10 14:17	16-Feb-10 08:40
SB08071-03	Effluent	Ground Water	15-Feb-10 14:18	16-Feb-10 08:40
SB08071-04	Trip	Deionized Water	15-Feb-10 00:00	16-Feb-10 08:40

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 Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.

Please note that this report contains 11 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

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

The samples were received 1.6 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

According to WSC-CAM 5/2004 Rev.4, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended 70%-130% recovery range, a range has been set based on historical control limits.

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

SW846 8260B

Samples:

SB08071-01 Influent

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

<u>Samp</u> Influ SB08	<u>le Identification</u> ent 071-01		<u>Clien</u> J	<u>t Project #</u> 12660	G	<u>Matrix</u> bround Wat	ter <u>Collectio</u> 15-Feb	<u>n Date/Tim</u> -10 14:15	<u>e</u>	<u>Received</u> 16-Feb-1	<u>1</u> 0
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile (Organic Compounds										
Volatile (Drganic Aromatics by SW846 82	260B	GS1								
Prepared	by method SW846 5030 Wate	r MS									
71-43-2	Benzene	45.6		µg/l	10.0	10	SW846 8260B	22-Feb-10	23-Feb-10	1004123	
100-41-4	Ethylbenzene	256		µg/l	10.0	10	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	72.3		µg/l	10.0	10	"	"	"	"	
91-20-3	Naphthalene	140		µg/l	10.0	10	"	"	"	"	
108-88-3	Toluene	26.0		µg/l	10.0	10	"	"	"	"	
179601-23-	m,p-Xylene	857		µg/l	20.0	10		"	"	"	
95-47-6	o-Xylene	207		µg/l	10.0	10	"	"	"	"	
Surrogate	recoveries:										
460-00-4	4-Bromofluorobenzene	100		70-130	0%		"	"	"	"	
2037-26-5	Toluene-d8	99		70-130	0 %		"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	94		70-130	0%		"	"	"	"	
1868-53-7	Dibromofluoromethane	95		70-130	0%		"	"	"	"	
Extractal	ole Petroleum Hydrocarbons										
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	19-Feb-10	22-Feb-10	1003926	
Total Me	tals by EPA 6000/7000 Series Met	hods									
7440-38-2	Arsenic	0.0084		mg/l	0.0040	1	SW846 6010B	23-Feb-10	24-Feb-10	1004202	
7440-50-8	Copper	0.322		mg/l	0.0050	1	"	"	"	"	
7439-89-6	Iron	31.8		mg/l	0.0150	1	"	"	"	"	
General (Chemistry Parameters										
	Total Suspended Solids	48.0		mg/l	5.00	1	SM2540D	18-Feb-10	18-Feb-10	1003842	Х

<u>Samp</u> Midp SB08	Sample Identification Midpt SB08071-02		<u>Client Project #</u> J12660		C	<u>Matrix</u> Ground Water	r <u>Collectio</u> r 15-Fel	Collection Date/Time 15-Feb-10 14:17			<u>1</u> 0
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile (Organic Compounds										
Volatile C	Organic Aromatics by SW	<u>346 8260B</u>									
Prepared	by method SW846 5030	Water MS									
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	22-Feb-10	23-Feb-10	1004123	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"		"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"		"	"	
179601-23- 1	m,p-Xylene	BRL		µg/l	2.0	1	u	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1		"	"	"	
Surrogate	recoveries:										
460-00-4	4-Bromofluorobenzene	98		70-130) %		"	"	"	"	
2037-26-5	Toluene-d8	100		70-130) %		"		"	"	
17060-07-0	1,2-Dichloroethane-d4	100		70-130	0%		"	"	"	"	
1868-53-7	Dibromofluoromethane	101		70-130)%				"	"	

<u>Samp</u> Efflu SB08	<u>le Identification</u> ent 071-03		<u>Clien</u> J	<u>t Project #</u> 12660	C	<u>Matrix</u> Fround Wate	r <u>Collection</u> r 15-Feb	<u>n Date/Tim</u> -10 14:18	<u>e</u>	<u>Received</u> 16-Feb-1	<u>1</u> 0
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile (Organic Compounds										
Volatile C	Organic Aromatics by SW846 82	60B									
Prepared	l by method SW846 5030 Water	MS									
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	22-Feb-10	23-Feb-10	1004123	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	
179601-23- 1	m,p-Xylene	BRL		µg/l	2.0	1	n	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"	
Surrogate	recoveries:										
460-00-4	4-Bromofluorobenzene	97		70-130	0 %		"	"	"	"	
2037-26-5	Toluene-d8	100		70-130	0 %		"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	101		70-130	0 %		"	"	"	"	
1868-53-7	Dibromofluoromethane	101		70-130	0 %		"	"	"	"	
Extractal	ole Petroleum Hydrocarbons										
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	19-Feb-10	22-Feb-10	1003926	
Total Me	tals by EPA 6000/7000 Series Met	hods									
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	SW846 6010B	23-Feb-10	24-Feb-10	1004202	
7440-50-8	Copper	BRL		mg/l	0.0050	1	"	"	"	"	
7439-89-6	Iron	0.0586		mg/l	0.0150	1		"	"	"	
General (Chemistry Parameters										
	Total Suspended Solids	BRL		mg/l	5.00	1	SM2540D	18-Feb-10	18-Feb-10	1003842	х

<u>Samp</u> Trip SB08	Sample Identification Trip SB08071-04		<u>Client Project #</u> J12660		<u>Matrix</u> Deionized Water		Collectio ter 15-Feb	on <u>Date/Tim</u> o-10 00:00	<u>e Received</u> 16-Feb-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile C	Organic Compounds										
Volatile C	Drganic Aromatics by SW	846 8260B									
Prepared	by method SW846 5030	Water MS									
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	22-Feb-10	23-Feb-10	1004123	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1			"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	
179601-23- 1	m,p-Xylene	BRL		µg/l	2.0	1	H	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"	
Surrogate	recoveries:										
460-00-4	4-Bromofluorobenzene	98		70-130)%		"	"	"	"	
2037-26-5	Toluene-d8	100		70-130	0%		"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	104		70-130) %		"		"	"	
1868-53-7	Dibromofluoromethane	97		70-130	0%				"	"	

					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1004123 - SW846 5030 Water N	MS									
Diank (400.4402 DI K4)										
Blank (1004123-BLK1)										
Prepared & Analyzed: 22-Feb-10				4.0						
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/I	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	49.1		µg/l		50.0		98	70-130		
Surrogate: 1 0. Nichloroethane-d4	50.0 20 R		µg/i ug/i		50.0 50.0		100	70-130 70-130		
Surrogate: Dibromofluoromethane	-9.0 51.4		μg/l		50.0		103	70-130		
L CS (100/123 BS1)			10							
Drepared & Applyzed: 22 Ech 40										
	20.9				20.0		104	70 120		
Benzene	20.8		µg/i		20.0		104	70-130		
Ethylbenzene	20.7		µg/i		20.0		103	70-130		
Methyl tert-butyl ether	21.3		µg/i		20.0		106	70-130		
	22.8		µg/i		20.0		114	70-130		
l oluene	20.4		µg/I		20.0		102	70-130		
m,p-xyiene	43.5		µg/i		40.0		109	70-130		
o-Xylene	21.9		µg/l		20.0		109	70-130		
Surrogate: 4-Bromofluorobenzene	50.3 40.0		µg/l		50.0		101	70-130		
Surrogate: 1.2-Dichloroethane-d4	49.9 50.9		µg/i µa/l		50.0 50.0		100	70-130 70-130		
Surrogate: Dibromofluoromethane	50.5		µg/l		50.0		101	70-130		
LCS Dup (1004123-BSD1)										
Prepared: 22-Feb-10 Analyzed: 23-Feb-	-10									
Benzene	19.1		ua/l		20.0		95	70-130	9	25
Ethylbenzene	19.9		ua/l		20.0		100	70-130	4	25
Methyl tert-butyl ether	20.1		ua/l		20.0		100	70-130	6	25
Naphthalene	22.1		ua/l		20.0		110	70-130	3	25
Toluene	19.5		ua/l		20.0		97	70-130	5	25
m.p-Xvlene	42.6		ма,, na/l		40.0		107	70-130	2	25
o-Xvlene	21.0		м9/1 Ца/I		20.0		107	70-130	2	25
Surrogate: 4-Bromofluorobenzene	51.0		ug/l		50.0		102	70-130	-	20
Surrogate: Toluene-d8	50.3		µg/l		50.0		101	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.8		µg/l		50.0		96	70-130		
Surrogate: Dibromofluoromethane	51.2		µg/l		50.0		102	70-130		
Matrix Spike (1004123-MS1)	Source: SB08071	-01								
Prepared: 22-Feb-10 Analyzed: 23-Feb-	-10									
Benzene	22.5		µg/l		20.0	4.6	90	70-130		
Ethylbenzene	46.2		µg/l		20.0	25.6	103	70-130		
Methyl tert-butyl ether	23.5		µg/l		20.0	7.2	81	70-130		
Naphthalene	38.4		µg/l		20.0	14.0	122	70-130		
Toluene	21.9		µg/l		20.0	2.6	97	70-130		
m,p-Xylene	129		µg/l		40.0	85.7	108	70-130		
o-Xylene	42.5		μg/l		20.0	20.7	109	70-130		
Chlorobenzene	25.1		μα/I		20.0	BRL	125	70-130		
			r J							

					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1004123 - SW846 5030 Water	MS									
<u>Matrix Spike (1004123-MS1)</u>	Source: SB08071	I-01								
Prepared: 22-Feb-10 Analyzed: 23-Feb	p-10									
1,1-Dichloroethene	23.2		µg/l		20.0	BRL	116	70-130		
Trichloroethene	24.8		µg/l		20.0	BRL	124	70-130		
Surrogate: 4-Bromofluorobenzene	50.6		µg/l		50.0		101	70-130		
Surrogate: Toluene-d8	50.0		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.7		µg/l		50.0		95	70-130		
Surrogate: Dibromofluoromethane	50.8		µg/l		50.0		102	70-130		
Matrix Spike Dup (1004123-MSD1)	Source: SB08071	I-01								
Prepared: 22-Feb-10 Analyzed: 23-Feb	o-10									
Benzene	22.8		µg/l		20.0	4.6	91	70-130	1	30
Ethylbenzene	44.2		µg/l		20.0	25.6	93	70-130	10	30
Methyl tert-butyl ether	24.2		µg/l		20.0	7.2	85	70-130	5	30
Naphthalene	38.5		µg/l		20.0	14.0	122	70-130	0.5	30
Toluene	22.1		µg/l		20.0	2.6	98	70-130	1	30
m,p-Xylene	121		µg/l		40.0	85.7	89	70-130	19	30
o-Xylene	40.9		µg/l		20.0	20.7	101	70-130	8	30
Chlorobenzene	24.2		µg/l		20.0	BRL	121	70-130	4	30
1,1-Dichloroethene	22.9		µg/l		20.0	BRL	114	70-130	1	30
Trichloroethene	25.2		µg/l		20.0	BRL	126	70-130	2	30
Surrogate: 4-Bromofluorobenzene	49.4		µg/l		50.0		99	70-130		
Surrogate: Toluene-d8	50.1		μg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	49.4		µg/l		50.0		99	70-130		
Surrogate: Dibromofluoromethane	51.9		µg/l		50.0		104	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1003926 - SW846 3510C										
<u>Blank (1003926-BLK1)</u>										
Prepared: 19-Feb-10 Analyzed: 22-Feb-10										
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (1003926-BS1)										
Prepared: 19-Feb-10 Analyzed: 22-Feb-10										
Non-polar material (SGT-HEM)	28.8		mg/l		33.3		86	83-101		

Fotal Metals by EP A	6000/7000 Series	Methods - Qua	ality Control
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					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1004202 - SW846 3005A										
Blank (1004202-BLK1)										
Prepared: 23-Feb-10 Analyzed: 24-Feb-10										
Iron	BRL		mg/l	0.0150						
Arsenic	BRL		mg/l	0.0040						
Copper	BRL		mg/l	0.0050						
LCS (1004202-BS1)										
Prepared: 23-Feb-10 Analyzed: 24-Feb-10										
Iron	1.19		mg/l	0.0150	1.25		95	85-115		
Copper	1.27		mg/l	0.0050	1.25		101	85-115		
Arsenic	1.30		mg/l	0.0040	1.25		104	85-115		
LCS Dup (1004202-BSD1)										
Prepared: 23-Feb-10 Analyzed: 24-Feb-10										
Iron	1.17		mg/l	0.0150	1.25		94	85-115	1	20
Copper	1.26		mg/l	0.0050	1.25		100	85-115	0.9	20
Arsenic	1.29		mg/l	0.0040	1.25		103	85-115	0.8	20
	Gene	ral Che	mistry Pa	rameters - (Quality Co	ntrol				

					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1003842 - General Preparation										
Blank (1003842-BLK1)										
Prepared & Analyzed: 18-Feb-10										
Total Suspended Solids	BRL		mg/l	5.00						
Blank (1003842-BLK2)										
Prepared & Analyzed: 18-Feb-10										
Total Suspended Solids	BRL		mg/l	5.00						
LCS (1003842-BS1)										
Prepared & Analyzed: 18-Feb-10										
Total Suspended Solids	86.0		mg/l	10.0	92.3		93	90-110		
LCS (1003842-BS2)										
Prepared & Analyzed: 18-Feb-10										
Total Suspended Solids	88.0		mg/l	10.0	92.3		95	90-110		

Notes and Definitions

- GS1 Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- NR Not Reported
- RPD Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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.

Validated by: Hanibal C. Tayeh, Ph.D. Nicole Leja

MADEP MCP ANALYTICAL METHOD REPORT CERTIFICATION FORM

Labo	ratory Name: S	Spectrum Analytical,	Inc Agawam, MA	A	Project #: J12660			
Proje	et Location: F	L Roberts - Amherst,	MA		MADEP RTN ¹ :			
This SB08	form provides 3071-01 thrc	certifications for the pough SB08071-04	following data set:					
Samp	ole matrices:	Deionized Water Groun	ıd Water					
		☑ 8260B	🗆 8151A	□ 8330	☑ 6010B	□ 7470A/1A		
MCF Meth	' SW-846 oods Used	□ 8270C	□ 8081A	□ VPH	6020	□ 9014M ²		
witte	ious Oscu	□ 8082	□ 8021B	□ EPH	□ 7000S ³	□ 7196A		
1 List 2 M - 3 S - 5	Release Tracking SW-846 Method 9 SW-846 Methods 7	 Number (RTN), if known 4014 or MADEP Physiolog 7000 Series List individual 	ically Available Cyanide	e (PAC) Method				
		An affirmative resp	onse to questions A	l, B, C and D is requ	ired for "Presumpt	ive Certainty" statu	S	
Α	Were all sa Chain of C	mples received by the ustody documentation	e laboratory in a con 1 for the data set?	ndition consistent wi	ith that described on	the	🗹 Yes	□ No
В	Were all Q. followed, in appropriate	A/QC procedures req ncluding the requirem performance standar	uired for the specifi ient to note and disc ds or guidelines?	ied analytical method cuss in a narrative Q ⁴	d(s) included in this C data that did not n	report neet	🗹 Yes	□ No
С	Does the da Certainty", "Quality As Analytical	ata included in this rep as described in Section ssurance and Quality Data"?	port meet all the an on 2.0 (a), (b), (c) a Control Guidelines	alytical requirements and (d) of the MADE a for the Acquisition a	s for "Presumptive P document CAM V and Reporting of	/II A,	🗹 Yes	□ No
D	VPH and E modificatio	EPH methods only: Wons (see Section 11.3 of	/as the VPH or EPH of respective metho	H method conducted ods)?	without significant		□ Yes	□ No
		A response to	questions E and F	below is required fo	or "Presumptive Ce	rtainty" status		
E	Were all an achieved?	alytical QC performa	nce standards and 1	recommendations for	r the specified metho	ods	🗹 Yes	🗆 No
F	Were result	ts for all analyte-list c	compounds/element	ts for the specified m	nethod(s) reported?		□ Yes	🗹 No
		All negative re.	sponses are addres	sed in a case narrati	ive on the cover pag	e of this report.		
I, the respo know	andersigned, onsible for obt vledge and bel	attest under the pair aining the information ief, accurate and con	ns and penalties of on, the material co nplete.	f perjury that, based intained in this anal	l upon my personal lytical report is, to t h H	inquiry of those he best of my Anibal C. Tayeh, Ph	n.D.	
					P. D	resident/Laboratory Date: 3/1/2010	Director	

DW=Drinking Water GW=Groundwater WW=Wastewater O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air X = IX0.000 Report To: Project Mgr. Telephone #: 8= NaHSO4 9= 100 Lab Id: I=Na₂S2O₃ Relinquished by: 3 2 SPECTRUM ANALYTICAL, INC. HANIBAL TECHNOLOGY EFFLUSAT DI M INPLU COT TRIP KELLY Sample Id: 2=HCI 5 G=Grab P P ž А $3=H_2SO_4$ 11 Almgren Drive + Agawam, MA 01001 + 413-789-9018 + FAX 413-789-4076 + www.spectrum-analytical.com C=Composite N 115/10 2/12 2/15 G, Date: â 4=HNO₃ 10= CHAIN OF CUSTODY RECORD X3= eceived by int 2:15 5=NaOH 2:18 2:17 Time: P.O. No. Invoice To: 6=Ascorbic Acid 2 1 2 \mathcal{D} Туре 2 Á 8 5 m ____ Page 2/14/10 Matrix CS-ACAUAN Date: ίJ ŝ د ل # of VOA Vials of # of Amber Glass 7=CH₃OH RON: COO 3 Containers: c G G # of Clear Glass Time: Ν 2 # of Plastic Temp"C ċ List preservative code below: Sampler(s): / CO/S Location: AUMHERS Site Name: Project No.: Ambient Cood A Retrigenated Erictge temp. BTEXIMTBE + AARTHALSUFUNY BY 8260B S E-mail to Kdoher ty @ ersconswid.com EDD Format ς 2 Analyses: Ś PH+ 1664 3 9 4 7 TSS TOTAL AS, CU, FU < C. ROBSRT Standard TAT - 7 to 10 business days
Rush TAT - Date Needed: < Min. 24-hour notification needed for rushes.
 Samples disposed of after 60 days unless All TATs subject to laboratory approval 2060 otherwise instructed. 2608071 Ch-Special Handling: Other D Provide MA DEP MCP CAM Report State specific reporting standards: QA/QC Reporting Notes: (check as needed) QA/QC Reporting Level °C
Freezer temp State: Mg

F.L. Roberts Amherst MA J12660.00 Phase 05		Groundwater Treatment System Remediation General Permit									
		1092		GI	assware	-					
Parmeters	Matrix	Point of Sample or Measurement	40-ml HCl preserved vlals	500 mL preserved with HNO ₃	500 mL unpreserved	1 amber liter H ₂ SO ₄ preserved	Reportable Detction Limit	Analytical Method			
· · · · · · · · · · · · · · · · · · ·	GW	influent &			· · · · · · · · · · · · · · · · · · ·		5 mol	Method SM2540D			
		effluent		1		22	omgre	metriod omzovod			
Total Arsenic (As) Total Copper (Cu)	GW GW	effluent & effluent		1		in the second se	5 ug/L 5ug/L	ICP			
Total Iron (Fe)	- GW	influent & effluent					5ug/L				
грн	GW	influent & effluent			1	1	5 mg/L	Method 1664			
3TEX, MtBE, naphthalene	GW	influent, midpoint, effluent	3	1		÷	2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only			
frip Blank	DI	in cooler	1				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only			
				1	S 1919						
lotes: Method Detection Limits specified											
Aeasure and Record the following	ıg:										
nstantaneous Flow	3.56pm	system	2								
Fotal Flow	1144252 gl.	system					~	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			
H	6.72	effluent									

Feb 10 RGP.xls

System Sampling

Report Date: 01-Apr-10 10:22



Final ReportRe-Issued ReportRevised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Kelly Doherty

Project: FL Roberts - Amherst, MA Project #: J12660

Laboratory ID	Client Sample ID	<u>Matrix</u>	Date Sampled	Date Received
SB09472-01	Influent	Ground Water	18-Mar-10 10:45	18-Mar-10 13:15
SB09472-02	Mid Pt	Ground Water	18-Mar-10 10:47	18-Mar-10 13:15
SB09472-03	Effluent	Ground Water	18-Mar-10 10:49	18-Mar-10 13:15
SB09472-04	Trip	Deionized Water	18-Mar-10 00:00	18-Mar-10 13:15

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 Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 15 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is

indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

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

CASE NARRATIVE:

The samples were received 5.4 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

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 6010B

Duplicates:

1006601-DUP1 Source: SB09472-03

Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit. Iron

-

SW846 8260B

Spikes:

1006490-MS1 Source: SB09472-03

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

Methyl tert-butyl ether

1006490-MSD1 Source: SB09472-03

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

Methyl tert-butyl ether

Samples:

S002625-CCV1

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

Methyl tert-butyl ether (-21.5%)

This affected the following samples:

Effluent Influent Mid Pt Trip

SW846 8260B

Samples:

SB09472-01 Influent

Elevated Reporting Limits due to the presence of high levels of non-target analytes.

Sample Id	Sample Identification Influent SB09472-01		<u>Client</u> J1	<u>Client Project #</u> J12660		<u>Matrix</u> Ground Water		Collection Date/Time 18-Mar-10 10:45			<u>Received</u> 18-Mar-10	
C4S No	Analyta(s)	Rosult	Flag	Units	*RDI	Dilution	Mathod Raf	Proparad	Analyzad	Analyst	Batch	Cort
	Anutre(5)	Ксзин	Tug	Onus	KDL	Dilution	тетой кеј.	Trepureu	Аншузеи	Апшузі	Buich	<u> </u>
Volatile Or	rganic Compounds											
Volatile Or Prepared	<u>ganic Aromatics by SW846 8260</u> by method SW846 5030 Water M	<u>)B</u> 19	R05									
71-43-2	Benzene	BRI		ua/l	10.0	10	SW846 8260B	26-Mar-10	27-Mar-10	JRO	1006490	
100-41-4	Ethylbenzene	11.2		ua/l	10.0	10	"	 "	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		ua/l	10.0	10	"			"		
91-20-3	Naphthalene	12.7		ua/l	10.0	10	"			"		
108-88-3	Toluene	BRL		µg/l	10.0	10				"	"	
179601-23-1	m,p-Xylene	72.7		µg/l	20.0	10				"	"	
95-47-6	o-Xylene	26.4		μg/l	10.0	10	"		"	"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	94			70-130 %					"	"	
2037-26-5	Toluene-d8	98			70-130 %		"			"		
17060-07-0	1,2-Dichloroethane-d4	91			70-130 %		"			"	"	
1868-53-7	Dibromofluoromethane	96			70-130 %		"			"		
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	24-Mar-10	24-Mar-10	JK	1006269	
Total Meta	lls by EPA 6000/7000 Series Metho	ds										
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	SW846 6010B	29-Mar-10	31-Mar-10	TBG	1006601	
7440-50-8	Copper	0.0282		mg/l	0.0050	1	"		"	"	"	
7439-89-6	Iron	3.58		mg/l	0.0150	1	"	"	"	"	"	
General Cl	hemistry Parameters											
	Total Suspended Solids	24.0		mg/l	5.00	1	SM2540D	24-Mar-10	24-Mar-10	BD	1006317	х

Sample Id Mid Pt SB09472-	Sample Identification Mid Pt SB09472-02		<u>Client Project #</u> J12660			<u>Matrix</u> Ground Water		Collection Date/Time 18-Mar-10 10:47			Received 18-Mar-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.	
Volatile Or	rganic Compounds												
Volatile Or Prepared	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS												
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	26-Mar-10	27-Mar-10	JRO	1006490		
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"			"		
1634-04-4	Methyl tert-butyl ether	1.3		µg/l	1.0	1		"	"	"	"		
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"	"	"	"		
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"	"		
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"			"		
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"			"		
Surrogate r	ecoveries:												
460-00-4	4-Bromofluorobenzene	91			70-130 %			"		"			
2037-26-5	Toluene-d8	98			70-130 %			"		"			
17060-07-0	1,2-Dichloroethane-d4	90			70-130 %			"	"	"	"		
1868-53-7	Dibromofluoromethane	94			70-130 %			"					

Sample Id	entification		Client	Droject	4	Matrix	Call	action Data	/Time	Received		
Effluent SB09472-	03		<u>Unent</u> J1	2660	<u>+</u>	Ground W	ater 18	-Mar-10 10):49	<u>18-</u>	Mar-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared	rganic Aromatics by SW846 8260 by method SW846 5030 Water N	<u>)B</u> <u>//S</u>										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	26-Mar-10	27-Mar-10	JRO	1006490	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"			"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"			"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"			"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"			"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	92			70-130 %		"	"	"	"	"	
2037-26-5	Toluene-d8	97			70-130 %		"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	90			70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	92			70-130 %		"			"	"	
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	24-Mar-10	24-Mar-10	JK	1006269	
Total Meta	als by EPA 6000/7000 Series Metho	ods										
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	SW846 6010B	29-Mar-10	31-Mar-10	LR	1006601	
7440-50-8	Copper	BRL		mg/l	0.0050	1	"	"	31-Mar-10	"	"	
7439-89-6	Iron	0.0966		mg/l	0.0150	1	"			"	"	
General Cl	hemistry Parameters											
	Total Suspended Solids	BRL		mg/l	5.00	1	SM2540D	24-Mar-10	24-Mar-10	BD	1006317	Х

Sample Id Trip SB09472-	Sample Identification Frip SB09472-04		<u>Client Project #</u> J12660		D	<u>Matrix</u> Deionized Water		Collection Date/Time 18-Mar-10 00:00			Received 18-Mar-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.	
Volatile Or	rganic Compounds												
Volatile Or Prepared	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS												
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	26-Mar-10	27-Mar-10	JRO	1006490		
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"			
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"		
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"	"	"			
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	"		
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"				
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"				"		
Surrogate r	ecoveries:												
460-00-4	4-Bromofluorobenzene	89			70-130 %		"			"			
2037-26-5	Toluene-d8	99			70-130 %		"	"	"	"			
17060-07-0	1,2-Dichloroethane-d4	91			70-130 %		"	"	"	"			
1868-53-7	Dibromofluoromethane	95			70-130 %			"	"				

Analyte(s)	Result	Flag	Units	*RDI	Spike	Source	%REC	%REC	RPD	RPD Limit
R-4-1 100(400 - SW94(5020 W-4 MS	Result	Thug	emits	IUL	Lever	Result	, utile	Liillis		Emit
Satch 1006490 - SW 846 5030 Water MS					Dre	pared & A	aalvzed: 26	Mar 10		
	PDI		ug/l	1.0	<u>Fie</u>		Talyzeu. 20	-iviai - 10		
Ethylbenzene	BRL		µg/i	1.0						
Methyl tert-butyl ether	BRL		µg/i	1.0						
	BRI		µg/l	1.0						
m n-Yvlene	BRL		µg/i	2.0						
o-Xvlene	BRI		µg/i	1.0						
Chlorobenzene	BRI		µg/i	1.0						
1 1-Dichloroethene	BRI		µg/i ua/l	1.0						
Trichloroethene	BRL		μg/l	1.0						
Surragate: 4-Bromofluorobenzene	45.7				50.0		01	70-130		
Surrogate: Toluene-d8	49.1		µg/i		50.0		98	70-130		
Surrogate: 1 2-Dichloroethane-d4	46.1		µg/i		50.0		90 02	70-130		
Surrogate: Dibromofluoromethane	40.1		µg/i		50.0		92 01	70-130		
	40.4		μg/i		Drc	pared & A	aalvzed: 26	Mar 10		
<u>ECS (1000450-651)</u> Benzene	21.7		ug/l		20.0		100	70 130		
Ethylbenzene	21.7		µg/i		20.0		00	70-130		
Methyl tert butyl ether	19.7		µg/l		20.0		99 81	70-130		
	20.7		µg/i		20.0		104	70-130		
m n Yulene	20.7		µg/l		20.0		104	70-130		
	20.0		µg/i		40.0 20.0		101	70-130		
	20.9		μ <u>μ</u> γ/ι		20.0		104	70-130		
Surrogate: 4-Bromofluorobenzene	48.3		µg/l		50.0		97	70-130		
Surrogate: Toluene-d8	49.8		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	45.6		µg/l		50.0		91	70-130		
Surrogate: Dibromofluoromethane	46.5		µg/l		50.0		93	70-130		
<u>LCS Dup (1006490-BSD1)</u>					Pre	epared & Ar	nalyzed: 26	<u>-Mar-10</u>		
Benzene	20.8		µg/l		20.0		104	70-130	4	25
Ethylbenzene	18.8		µg/l		20.0		94	70-130	5	25
Methyl tert-butyl ether	15.8		µg/l		20.0		79	70-130	3	25
Toluene	19.0		µg/l		20.0		95	70-130	8	25
m,p-Xylene	38.9		µg/l		40.0		97	70-130	4	25
o-Xylene	20.8		µg/l		20.0		104	70-130	0.5	25
Surrogate: 4-Bromofluorobenzene	47.7		µg/l		50.0		95	70-130		
Surrogate: Toluene-d8	49.8		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	43.9		µg/l		50.0		88	70-130		
Surrogate: Dibromofluoromethane	45.6		µg/l		50.0		91	70-130		
<u>Matrix Spike (1006490-MS1)</u>			Source: SE	<u>309472-03</u>	Pre	epared: 26-	Mar-10 Ar	alyzed: 27-N	<u>/lar-10</u>	
Benzene	17.7		µg/l		20.0	BRL	89	70-130		
Ethylbenzene	18.2		µg/l		20.0	BRL	91	70-130		
Methyl tert-butyl ether	12.5	QM7	µg/l		20.0	BRL	62	70-130		
Toluene	17.7		µg/l		20.0	BRL	89	70-130		
m,p-Xylene	37.7		µg/l		40.0	BRL	94	70-130		
o-Xylene	18.9		µg/l		20.0	BRL	94	70-130		
Chlorobenzene	17.6		µg/l		20.0	BRL	88	70-130		
1,1-Dichloroethene	14.4		µg/l		20.0	BRL	72	70-130		
Trichloroethene	16.9		µg/l		20.0	BRL	84	70-130		
Surrogate: 4-Bromofluorobenzene	49.1		µg/l		50.0		98	70-130		
Surrogate: Toluene-d8	49.2		µg/l		50.0		98	70-130		
Surrogate: 1,2-Dichloroethane-d4	44.2		µg/l		50.0		88	70-130		
Surrogate: Dibromofluoromethane	45.8		µg/l		50.0		92	70-130		
Matrix Spike Dup (1006490-MSD1)			Source: SE	<u>309472-03</u>	Pre	epared: 26-	Mar-10 Ar	alyzed: 27-N	<u>/lar-10</u>	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1006490 - SW846 5030 Water MS										
Matrix Spike Dup (1006490-MSD1)			Source: SI	B09472-03	Pro	epared: 26-	Mar-10 An	alyzed: 27-N	<u>1ar-10</u>	
Benzene	18.3		µg/l		20.0	BRL	91	70-130	3	30
Ethylbenzene	17.7		µg/l		20.0	BRL	89	70-130	3	30
Methyl tert-butyl ether	12.9	QM7	µg/l		20.0	BRL	64	70-130	3	30
Toluene	18.0		µg/l		20.0	BRL	90	70-130	2	30
m,p-Xylene	36.1		µg/l		40.0	BRL	90	70-130	4	30
o-Xylene	17.8		µg/l		20.0	BRL	89	70-130	6	30
Chlorobenzene	17.0		µg/l		20.0	BRL	85	70-130	3	30
1,1-Dichloroethene	14.2		µg/l		20.0	BRL	71	70-130	1	30
Trichloroethene	17.1		µg/l		20.0	BRL	86	70-130	2	30
Surrogate: 4-Bromofluorobenzene	46.7		µg/l		50.0		93	70-130		
Surrogate: Toluene-d8	49.4		µg/l		50.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	44.5		µg/l		50.0		89	70-130		
Surrogate: Dibromofluoromethane	46.8		µg/l		50.0		94	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1006269 - SW846 3510C										
Blank (1006269-BLK1)					Pre	epared & Ar	nalyzed: 24-	Mar-10		
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (1006269-BS1)					Pre	epared & Ar	nalyzed: 24-	<u>Mar-10</u>		
Non-polar material (SGT-HEM)	17.7		mg/l		20.7		86	83-101		

Total Metals by EPA	6000/7000 Series Methods - Quality Control
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					Snike	Source		%PEC		
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1006601 - SW846 3005A										
Blank (1006601-BLK1)					Pr	epared: 29-	Mar-10 An	alyzed: 31-N	/lar-10	
Iron	BRL		mg/l	0.0150						
Arsenic	BRL		mg/l	0.0040						
Copper	BRL		mg/l	0.0050						
LCS (1006601-BS1)					Pr	epared: 29-	Mar-10 An	alyzed: 30-N	/lar-10	
Iron	1.38		mg/l	0.0150	1.25		110	85-115		
Arsenic	1.25		mg/l	0.0040	1.25		100	85-115		
Copper	1.41		mg/l	0.0050	1.25		113	85-115		
LCS Dup (1006601-BSD1)					Pr	epared: 29-	Mar-10 An	alyzed: 30-N	<u>/lar-10</u>	
Iron	1.27		mg/l	0.0150	1.25		102	85-115	8	20
Copper	1.35		mg/l	0.0050	1.25		108	85-115	4	20
Arsenic	1.21		mg/l	0.0040	1.25		97	85-115	4	20
Duplicate (1006601-DUP1)			Source: S	B09472-03	Pr	epared: 29-	Mar-10 An	alyzed: 31-N	<u>/lar-10</u>	
Iron	0.0511	QR8	mg/l	0.0150		0.0966			62	20
Arsenic	0.0026	J	mg/l	0.0040		BRL				20
Copper	BRL		mg/l	0.0050		0.0026				20
Matrix Spike (1006601-MS1)			Source: S	B09472-01	Pr	epared: 29-	Mar-10 Ar	alyzed: 31-N	<u>/lar-10</u>	
Iron	4.91		mg/l	0.0150	1.25	3.58	107	75-125		
Arsenic	1.28		mg/l	0.0040	1.25	BRL	102	75-125		
Copper	1.46		mg/l	0.0050	1.25	0.0282	114	75-125		
Matrix Spike Dup (1006601-MSD1)			Source: S	B09472-01	Pr	epared: 29-	Mar-10 Ar	alyzed: 31-N	/lar-10	
Iron	4.75		mg/l	0.0150	1.25	3.58	94	75-125	3	20
Arsenic	1.28		mg/l	0.0040	1.25	BRL	102	75-125	0.08	20
Copper	1.44		mg/l	0.0050	1.25	0.0282	113	75-125	0.9	20
Post Spike (1006601-PS1)			Source: S	B09472-01	Pr	epared: 29-	Mar-10 Ar	alyzed: 31-N	<u>/lar-10</u>	
Iron	5.00		mg/l	0.0150	1.25	3.58	114	80-120		
Arsenic	1.26		mg/l	0.0040	1.25	BRL	101	80-120		
Copper	1.44		mg/l	0.0050	1.25	0.0282	113	80-120		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1006317 - General Preparation										
Blank (1006317-BLK1)					Pre	epared & Ai	nalyzed: 24-	-Mar-10		
Total Suspended Solids	BRL		mg/l	5.00						
Blank (1006317-BLK2)					Pre	epared & Ai	nalyzed: 24-	-Mar-10		
Total Suspended Solids	BRL		mg/l	5.00						
LCS (1006317-BS1)					Pre	epared & Ai	nalyzed: 24-	-Mar-10		
Total Suspended Solids	92.0		mg/l	10.0	91.3		101	90-110		
LCS (1006317-BS2)					Pre	epared & Ai	nalyzed: 24-	-Mar-10		
Total Suspended Solids	96.0		mg/l	10.0	91.3		105	90-110		
Duplicate (1006317-DUP1)		5	Source: SE	<u>309472-03</u>	Pre	epared & Ai	nalyzed: 24-	-Mar-10		
Total Suspended Solids	BRL		mg/l	5.00		BRL				20

Notes and Definitions

- QM7 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- QR8 Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit.
- R05 Elevated Reporting Limits due to the presence of high levels of non-target analytes.
- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- 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).

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (Calculated as).

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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.

<u>Continuing Calibration Verification</u>: The calibration relationship established during the initial calibration must be verified at periodic

Validated by: Hanibal C. Tayeh, Ph.D. Nicole Leja

MassDEP Analytical Protocol Certification Form

Labo	Laboratory Name: Spectrum Analytical, Inc. Project #: J12660										
Proje	ect Location: FL l	Roberts - Amherst, MA		RTN:							
This	form provides ce	rtifications for the follow	ving data set: S	B09472-01 through SB09	9472-04						
Matr	ices: Deionized	Water									
	Ground W	ater									
CAM	Protocol			1							
✓ 82 C	260 VOC AM 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 AI CAM IX A	РН				
82 C.	270 SVOC AM 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					
✓ 60 C.)10 Metals AM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC	6860 Perchlorate CAM VIII B						
	CAM VI A Affirmative responses to questions A through F are required for "Presumptive Certainty" status										
A	Were all sample preserved (inclu- times?	s received in a condition of ding temperature) in the f	consistent with those des ield or laboratory, and pr	cribed on the Chain of Cu repared/analyzed within m	stody, properly nethod holding	✔ Yes	No				
В	Were the analyti protocol(s) follo	cal method(s) and all asso wed?	ociated QC requirements	specified in the selected (CAM	✓ Yes	No				
С	Were all require protocol(s) imple	d corrective actions and a emented for all identified	nalytical response action performance standard no	s specified in the selected on-conformances?	CAM	✔ Yes	No				
D	Does the laborat Assurance and Q	ory report comply with a Quality Control Guideline	l the reporting requirements for the Acquisition and	ents specified in CAM VII Reporting of Analytical I	I A, "Quality Data"?	✓ Yes	No				
E	a. VPH, EPH, ar b. APH and TO-	nd APH Methods only: W 15 Methods only: Was th	as each method conducte e complete analyte list re	ed without significant mode ported for each method?	dification(s)?	Yes Yes	No No				
F	Were all applica evaluated in a la	ble CAM protocol QC an boratory narrative (includ	d performance standard ing all "No" responses to	non-conformances identif o questions A through E)?	ied and	✓ Yes	No				
	I	Responses to quest	ions G, H and I below a	e required for "Presump	tive Certainty" status						
G	Were the reporti	ng limits at or below all (CAM reporting limits spe	cified in the selected CAN	M protocol(s)?	Yes	🖌 No				
<u>Data</u> requir	<u>User Note:</u> Data the ements described in	at achieve "Presumptive Ce n 310 CMR 40. 1056 (2)(k)	rtainty" status may not nec and WSC-07-350.	essarily meet the data usabi	ility and representativeness						
Н	Were all QC per	formance standards speci	fied in the CAM protoco	l(s) achieved?		Yes	🖌 No				
I	Were results rep	orted for the complete an	alyte list specified in the	selected CAM protocol(s))?	Yes	🖌 No				
All ne	gative responses ar	e addressed in a case narra	tive on the cover page of th	is report.							
I, the inform	undersigned, attest nation, the materia	under the pains and penalt l contained in this analytica	ies of perjury that, based u l report is, to the best of my	pon my personal inquiry of v knowledge and belief, acci	those responsible for obtaining ırate and complete.	the					
	bra										
					Hanibal C. Tayeh, Ph. President/Laboratory I Date: 4/1/2010	D. Director					

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State specific reporting standards:	TS 7072 As, C	BTEX, NAPTH TPH	# of C # of F	# of \ # of A	Matri		Eirre s	Date:	Sample Id:	Lab Id:
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QA/QC Reporting Notes: (check as needed)	t preservative code below:	List	H ³ OH.	id 7=C	.scorbic Ac 11=	IaOH 6=A	03 5=N	2SO ₄ 4=HN	$2O_3 2=HCI 3=H_2$ $9= ICE$	1=Na ₂ S: 8= NaHSO ₄
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rdt TAT - 7 to 10 business days FAT - Date Needed: TAT subject to laboratory approval. E-hour notification needed for rushes. Staposed of after 60 days unless ise instructed.	ORD Astanda Rush T - All TA - Min. 24 - Sample otherwi	REC	/ DDY	JST(F CU	IN O	HA		TRUM ANALYTICAL, INC. Fearing MIBAL TECHNOLOGY	SPEC

F.L. Roberts Amherst MA J12660.00 Phase 05			Groundwat Remedia	ter Treatm ttion Gene Gla	ent Syster ral Permit assware	m	-	
Parmeters	Matrix	Point of Sample or Measurement	40-ml HCl preserved vials	500 mL preserved with HNO ₃	500 mL unpreserved	1 amber liter H ₂ SO ₄ preserved	Reportable Detction Limit	Analytical Method
TSS	GW	influent &			1		5 mg/L	Method SM2540D
Total Arsenic (As)	GW	influent &					5 ug/L	
Total Copper (Cu)	GW	influent &	-	1			5ug/L	ICP
Total Iron (Fe)	GW	influent & effluent	-	* 			5ug/L	
ТРН	GW	influent & effluent				1	5 mg/L	Method 1664
BTEX, MtBE, naphthalene	GW	influent, midpoint, effluent	3				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only
Trip Blank	DI	in cooler	1				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only
Notes: Method Detection Limits specified	A	• • • • • • • • • • • • • • • • • • •		•				
Measure and Record the followi	ng:				1			-
Instantaneous Flow	3.0 GPM	system						
Total Flow	1157040 gal.	system						· · · · · · · · · · · · · · · · · · ·
рН	6.56	effluent	l					

•

Mar 10 RGP.xls

System Sampling

Report Date: 12-May-10 14:31



Final Report
Re-Issued Report
Revised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Kelly Doherty

Project: FL Roberts - 399 Northampton Rd - Amherst, MA Project #: J12660.00 Phase 5

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB11238-01	Influent	Ground Water	26-Apr-10 10:40	26-Apr-10 12:40
SB11238-02	Effluent	Ground Water	26-Apr-10 10:45	26-Apr-10 12:40
SB11238-03	Trip Blank	Aqueous	26-Apr-10 09:10	26-Apr-10 12:40
SB11238-04	Midpoint	Ground Water	26-Apr-10 10:40	26-Apr-10 12:40

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 Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.

Please note that this report contains 12 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

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

CASE NARRATIVE:

The samples were received 3.6 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

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

EPA 200.7

Samples:

SB11238-02 Effluent

Data confirmed with duplicate analysis.

Arsenic

SW846 8260B

Spikes:

1009480-MS1 Source: SB11238-02

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

Naphthalene

1009480-MSD1 Source: SB11238-02

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

Naphthalene

Samples:

S003940-CCV1

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

1,1-Dichloroethene (-24.3%) Trichloroethene (-21.2%)

This affected the following samples:

1009480-BLK1 1009480-MS1 1009480-MSD1

SB11238-01

Influent

Elevated Reporting Limits due to the presence of high levels of non-target analytes.

Sample Id	entification											
Influent			<u>Client</u>	t Project #	_	Matrix	<u>Coll</u>	ection Date	/Time	Re	ceived	
SB11238-	01		J12660	.00 Phase 3	5	Ground W	ater 26	-Apr-10 10	:40	26-	Apr-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	ganic Compounds											
Volatile Or Prepared	rganic Aromatics by SW846 8260 by method SW846 5030 Water M) <u>B</u> IS	R05									
71-43-2	Benzene	BRL		µg/l	20.0	20	SW846 8260B	05-May-1 0	05-May-1 0	JLG	1009480	I.
100-41-4	Ethylbenzene	73.6		µg/l	20.0	20	"	"	"			
1634-04-4	Methyl tert-butyl ether	25.2		µg/l	20.0	20	"		"	"		
91-20-3	Naphthalene	58.0		µg/l	20.0	20				"		
108-88-3	Toluene	BRL		µg/l	20.0	20				"		
179601-23-1	m,p-Xylene	292		µg/l	40.0	20				"		
95-47-6	o-Xylene	98.8		µg/l	20.0	20	"	"		"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	103			70-130 %		"	"	"	"	"	
2037-26-5	Toluene-d8	103			70-130 %		"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	96			70-130 %		"		"	"		
1868-53-7	Dibromofluoromethane	97			70-130 %		"		"	"		
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	03-May-1 0	04-May-1 0	JK	1009201	
Total Meta	ls by EPA 200 Series Methods											
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	EPA 200.7	07-May-1 0	10-May-1 0	TBG	1009706	Х
7440-50-8	Copper	0.0420		mg/l	0.0050	1	"	"	"	"		Х
7439-89-6	Iron	14.8		mg/l	0.0150	1	"	11-May-1 0	12-May-1 0	"	1009906	Х
General Cl	hemistry Parameters											
	Total Suspended Solids	30.0		mg/l	5.00	1	SM2540D	30-Apr-10	30-Apr-10	BD	1009163	Х

Sample Id	entification		Cline	Denais at #		Matuia	C-II	ti Dete	/T:	na Dacai		
Effluent SB11238-	02		J12660	.00 Phase	5	Ground Wa	ater 26	-Apr-10 10	:45	<u>Rec</u> 26-4	Apr-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared I	rganic Aromatics by SW846 8260 by method SW846 5030 Water N) <u>B</u> 1 <u>S</u>										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	05-May-1 0	05-May-1 0	JLG	1009480	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"		
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1			"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"	"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"		"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	97			70-130 %		"		"	"	"	
2037-26-5	Toluene-d8	102			70-130 %		"		"	"	"	
17060-07-0	1,2-Dichloroethane-d4	105			70-130 %		"		"	"	"	
1868-53-7	Dibromofluoromethane	96			70-130 %			"	"	"	"	
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	03-May-1 0	04-May-1 0	JK	1009201	
Total Meta	lls by EPA 200 Series Methods											
7440-38-2	Arsenic	0.0170	V11	mg/l	0.0040	1	EPA 200.7	07-May-1 0	10-May-1 0	TBG	1009706	Х
7440-50-8	Copper	BRL		mg/l	0.0050	1		"	"	"	"	Х
7439-89-6	Iron	BRL		mg/l	0.0150	1	"	11-May-1 0	12-May-1 0	"	1009906	Х
General Cl	hemistry Parameters							0	0			
	Total Suspended Solids	BRL		mg/l	5.00	1	SM2540D	30-Apr-10	30-Apr-10	BD	1009163	х
Sample Id	entification		~				~			_		
Trip Blan	k		<u>Client</u>	$\frac{1}{100} \frac{\text{Project } \#}{100}$	c .	<u>Matrix</u>	<u>Colle</u>	ection Date	<u>/Time</u>	$\frac{Rec}{2}$	<u>eived</u>	
SB11238-	03		J12000	.00 Phase	5	Aqueou	8 20	-Api-10 09	.10	20-2	Арі-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or	rganic Aromatics by SW846 8260	<u>)B</u>										
Prepared I	by method SW846 5030 Water N	<u>IS</u>			1.0		014/0 40 00000				4000400	
71-43-2	Benzene	BRL		µg/I	1.0	1	SW846 8260B	05-May-1 0	05-May-1 0	JLG	1009480	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"	"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"		
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	96			70-130 %		"	"	"	"	"	
2037-26-5	Toluene-d8	103			70-130 %		"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	103			70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	97			70-130 %		"		"	"		

Sample Ide Midpoint SB11238-	<u>entification</u> 04		<u>Client</u> J12660.	<u>Project #</u> 00 Phase 5		<u>Matrix</u> Ground Wa	ater 26	ection Date -Apr-10 10	/ <u>Time</u> :40	<u>Re</u> 26	<u>ceived</u> Apr-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	ganic Compounds											
Volatile Or Prepared I	ganic Aromatics by SW84 by method SW846 5030 V	<u>46 8260B</u> Vater MS										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	05-May-1 0	05-May-1 0	JLG	1009480	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"	"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"	"	
Surrogate re	ecoveries:											
460-00-4	4-Bromofluorobenzene	96			70-130 %			"		"		
2037-26-5	Toluene-d8	100			70-130 %			"			"	
17060-07-0	1,2-Dichloroethane-d4	99			70-130 %			"	"	"	"	
1868-53-7	Dibromofluoromethane	93			70-130 %			"	"	"	"	

					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1009480 - SW846 5030 Water MS										
<u>Blank (1009480-BLK1)</u>					Pre	epared & Ar	nalyzed: 05-	-May-10		
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
Naphthalene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	47.5		µg/l		50.0		95	70-130		
Surrogate: Toluene-d8	50.6		µg/l		50.0		101	70-130		
Surrogate: 1,2-Dichloroethane-d4	51.2		µg/l		50.0		102	70-130		
Surrogate: Dibromofluoromethane	48.3		µg/l		50.0		97	70-130		
LCS (1009480-BS1)					Pre	epared & Ar	nalyzed: 05-	- <u>May-10</u>		
Benzene	18.1		µg/l		20.0		91	70-130		
Ethylbenzene	21.4		µg/l		20.0		107	70-130		
Methyl tert-butyl ether	17.6		µg/l		20.0		88	70-130		
Naphthalene	22.2		µg/l		20.0		111	70-130		
Toluene	17.2		µg/l		20.0		86	70-130		
m,p-Xylene	42.7		µg/l		40.0		107	70-130		
o-Xylene	20.4		µg/l		20.0		102	70-130		
Surrogate: 4-Bromofluorobenzene	52.9		µg/l		50.0		106	70-130		
Surrogate: Toluene-d8	50.8		µg/l		50.0		102	70-130		
Surrogate: 1,2-Dichloroethane-d4	48.6		µg/l		50.0		97	70-130		
Surrogate: Dibromofluoromethane	47.0		µg/l		50.0		94	70-130		
LCS Dup (1009480-BSD1)					Pre	epared & Ar	nalyzed: 05-	-May-10		
Benzene	18.4		µg/l		20.0		92	70-130	2	25
Ethylbenzene	23.5		µg/l		20.0		117	70-130	9	25
Methyl tert-butyl ether	17.8		µg/l		20.0		89	70-130	1	25
Naphthalene	25.5		µg/l		20.0		127	70-130	14	25
Toluene	18.4		µg/l		20.0		92	70-130	7	25
m,p-Xylene	47.2		µg/l		40.0		118	70-130	10	25
o-Xylene	23.2		µg/l		20.0		116	70-130	12	25
Surrogate: 4-Bromofluorobenzene	51.9		µg/l		50.0		104	70-130		
Surrogate: Toluene-d8	51.3		µg/l		50.0		103	70-130		
Surrogate: 1,2-Dichloroethane-d4	48.2		µg/l		50.0		96	70-130		
Surrogate: Dibromofluoromethane	47.7		µg/l		50.0		95	70-130		
Matrix Spike (1009480-MS1)			Source: SE	311238-0 <u>2</u>	Pre	epared & Ar	nalyzed: 05-	-May-10		
Benzene	16.1		µg/l		20.0	BRL	81	70-130		
Ethylbenzene	23.2		µg/l		20.0	BRL	116	70-130		
Methyl tert-butyl ether	15.5		µg/l		20.0	BRL	77	70-130		
Naphthalene	29.3	QM7	μg/l		20.0	BRL	146	70-130		
Toluene	17.4		µg/l		20.0	BRL	87	70-130		
m,p-Xylene	47.6		μg/l		40.0	BRL	119	70-130		
o-Xylene	23.1		μg/l		20.0	BRL	115	70-130		
Surrogate: 4-Bromofluorobenzene	52.1		µq/l		50.0		104	70-130		
Surrogate: Toluene-d8	50.6		µg/l		50.0		101	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.1		ua/l		50.0		94	70-130		
Surrogate: Dibromofluoromethane	47.3		ua/l		50.0		95	70-130		
			P.3.1		20.0		~~			

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009480 - SW846 5030 Water MS										
Matrix Spike Dup (1009480-MSD1)			Source: SE	311238-02	Pro	epared & A	nalyzed: 05	-May-10		
Benzene	16.4		µg/l		20.0	BRL	82	70-130	2	30
Ethylbenzene	22.6		µg/l		20.0	BRL	113	70-130	2	30
Methyl tert-butyl ether	16.0		µg/l		20.0	BRL	80	70-130	4	30
Naphthalene	29.4	QM7	µg/l		20.0	BRL	147	70-130	0.3	30
Toluene	17.0		µg/l		20.0	BRL	85	70-130	2	30
m,p-Xylene	47.0		µg/l		40.0	BRL	118	70-130	1	30
o-Xylene	22.7		µg/l		20.0	BRL	113	70-130	2	30
Surrogate: 4-Bromofluorobenzene	51.4		µg/l		50.0		103	70-130		
Surrogate: Toluene-d8	50.1		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.8		µg/l		50.0		96	70-130		
Surrogate: Dibromofluoromethane	47.0		µg/l		50.0		94	70-130		
Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009201 - SW846 3510C										
Blank (1009201-BLK1)					Pre	epared: 03-I	May-10 An	alyzed: 04-N	<u>//ay-10</u>	
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (1009201-BS1)					Pre	epared: 03-I	May-10 An	alyzed: 04-N	<u>//ay-10</u>	
Non-polar material (SGT-HEM)	18.3		mg/l		20.7		88	83-101		

Total Metals b	y EPA 200	Series Methods -	Quality	Control
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Analyte(s)	Result	Flag U	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009706 - EPA 200 Series										
<u>Blank (1009706-BLK1)</u>					Pre	epared: 07-	May-10 Ar	nalyzed: 10-N	May-10	
Arsenic	BRL		mg/l	0.0040						
Copper	BRL		mg/l	0.0050						
LCS (1009706-BS1)					Pre	epared: 07-	May-10 Ar	nalyzed: 10-N	<u> May-10</u>	
Copper	1.35		mg/l	0.0050	1.25		108	85-115		
Arsenic	1.30		mg/l	0.0040	1.25		104	85-115		
Duplicate (1009706-DUP1)		So	urce: SE	<u>311238-02</u>	Pre	epared: 07-	May-10 Ar	nalyzed: 10-N	<u>May-10</u>	
Copper	BRL		mg/l	0.0050		BRL				20
Arsenic	0.0162		mg/l	0.0040		0.0170			5	20
Batch 1009906 - EPA 200 Series										
<u>Blank (1009906-BLK1)</u>					Pre	epared: 11-	May-10 Ar	nalyzed: 12-N	<u>May-10</u>	
Iron	BRL		mg/l	0.0150						
LCS (1009906-BS1)					Pre	epared: 11-	May-10 Ar	nalyzed: 12-N	<u>May-10</u>	
Iron	1.43		mg/l	0.0150	1.25		115	85-115		
Duplicate (1009906-DUP1)		Sou	urce: SE	<u>311238-02</u>	Pre	epared: 11-	May-10 Ar	nalyzed: 12-N	May-10	
Iron	0.0170		mg/l	0.0150		BRL				20

General Chemistry Parameters - Quality Control

Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
				Pre	epared & Ar	nalyzed: 30-	Apr-10		
BRL		mg/l	5.00						
				Pre	epared & Ar	nalyzed: 30-	Apr-10		
BRL		mg/l	5.00						
				Pre	epared & Ar	nalyzed: 30-	Apr-10		
84.0		mg/l	10.0	91.3		92	90-110		
				Pre	epared & Ar	nalyzed: 30-	Apr-10		
82.0		mg/l	10.0	91.3		90	90-110		
	Result BRL BRL 84.0 82.0	Result Flag BRL BRL 84.0 82.0	ResultFlagUnitsBRLmg/lBRLmg/l84.0mg/l82.0mg/l	Result Flag Units *RDL BRL mg/l 5.00 BRL mg/l 5.00 84.0 mg/l 10.0 82.0 mg/l 10.0	ResultFlagUnits*RDLSpike LevelResultFlagUnits*RDLPreBRLmg/l5.00PreBRLmg/l5.00Pre84.0mg/l10.091.382.0mg/l10.091.3	Result Flag Units *RDL Spike Level Source Result BRL mg/l 5.00 Prepared & Ar BRL mg/l 5.00 Prepared & Ar BRL mg/l 5.00 Prepared & Ar BRL mg/l 10.0 91.3 82.0 mg/l 10.0 91.3	ResultFlagUnits*RDLSpike LevelSource Result%RECPrepared & Analyzed: 30-BRLmg/l5.00Prepared & Analyzed: 30-BRLmg/l5.00Prepared & Analyzed: 30-BRLmg/l5.00Prepared & Analyzed: 30-BRLmg/l10.091.392Prepared & Analyzed: 30-Prepared & Analyzed: 30-84.0mg/l10.091.392BRLmg/l10.091.390	ResultFlagUnits*RDLSpike LevelSource Result%REC%RECResultFlagUnits*RDL \mathbb{P} repared & Analyzed: 30-Apr-10BRLmg/l5.00 \mathbb{P} repared & Analyzed: 30-Apr-10BRLmg/l5.00 \mathbb{P} repared & Analyzed: 30-Apr-10BRLmg/l10.091.39284.0mg/l10.091.39282.0mg/l10.091.390	ResultFlagUnits*RDLSpike LevelSource Result%REC%RECMRCRPDRPDPrepared & Analyzed: 30-Apr-10 $Prepared & Analyzed: 30-Apr-10$ $Prepared & Analyzed: 30-Apr-10$ $Prepared & Analyzed: 30-Apr-10$ BRLmg/l5.00 $Prepared & Analyzed: 30-Apr-10$ $Prepared & Analyzed: 30-Apr-10$ BRLmg/l10.091.39290-11082.0mg/l10.091.39090-110

Notes and Definitions

- QM7 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- R05 Elevated Reporting Limits due to the presence of high levels of non-target analytes.
- V11 Data confirmed with duplicate analysis.
- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- NR Not Reported
- RPD Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (Calculated as).

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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

Validated by: Hanibal C. Tayeh, Ph.D. Kimberly Wisk Rebecca Merz

	4/26/10. 12:40 3r6 = E-mail to	Date: Time: Temp ⁰ C DDD Format				10 A G GW Z T	X # 4 4 4 1 -9 40	5× C GW 3 2 1 X X X X	0A & Gw 3 7 1 × × × ×	Type Matrix # of V # of A # of C # of P TSS Total A (TCP TPH BTEX,) PLOPHERS	OA V mber G lear G astic (300) (1000 MT&E	Control Contro Control Control Control Control Control Control Con	Analyses:	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	O. No.: RQN: Sampler(s): 1/2. Serre	Location: 399 Northangton St Ambrest State: M	Site Name: El Ribearte	woice To: ELS Project No :: 312660.00 Kige S	IN OF CUSTODY RECORD Page of Page
(A A	// Received	2			4/26/10 10;	4/26/10 9:1	4/26/10 10:5	4/26/10 10:	Date: T	C=Composite	X3=	Groundwater WW=Waste	3=H ₂ SO ₄ 4=HNO ₃ 5=P 10=	heise	3			CHA
	Thily Ame	Relinquished by:		· · · · · · · · · · · · · · · · · · ·		or Mid Poirt	03 Trip Blank	o'l Effluorst	238-01 Influent	Lab Id: Sample Id:	G=Grab	$XI = \frac{1}{X2}$	DW=Drinking Water GW=(1=Na ₂ S2O ₃ 2=HCl 8= NaHSO ₄ 9=	roject Mgr. <u>Kelly Do</u> l			Report To: LLS	SPECTRUM ANALYTICAL I

Report Date: 11-Jun-10 11:50



Final ReportRe-Issued ReportRevised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Kelly Doherty

Project: FLR- 399 Northampton Road - Amherst, MA Project #: J12660.05

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB12930-01	SYSINF	Waste Water	26-May-10 14:50	27-May-10 10:45
SB12930-02	GACMID	Waste Water	26-May-10 14:40	27-May-10 10:45
SB12930-03	SYSEFF	Waste Water	26-May-10 14:30	27-May-10 10:45
SB12930-04	Trip	Deionized Water	26-May-10 00:00	27-May-10 10:45

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 Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 9 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

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

CASE NARRATIVE:

The samples were received 10.0 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

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

SW846 8260B

Samples:

SB12930-01 SYSINF

Elevated Reporting Limits due to the presence of high levels of non-target analytes.

Sample Id	entification		Client	Droiget #		Motrix	Calle	ation Data	/Time	Pa	anivad	
SYSINF			<u>Unem</u> 112	110ject #		Waste Wa	$\frac{cone}{2}$	May-10 14	1·50	27-N	$\frac{1}{1000}$	
SB12930-	01		512	.000.05		Waste Wi	20	Nuy 10 I	1.50	271	viuy 10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared	rganic Aromatics by SW846 8260B by method SW846 5030 Water MS		R05									
71-43-2	Benzene	31.6		µg/l	10.0	10	SW846 8260B	01-Jun-10	02-Jun-10	eq	1011506	
100-41-4	Ethylbenzene	298		µg/l	10.0	10	"	"	"			
1634-04-4	Methyl tert-butyl ether	47.8		µg/l	10.0	10	"	"	"			
91-20-3	Naphthalene	131		µg/l	10.0	10	"	"	"			
108-88-3	Toluene	20.7		µg/l	10.0	10	"	"	"			
179601-23-1	m,p-Xylene	824		µg/l	20.0	10	"	"	"			
95-47-6	o-Xylene	191		µg/l	10.0	10	"			"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	100			70-130 %		"	"	"			
2037-26-5	Toluene-d8	104			70-130 %		"	"	"			
17060-07-0	1,2-Dichloroethane-d4	110			70-130 %		"	"	"			
1868-53-7	Dibromofluoromethane	99			70-130 %		"	"	"			
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	03-Jun-10	04-Jun-10	JK	1011676	
Total Meta	als by EPA 200 Series Methods											
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	EPA 200.7	07-Jun-10	10-Jun-10	TBG	1011760	х
7440-50-8	Copper	0.0255		mg/l	0.0050	1	"	"	10-Jun-10			х
7439-89-6	Iron	13.0		mg/l	0.0250	1	"	"	"			х
General Cl	hemistry Parameters											
	Total Suspended Solids	29.0		mg/l	5.00	1	SM2540D	02-Jun-10	02-Jun-10	BD	1011593	х
Sample Id	entification											
GACMID)		Client	<u>t Project #</u>		Matrix	<u>Colle</u>	ection Date	<u>/Time</u>	Re	<u>ceived</u>	
SB12930-	02		J12	660.05		Waste Wa	ater 26-	-May-10 14	4:40	27-1	/lay-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or	rganic Aromatics by SW846 8260B											
Prepared	by method SW846 5030 Water MS											
/1-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	01-Jun-10	02-Jun-10	eq	1011506	
100-41-4	Ethylbenzene	BRL		µg/I	1.0	1			"			
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"			
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"			
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"		"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"			
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	90			70-130 %			"		"	"	
2037-26-5	Toluene-d8	99			70-130 %		"	"		"	"	
17060-07-0	1,2-Dichloroethane-d4	110			70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	101			70-130 %		"	"	"			

Sample Id	lentification		Client Project #		Motrix	Calle	nation Data	/Time	Pa	anivad		
SYSEFF			<u>Unena</u> 112	660.05		Waste Wa	$\frac{Conc}{2}$	$-M_{\rm av} = 10.1/$	1.30	<u>10</u> 127	$M_{\rm av} = 10$	
SB12930-	03		J12	.000.05		waste wa	20-	-wiay-10 1-	F.30	27-1	viay-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile O	rganic Compounds											
Volatile O	rganic Aromatics by SW846 826	<u>60B</u>										
Prepared	by method SW846 5030 Water I	<u>MS</u>										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B	01-Jun-10	02-Jun-10	eq	1011506	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"		"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"		"		
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"		"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"		"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"		"	"	
Surrogate r	recoveries:											
460-00-4	4-Bromofluorobenzene	90			70-130 %			"				
2037-26-5	Toluene-d8	99			70-130 %		"	"		"		
17060-07-0	1,2-Dichloroethane-d4	116			70-130 %		"	"		"	"	
1868-53-7	Dibromofluoromethane	107			70-130 %		"	"				
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	03-Jun-10	04-Jun-10	JK	1011676	
Total Meta	als by EPA 200 Series Methods											
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	EPA 200.7	07-Jun-10	10-Jun-10	TBG	1011760	х
7440-50-8	Copper	BRL		mg/l	0.0050	1		"	10-Jun-10			х
7439-89-6	Iron	BRL		mg/l	0.0250	1		"		"		х
General C	hemistry Parameters											
	Total Suspended Solids	BRL		mg/l	5.00	1	SM2540D	02-Jun-10	02-Jun-10	BD	1011593	х
Sample Id	lentification											
Trip			<u>Client</u>	<u>Project #</u>	_	Matrix	<u>Colle</u>	ection Date	/Time	Re	<u>ceived</u>	
SB12930-	.04		J12	660.05	D	eionized V	Water 26-	-May-10 00):00	27-1	May-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile O	rganic Compounds											
Volatile O	rganic Aromatics by SW846 826	0 <u>0</u> B										
71 43 2	Bonzono			ug/l	1.0	1	S/M046 0260P	01 Jun 10	02 Jun 10	00	1011506	
100 41 4	Ethylhenzone	BRL		µg/i	1.0	1	30040 8200B "	01-Juli-10 "	02-Juii-10 "	eq "	"	
1624 04 4	Euryidenzene	BRL		µg/i	1.0	1						
04.00.0	Methyl tert-butyl ether	BRL		µg/i	1.0	1						
91-20-3		BRL		µg/i	1.0	1						
108-88-3	Ioluene	BRL		µg/l	1.0	1						
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"		"		
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	u	"	"	
Surrogate r	recoveries:											
460-00-4	4-Bromofluorobenzene	89			70-130 %			"	"	"	"	
2037-26-5	Toluene-d8	101			70-130 %			"		"	"	
17060-07-0	1,2-Dichloroethane-d4	117			70-130 %			"		"	"	
1868-53-7	Dibromofluoromethane	99			70-130 %			"	"	"	"	

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
3atch 1011506 - SW846 5030 Water MS										
Blank (1011506-BLK1)					Pre	epared & A	nalyzed: 01	-Jun-10		
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
Naphthalene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	26.7		µg/l		30.0		89	70-130		
Surrogate: Toluene-d8	30.7		µg/l		30.0		102	70-130		
Surrogate: 1,2-Dichloroethane-d4	37.1		µg/l		30.0		124	70-130		
Surrogate: Dibromofluoromethane	32.8		µg/l		30.0		109	70-130		
LCS (1011506-BS1)					Pre	epared & A	nalyzed: 01	-Jun-10		
Benzene	20.6		µg/l		20.0		103	70-130		
Ethylbenzene	20.9		µg/l		20.0		104	70-130		
Methyl tert-butyl ether	21.1		µg/l		20.0		105	70-130		
Naphthalene	21.2		µg/l		20.0		106	70-130		
Toluene	19.6		µg/l		20.0		98	70-130		
m,p-Xylene	44.7		µg/l		40.0		112	70-130		
o-Xylene	21.9		µg/l		20.0		110	70-130		
Surrogate: 4-Bromofluorobenzene	31.7		µg/l		30.0		106	70-130		
Surrogate: Toluene-d8	30.6		µg/l		30.0		102	70-130		
Surrogate: 1,2-Dichloroethane-d4	30.8		µg/l		30.0		103	70-130		
Surrogate: Dibromofluoromethane	29.4		µg/l		30.0		98	70-130		
LCS Dup (1011506-BSD1)					Pre	epared & A	nalyzed: 01	-Jun-10		
Benzene	20.9		µg/l		20.0		104	70-130	1	25
Ethylbenzene	20.0		μg/l		20.0		100	70-130	4	25
Methyl tert-butyl ether	23.5		µg/l		20.0		117	70-130	11	25
Naphthalene	22.0		μg/l		20.0		110	70-130	3	25
Toluene	19.8		μg/l		20.0		99	70-130	1	25
m,p-Xylene	42.5		μg/l		40.0		106	70-130	5	25
o-Xylene	21.2		µg/l		20.0		106	70-130	3	25
Surrogate: 4-Bromofluorobenzene	30.1		µg/l		30.0		100	70-130		
Surrogate: Toluene-d8	30.1		µg/l		30.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	29.1		µg/l		30.0		97	70-130		
Surrogate: Dibromofluoromethane	29.1		µg/l		30.0		97	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1011676 - SW846 3510C										
<u>Blank (1011676-BLK1)</u>					Pre	epared: 03-J	lun-10 Ana	alyzed: 04-Ju	<u>un-10</u>	
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (1011676-BS1)					Pre	epared: 03-J	lun-10 Ana	alyzed: 04-Ju	<u>un-10</u>	
Non-polar material (SGT-HEM)	25.8		mg/l		31.0		83	83-101		

Units

mg/l

Source: SB12930-01

Source: SB12930-01

Result

BRL

BRL

BRL

1.39

1.29

1.27

14.4

1.30

1.36

1.34

1.38

Flag

Analyte(s)

Iron

Arsenic

Copper

Iron

Iron

Copper

Arsenic

Arsenic

Copper

Arsenic

Copper

LCS (1011760-BS1)

Matrix Spike (1011760-MS2)

Post Spike (1011760-PS2)

Batch 1011760 - EPA 200 Series Blank (1011760-BLK1) Spike

Level

1.25

1.25

1.25

1.25

1.25

1.25

1.25

1.25

*RDL

0.0250

0.0040

0.0050

0.0250

0.0050

0.0040

0.0250

0.0040

0.0050

0.0040

0.0050

Source

Result

13.0

BRL

0.0255

BRL

0.0255

%REC

Prepared: 07-Jun-10 Analyzed: 10-Jun-10

Prepared: 07-Jun-10 Analyzed: 10-Jun-10

111

103

101

112

104

106

107

108

Prepared: 07-Jun-10 Analyzed: 10-Jun-10

Prepared: 07-Jun-10 Analyzed: 10-Jun-10

%REC

Limits

85-115

85-115

85-115

70-130

70-130

70-130

85-115

85-115

RPD

RPD

Limit

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1011593 - General Preparation										
<u>Blank (1011593-BLK1)</u>					Pre	epared & Ar	nalyzed: 02-	Jun-10		
Total Suspended Solids	BRL		mg/l	5.00						
<u>Blank (1011593-BLK2)</u>					Pre	epared & Ar	nalyzed: 02-	Jun-10		
Total Suspended Solids	BRL		mg/l	5.00						
LCS (1011593-BS1)					Pre	epared & Ar	nalyzed: 02-	Jun-10		
Total Suspended Solids	84.0		mg/l	20.0	91.3		92	90-110		
LCS (1011593-BS2)					Pre	epared & Ar	nalyzed: 02-	Jun-10		
Total Suspended Solids	88.0		mg/l	20.0	91.3		96	90-110		
Duplicate (1011593-DUP2)			Source: SI	<u>312930-03</u>	Pre	epared & Ar	nalyzed: 02-	Jun-10		
Total Suspended Solids	5.00		mg/l	5.00		BRL				20

Notes and Definitions

- R05 Elevated Reporting Limits due to the presence of high levels of non-target analytes.
- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- NR Not Reported
- RPD Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (Calculated as).

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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

Validated by: Hanibal C. Tayeh, Ph.D. Nicole Leja 11 Almgren Drive • Agawam, Massachusetts 01001 • 413-789-9018 • Fax 413-789-4076 • www.spectrum-analytical.com

Condition upon	EDD Format	Fax result		S	No 04	50	1-02	12930 of	Lab Id:		XI = DT	DW=Drinking	1=Na ₂ S2O ₃ 7=CH ₃ OH 8	Project Mgr .: .			Report To:	HA
receipt 🔲 loed [K Dortle	s when available to			TRIP	SYSEFF	GACMID	SYSINF	Sample Id:	G=Grab C	Surface Water X2=	Water GW=G	$= NaHSO_4$ $9=$	Kelly D			ECS	RUM ANALYTICAL, INC. Foundation
Ambient 🗆 °C	YOECS				 5/26/10	5/26/10	5/26/10	5/26/10	Date:	=Composite	SO=Soil SL=S	roundwater WA	4=HNO3 5=Na					C
10.0					Am	2:30	2:40	2:50	Time: •		Sludge A=A X3=	W=Wastewate	OH 6=Ascorb	P.O. N			Invoic	HAIN
	Butt	Rel			 G X1 2	G WW 3/3/	GINN &	G WW 23/2	Type Matri Preso	x	tive		ic Acid	0.:			e.To:	OF C
	Xie	linquished by:			-	43 1	2	33 1	# of / # of /	VOA Amb	Vials er Glas	ss ,	Conta	RQ				USTO
•	()	-				2		2 1	# of	Plast	ic		iners:	N:0003				DY R
	Dane	Rec				N X X		XX	TS2 Total Copfe TPH	> A //	RSENI FR	C ON	А	Sampler(s	Location:	Site Name	Project No	ECO
	llo lin	ceived by:			 X	X	X	X	ВТЕХ, NAp Bo	H4 260	BE _I B HAle B	PH.	nalyses:	BPS	Noto Rd	FLR	12	
	200		_	 			4	-	as (Res	We		St St		,	Ante	CIArWASE	660.	Standard TA' Rush TAT - J Rush TAT - J II TATs subjec fin.24-hour not amples dispose herwise instruc
	01/10	Date:			DC 'S	heat for	See al	~	sponse required for	tre all field QC rea	rappucaste, piea	ate specific report	QA Reportin (check if ne		ST State:	4	3	730 Fial Handling F - 7 to 10 bu Date Needed: t to laboratory ification needec d of after 60 da ted
	54:01	Time:				MDX 'S	tachod		M Section 2.07 D No or CAM report)	quirements met	A Deport	ting standards	g Notes: eded)		Ma			approval. f for rushes. ys unless

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F.L. Roberts Amherst MA J12660.00 Phase 05		(Groundwa Remedia	ter Treatm tion Gene	ent Syster ral Permit	n		
	_			Gla	issware		- ×	5.
Parmeters	Matrix	Point óf Sample or Measurement	40-ml HCl preserved vials	500 mL preserved with HNO ₃	500 mL unpreserved	1 amber liter H ₂ SO ₄ preserved	Reportable Detction Limit	Analytical Method
		influent B						
TSS	GW	effluent		99	1		5 mg/L	Method SM2540D
Total Arsenic (As)	GW	influent & effluent					5 ug/L	
Total Copper (Cu)	GW	influent & effluent		1			5ug/L	ICP
Total Iron (Fe)	GW	influent & effluent					5ug/L	
трн	GW	influent & effluent				1	5 mg/L	Method 1664
BTEX, MtBE, naphthalene	GW	influent, midpoint, effluent	3				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only
Trip Blank	DI	in cooler	1				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only
Notes:								
Method Detection Limits specified								
Measure and Record the followi	ing:						`	
Instantaneous Flow	3.6	system		6			0	· · · · ·
Total Flow		system	41	79,0	60	gal	lins	
pН	6.65	effluent				U		

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May 10 RGP.xls

System Sampling

Report Date: 06-Jul-10 10:52



Final ReportRe-Issued ReportRevised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Kelly Doherty

Project: FL Roberts - Albany St - MA Project #: J12660

Laboratory ID	Client Sample ID	<u>Matrix</u>	Date Sampled	Date Received
SB14174-01	Influent	Ground Water	21-Jun-10 12:00	23-Jun-10 09:30
SB14174-02	Mid Pt	Ground Water	21-Jun-10 12:02	23-Jun-10 09:30
SB14174-03	Effluent	Ground Water	21-Jun-10 12:04	23-Jun-10 09:30
SB14174-04	Trip	Deionized Water	21-Jun-10 00:00	23-Jun-10 09:30

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 Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.

Please note that this report contains 15 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

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

CASE NARRATIVE:

The samples were received 2.4 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

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 6010B

Duplicates:

1013394-DUP1 Source: SB14174-03

The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD. Iron

SW846 8260B/C

Samples:

S005881-CCV1

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

Methyl tert-butyl ether (-21.0%)

This affected the following samples:

1013871-BLK1 1013871-BS1 1013871-BSD1 Trip

S005915-CCV1

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

Methyl tert-butyl ether (-29.4%)

This affected the following samples:

1013887-BLK1 1013887-BS1 1013887-BSD1 Effluent Influent Mid Pt

SB14174-01 Influent

SW846 8260B/C

Samples:

SB14174-01 Influent

Elevated Reporting Limits due to the presence of high levels of non-target analytes.

Sample Id Influent SB14174-	entification 01		<u>Client</u> J1	<u>Project </u> 2660	<u>+</u>	<u>Matrix</u> Ground W	<u>Colle</u> Vater 21	ction Date Jun-10 12	<u>/Time</u> :00	<u>Re</u> 23-	<u>ceived</u> Jun-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared	ganic Aromatics by SW846 8260 by method SW846 5030 Water N	<u>)B</u> IS	R05									
71-43-2	Benzene	20.6		µg/l	10.0	10	SW846 8260B/C	30-Jun-10	01-Jul-10	eq	1013887	
100-41-4	Ethylbenzene	150		µg/l	10.0	10		"	"	"	"	
1634-04-4	Methyl tert-butyl ether	30.7		µg/l	10.0	10	"	"	"	"	"	
91-20-3	Naphthalene	87.3		µg/l	10.0	10		"		"	"	
108-88-3	Toluene	13.5		µg/l	10.0	10		"	"	"	"	
179601-23-1	m,p-Xylene	476		µg/l	20.0	10		"		"	"	
95-47-6	o-Xylene	132		µg/l	10.0	10	"			"		
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	107			70-130 %			"		"	"	
2037-26-5	Toluene-d8	97			70-130 %			"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	80			70-130 %			"	"	"	"	
1868-53-7	Dibromofluoromethane	104			70-130 %		"	"	"	"	"	
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	24-Jun-10	28-Jun-10	JK	1013357	
Total Meta	lls by EPA 6000/7000 Series Metho	ds										
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	SW846 6010B	24-Jun-10	01-Jul-10	TBG/J	1013394	
7440-50-8	Copper	0.0882		mg/l	0.0050	1	"	"	"	"	"	
7439-89-6	Iron	16.4		mg/l	0.0150	1		"	"	"		
General Cl	hemistry Parameters											
	Total Suspended Solids	35.0		mg/l	5.00	1	SM2540D	23-Jun-10	23-Jun-10	BD	1013336	х

Sample Id Mid Pt SB14174-	Sample Identification Mid Pt SB14174-02		<u>Client Project #</u> J12660		<u>Matrix</u> Ground Wa		<u>x</u> <u>Collection Date/Time</u> Vater 21-Jun-10 12:02			Received 23-Jun-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	ganic Compounds											
Volatile Or Prepared I	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS											
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	30-Jun-10	01-Jul-10	eq	1013887	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"			
91-20-3	Naphthalene	BRL		µg/l	1.0	1			"		"	
108-88-3	Toluene	BRL		µg/l	1.0	1			"		"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1			"		"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"		
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	105			70-130 %		"					
2037-26-5	Toluene-d8	96			70-130 %			"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	75			70-130 %			"	"	"	"	
1868-53-7	Dibromofluoromethane	102			70-130 %				"		"	

Sample Identification Effluent	Client	Project #	¥	Matrix	Colle	ction Date	/Time	Received				
Effluent SB14174-	03		J1	2660	(Ground W	ater 21	-Jun-10 12	:04	23-	Jun-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	ganic Compounds											
Volatile Or Prepared	ganic Aromatics by SW846 8260 by method SW846 5030 Water M) <u>B</u> IS										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	30-Jun-10	01-Jul-10	eq	1013887	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"		"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"		"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"		"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	105			70-130 %					"	"	
2037-26-5	Toluene-d8	96			70-130 %					"	"	
17060-07-0	1,2-Dichloroethane-d4	76			70-130 %					"	"	
1868-53-7	Dibromofluoromethane	101			70-130 %		"		"	"	"	
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	24-Jun-10	28-Jun-10	JK	1013357	
Total Meta	ls by EPA 6000/7000 Series Metho	ds										
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	SW846 6010B	24-Jun-10	01-Jul-10	TBG/J	1013394	
7440-50-8	Copper	BRL		mg/l	0.0050	1	"		"	"	"	
7439-89-6	Iron	0.0396		mg/l	0.0150	1			"	"		
General Cl	nemistry Parameters											
	Total Suspended Solids	BRL		mg/l	5.00	1	SM2540D	23-Jun-10	23-Jun-10	BD	1013336	х

Sample Id Trip SB14174-	Sample Identification Trip SB14174-04		<u>Client Project #</u> J12660		<u>Matrix</u> Deionized W		<u>x</u> <u>Collection Date/Time</u> Water 21-Jun-10 00:00			Received 23-Jun-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	ganic Compounds											
Volatile Or Prepared I	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS											
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	30-Jun-10	30-Jun-10	eq	1013871	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	106			70-130 %		"		"	"	"	
2037-26-5	Toluene-d8	96			70-130 %		"		"	"	"	
17060-07-0	1,2-Dichloroethane-d4	75			70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	100			70-130 %		"		"			

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1013871 - SW846 5030 Water MS										
Blank (1013871-BLK1)					Pre	epared & Ar	nalyzed: 30-	Jun-10		
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		μg/l	1.0						
Methyl tert-butyl ether	BRL		μg/l	1.0						
Naphthalene	BRL		μg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	30.8		µg/l		30.0		102	70-130		
Surrogate: Toluene-d8	29.4		µg/l		30.0		98	70-130		
Surrogate: 1,2-Dichloroethane-d4	22.7		µg/l		30.0		76	70-130		
Surrogate: Dibromofluoromethane	31.2		µg/l		30.0		104	70-130		
LCS (1013871-BS1)					Pre	epared & Ar	nalyzed: 30-	<u>Jun-10</u>		
Benzene	18.3		µg/l		20.0		92	70-130		
Ethylbenzene	19.8		µg/l		20.0		99	70-130		
Methyl tert-butyl ether	15.2		µg/l		20.0		76	70-130		
Naphthalene	21.6		µg/l		20.0		108	70-130		
Toluene	19.0		µg/l		20.0		95	70-130		
m,p-Xylene	41.9		µg/l		40.0		105	70-130		
o-Xylene	20.7		µg/l		20.0		104	70-130		
Surrogate: 4-Bromofluorobenzene	30.2		µg/l		30.0		101	70-130		
Surrogate: Toluene-d8	28.9		µg/l		30.0		96	70-130		
Surrogate: 1,2-Dichloroethane-d4	22.2		µg/l		30.0		74	70-130		
Surrogate: Dibromofluoromethane	30.8		µg/l		30.0		103	70-130		
LCS Dup (1013871-BSD1)					Pre	epared & Ar	nalyzed: 30-	<u>Jun-10</u>		
Benzene	19.3		µg/l		20.0		96	70-130	5	25
Ethylbenzene	20.1		µg/l		20.0		101	70-130	2	25
Methyl tert-butyl ether	16.6		µg/l		20.0		83	70-130	9	25
Naphthalene	22.3		µg/l		20.0		111	70-130	3	25
Toluene	19.2		µg/l		20.0		96	70-130	0.9	25
m,p-Xylene	42.4		µg/l		40.0		106	70-130	1	25
o-Xylene	21.2		µg/l		20.0		106	70-130	2	25
Surrogate: 4-Bromofluorobenzene	30.1		µg/l		30.0		100	70-130		
Surrogate: Toluene-d8	28.8		µg/l		30.0		96	70-130		
Surrogate: 1,2-Dichloroethane-d4	27.1		µg/l		30.0		90	70-130		
Surrogate: Dibromofluoromethane	31.4		µg/l		30.0		105	70-130		
Batch 1013887 - SW846 5030 Water MS										
<u>Blank (1013887-BLK1)</u>					Pre	epared & Ar	nalyzed: 30-	<u>Jun-10</u>		
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
Naphthalene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
Irichloroethene	BRL		µg/l	1.0						

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

Volatile Organic Compounds - Quality Control

					Spike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1013887 - SW846 5030 Water MS										
Blank (1013887-BLK1)					Pre	epared & Ai	nalyzed: 30-	-Jun-10		
Surrogate: 4-Bromofluorobenzene	31.0		µg/l		30.0		103	70-130		
Surrogate: Toluene-d8	29.0		µg/l		30.0		97	70-130		
Surrogate: 1,2-Dichloroethane-d4	26.1		µg/l		30.0		87	70-130		
Surrogate: Dibromofluoromethane	31.2		µg/l		30.0		104	70-130		
LCS (1013887-BS1)					Pre	epared & Ai	nalyzed: 30-	-Jun-10		
Benzene	17.7		µg/l		20.0		89	70-130		
Ethylbenzene	19.3		µg/l		20.0		96	70-130		
Methyl tert-butyl ether	14.3		µg/l		20.0		72	70-130		
Naphthalene	20.0		µg/l		20.0		100	70-130		
Toluene	18.3		µg/l		20.0		92	70-130		
m,p-Xylene	41.1		µg/l		40.0		103	70-130		
o-Xylene	20.8		µg/l		20.0		104	70-130		
Surrogate: 4-Bromofluorobenzene	31.0		µg/l		30.0		103	70-130		
Surrogate: Toluene-d8	29.6		µg/l		30.0		98	70-130		
Surrogate: 1,2-Dichloroethane-d4	26.1		µg/l		30.0		87	70-130		
Surrogate: Dibromofluoromethane	32.0		µg/l		30.0		107	70-130		
LCS Dup (1013887-BSD1)					Pre	epared & Ai	nalyzed: 30-	-Jun-10		
Benzene	17.6		µg/l		20.0		88	70-130	0.5	25
Ethylbenzene	19.4		µg/l		20.0		97	70-130	0.7	25
Methyl tert-butyl ether	15.0		µg/l		20.0		75	70-130	4	25
Naphthalene	21.8		µg/l		20.0		109	70-130	9	25
Toluene	18.2		µg/l		20.0		91	70-130	0.7	25
m,p-Xylene	41.8		µg/l		40.0		105	70-130	2	25
o-Xylene	20.9		µg/l		20.0		104	70-130	0.1	25
Surrogate: 4-Bromofluorobenzene	31.0		µg/l		30.0		103	70-130		
Surrogate: Toluene-d8	29.4		µg/l		30.0		98	70-130		
Surrogate: 1,2-Dichloroethane-d4	23.0		µg/l		30.0		77	70-130		
Surrogate: Dibromofluoromethane	31.2		µg/l		30.0		104	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1013357 - SW846 3510C										
Blank (1013357-BLK1)					Pre	epared: 24-Ju	un-10 Ana	alyzed: 28-Ju	<u>un-10</u>	
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (1013357-BS1)					Pre	epared: 24-Ju	un-10 Ana	alyzed: 28-Ju	<u>un-10</u>	
Non-polar material (SGT-HEM)	25.9		mg/l		31.0		84	83-101		

Units

mg/l

Source: SB14174-03

Result

BRL

BRL

BRL

1.41

1.36

1.26

1.38

1.27

1.36

0.0668

BRL

BRL

Flag

QR6

Analyte(s)

Iron

Arsenic

Copper

Iron

Iron

Copper

Arsenic

Arsenic

Copper

Iron

Copper

Arsenic

Batch 1013394 - SW846 3005A Blank (1013394-BLK1)

LCS (1013394-BS1)

LCS Dup (1013394-BSD1)

Duplicate (1013394-DUP1)

Spike

Level

1.25

1.25

1.25

1.25

1.25

1.25

0.0396

BRL

BRL

*RDL

0.0150

0.0040

0.0050

0.0150

0.0050

0.0040

0.0150

0.0040

0.0050

0.0150

0.0050

0.0040

Source

Result

%REC

Prepared: 24-Jun-10 Analyzed: 01-Jul-10

Prepared: 24-Jun-10 Analyzed: 01-Jul-10

113

109

101

110

101

109

Prepared: 24-Jun-10 Analyzed: 01-Jul-10

Prepared: 24-Jun-10 Analyzed: 01-Jul-10

%REC

Limits

85-115

85-115

85-115

85-115

85-115

85-115

RPD

2

0.3

0.3

51

RPD

Limit

20

20

20

20

20

20

General Chemistry Parameters - Quality Control

Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
				Pre	epared & A	nalyzed: 23-	Jun-10		
BRL		mg/l	5.00						
				Pre	epared & A	nalyzed: 23-	Jun-10		
BRL		mg/l	5.00						
				Pre	epared & A	nalyzed: 23-	Jun-10		
90.0		mg/l	10.0	91.3		99	90-110		
				Pre	epared & A	nalyzed: 23-	Jun-10		
86.0		mg/l	10.0	91.3		94	90-110		
	Result BRL BRL 90.0 86.0	Result Flag BRL BRL 90.0 86.0	ResultFlagUnitsBRLmg/lBRLmg/l90.0mg/l86.0mg/l	Result Flag Units *RDL BRL mg/l 5.00 BRL mg/l 5.00 90.0 mg/l 10.0 86.0 mg/l 10.0	ResultFlagUnits*RDLSpike LevelBRLmg/l5.00PriBRLmg/l5.00PriBRLmg/l10.091.390.0mg/l10.091.386.0mg/l10.091.3	Result Flag Units *RDL Spike Level Source Result BRL mg/l 5.00 Prepared & Ar BRL mg/l 5.00 Prepared & Ar 90.0 mg/l 10.0 91.3 Prepared & Ar Prepared & Ar 96.0 mg/l 10.0	ResultFlagUnits*RDLSpike LevelSource Result%RECPrepared & Analyzed: 23-BRLmg/l5.00Prepared & Analyzed: 23-BRLmg/l5.00Prepared & Analyzed: 23-BRLmg/l5.00Prepared & Analyzed: 23-BRLmg/l10.091.399Prepared & Analyzed: 23-Prepared & Analyzed: 23-90.0mg/l10.091.394	ResultFlagUnits*RDLSpike LevelSource Result%REC%RECResultFlagUnits*RDL \mathbb{P} repared & Analyzed: 23-Jun-10BRLmg/l5.00 \mathbb{P} repared & Analyzed: 23-Jun-10BRLmg/l5.00 \mathbb{P} repared & Analyzed: 23-Jun-10BRLmg/l5.00 \mathbb{P} repared & Analyzed: 23-Jun-1090.0mg/l10.091.39990.0mg/l10.091.39496.0mg/l10.091.394	ResultFlagUnits $*RDL$ Spike LevelSource Result $%REC$ $%REC$ MEC MEC MEC MED BRLmg/l5.00Prepared & Analyzed: 23-Jun-10BRLmg/l5.00Prepared & Analyzed: 23-Jun-10BRLmg/l5.00Prepared & Analyzed: 23-Jun-10BRLmg/l10.091.39990-11090.0mg/l10.091.39990-11086.0mg/l10.091.39490-110

Notes and Definitions

- QR6 The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD.
- R05 Elevated Reporting Limits due to the presence of high levels of non-target analytes.
- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- NR Not Reported
- RPD Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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

Validated by: Hanibal C. Tayeh, Ph.D. Nicole Leja

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc. Project #: J12660								
Project Location: FL Roberts - Albany St - MA RTN:								
This form provides certifications for the following data set:SB14174-01 through SB14174-04								
Matr	ices: Deionized	Water						
	Ground Wa	ater						
CAM	Protocol		1	1	· · · ·			
✓ ⁸² C.	260 VOC AM 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 API CAM IX A	H	
82 C.	270 SVOC AM 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		
✓ 60 C.)10 Metals AM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC	6860 Perchlorate CAM VIII B			
Affirmative responses to questions A through F are required for "Presumptive Certainty" status								
A	Were all samples preserved (includ times?	s received in a condition of ding temperature) in the f	consistent with those des- ield or laboratory, and pr	cribed on the Chain of Cu repared/analyzed within m	stody, properly nethod holding	✓ Yes	No	
В	Were the analytic protocol(s) follow	cal method(s) and all asso wed?	ociated QC requirements	specified in the selected (CAM	✔ Yes	No	
С	Were all required protocol(s) imple	d corrective actions and a emented for all identified	nalytical response action performance standard no	s specified in the selected on-conformances?	CAM	✓ Yes	No	
D	D Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?✓ YesNo							
Е	Ea. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)?YesNb. APH and TO-15 Methods only: Was the complete analyte list reported for each method?YesN						No No	
F	F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)? ✓ Yes Notes the standard non-conformance standard non-conformances identified and the standard non-conformance standard non-conformance standard non-conformance standard non-conformances identified and the standard non-conformance s							
Responses to questions G, H and I below are reauired for "Presumptive Certainty" status								
G	GWere the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?Yes✓ No							
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40, 1056 (2)(k) and WSC-07-350.								
Н	IWere all QC performance standards specified in the CAM protocol(s) achieved?Yes✓ No						No	
I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes 🗸 No								
All ne	gative responses ar	e addressed in a case narra	tive on the cover page of th	is report.				
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.								
	bra							
	Hanibal C. Tayeh, Ph.D. President/Laboratory Director							

							1				
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		×			w w	32	2	12:02	12/9	I and	-
	XXX	×	3		2	32	9	12:00	6/21/10	Mainfluers	IC.
State specific reporting standard	TPH TS TOTA	BTEX	# of P	# of C	# of V	Matrix	Туре	Time:	Date:	Id: Sample Id:	Lab
Other Standard DNo QC	146 S AL A.	MARE	lastic	lear Gl	OA Vi	L			Composite	G=Grab C=	
Chrowide MA DEP MCP CAM Re Drowide CT DPH RCP Report QA/QC Reporting Level	y sfe	3 E WE - 182008		ass	als		General Contra	- wastewater idge A=Air }=)=Soil SL=Sh X	SW= Surface Water SQ X2=	
-	Analogae.			Sandanian				=Wastowator	inducator W/W	rinkino Water GW=Grou	W
de below: QA/QC Reporting Notes	t preservative co	2 Lis	Ĥ	=CH3O	tid 7	orbic Ac	6=Asci	3 S=NaOH	I ₂ SO ₄ 4=HNC 10=	=Na ₂ S2O ₃ 2=HCl 3=F aHSO ₄ 9=	8= N
03/4	mpler(s):	Sa	8	QN.C				P.O. No.	2014) 4	Mgr. KD.	rojeci
TERST State: MA	cation: Am	Lo	0[[3	1			an S	(2.00) (2.04)	ijizist i	one # 227 341 256 00 010000	Talanh
L. ROBERTS	e Name: F.	Sit	β Å _s ;				-0160 -1 -1	an She		20 ju 20 ju 20 ju	
12660	ject No.: T	Pro	AN	An	4	C	e M	Invoice .	, v	To: KELLY	Report
Special Handling: Standard TAT - 7 to 10 business days Rush TAT - Date Needed: All TATs subject to laboratory approv Min. 24-hour notification needed for rushes. Samples disposed of after 60 days unless otherwise instructed.	ORD	REC	YС	IO.	LSI	CL	OF	HAIN	0	SPECTRUM AVALY TICAL, INC.	

Fax 4137892776

Jun 23 2010 01:50pm P003/003

F.L. Roberts Amherst MA J12660.00 Phase 05		Groundwater Treatment System Remediation General Permit							
2	-			GI	assware			د	
Parmeters	Matrix	Point of Sample or Measurement	40-ml HCI preserved vials	500 mL preserved with HNO ₃	500 mL unpreserved	1 amber liter H ₂ SO ₄ preserved	Reportable Detction Limit	Analytical Method	
TSS	GW	influent &			1		5 mail	Method SM25400	
Total Arsenic (As)	GW	influent & effluent					5 ug/L	Matrice 3M2340D	
Total Copper (Cu)	GW	influent & effluent		1			5ug/L	ICP	
Total Iron (Fe)	GW	influent & effluent					5ug/L		
ТРН	GW	influent & effluent				1	5 mg/L	Method 1664	
BTEX, MtBE, naphthalene	GW	influent, midpoint, effluent	3				2 ug/L	Method 8260B for BTEX, MtBE, nephthalene only	
Trip Blank	DI	in cooler	1				2 ug/L	Method 8250B for BTEX, MtBE, naphthalene only	
Notes: Method Detection Limits specified									
Measure and Record the followi	ng:				E.				
Instantaneous Flow		Burtom							
Total Flow		system		1.12					
u .		oyacciti							

J12660 RGP parameters.xls

System Sampling

Report Date: 30-Sep-10 16:14



Final Report
 Re-Issued Report
 Revised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Kelly Doherty

Project: FL Roberts - Amherst, MA Project #: J12660.94

Laboratory ID	Client Sample ID	<u>Matrix</u>	Date Sampled	Date Received
SB15497-01	Influent	Ground Water	19-Jul-10 13:30	20-Jul-10 09:02
SB15497-02	Mid PT	Ground Water	19-Jul-10 13:32	20-Jul-10 09:02
SB15497-03	Effluent	Ground Water	19-Jul-10 13:34	20-Jul-10 09:02
SB15497-04	Trip	Ground Water	19-Jul-10 00:00	20-Jul-10 09:02

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:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 15 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

indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

CASE NARRATIVE:

The samples were received 2.9 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

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.

The chain of custody requested TSS for both the Influent and Effluent samples. Due to laboratory error only the Influent sample was analyzed for this test.

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

SW846 8260B/C

Laboratory Control Samples:

1016009 BS/BSD

Methyl tert-butyl ether percent recoveries (62/63) are outside individual acceptance criteria (70-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Effluent Influent

Trip

1016067 BS/BSD

Methyl tert-butyl ether percent recoveries (63/63) are outside individual acceptance criteria (70-130), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

Mid PT

Samples:

S006962-CCV1

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

Methyl tert-butyl ether (-38.2%)

This affected the following samples:

1016009-BLK1 1016009-BS1 1016009-BSD1 Effluent Influent Trip

S006991-CCV1
SW846 8260B/C

Samples:

S006991-CCV1

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

Methyl tert-butyl ether (-35.7%)

This affected the following samples:

1016067-BLK1 1016067-BS1 1016067-BSD1 Mid PT

SB15497-01 Influent

The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).

Ethylbenzene m,p-Xylene Naphthalene o-Xylene

SB15497-01RE1 Influent

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

Sample Id	entification		Clian	t Draigat d	L	Motrix	Calla	ation Data	/Time	Da	animad	
Influent			<u>Unen</u>	<u>1 PIOJECI +</u>	<u>+</u>	Iviau ix Ground W	<u> </u>	Unit 10 12	20	20	Jul 10	
SB15497-	01		J12	2000.94		Giouna w	ater 19	-Jui-10 13.	.30	20-	Jui-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared	rganic Aromatics by SW846 8260 by method SW846 5030 Water M) <u>B</u> IS										
71-43-2	Benzene	26.8		µg/l	1.0	1	SW846 8260B/C	28-Jul-10	29-Jul-10	eq	1016009	
100-41-4	Ethylbenzene	247	E	µg/l	1.0	1		"		"		
1634-04-4	Methyl tert-butyl ether	32.9		µg/l	1.0	1		"		"		
91-20-3	Naphthalene	131	E	µg/l	1.0	1	"	"		"		
108-88-3	Toluene	16.5		µg/l	1.0	1	"	"		"		
179601-23-1	m,p-Xylene	597	E	µg/l	2.0	1	"	"		"		
95-47-6	o-Xylene	157	E	µg/l	1.0	1	"		"	"		
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	102			70-130 %		"	"		"		
2037-26-5	Toluene-d8	102			70-130 %		"	"		"		
17060-07-0	1,2-Dichloroethane-d4	105			70-130 %			"		"		
1868-53-7	Dibromofluoromethane	98			70-130 %			"		"		
Re-analys	is of Volatile Organic Aromatics by mothed SW846 5030 Water M	oy SW846 82	60B GS1									
100-41-4	Ethylhenzene	202		ua/l	25.0	25	SW/846 8260B/C	29- Jul-10	29 <u>- lul-</u> 10	ea	1016067	
91-20-3	Nanhthalene	04.8		µg/l	25.0	25	"	"	"	"	"	
179601-23-1		554		µg/i	50.0	25				"		
95-47-6		127		µg/i	25.0	25				"		
	С-Луюне	121		μ9/1	20.0	25						
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	96			70-130 %		"	"				
2037-26-5	Toluene-d8	100			70-130 %		"	"		"	"	
17060-07-0	1,2-Dichloroethane-d4	100			70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	98			70-130 %		"	"	"	"		
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	22-Jul-10	23-Jul-10	JK	1015527	
Total Meta	lls by EPA 6000/7000 Series Metho	ds										
7440-38-2	Arsenic	0.0079		mg/l	0.0040	1	SW846 6010B	28-Jul-10	30-Jul-10	TBG	1016042	
7440-50-8	Copper	0.0188		mg/l	0.0050	1		"	29-Jul-10	"		
7439-89-6	Iron	17.7		mg/l	0.0150	1		"	"	"	"	
General Cl	hemistry Parameters											
	Total Suspended Solids	32.0		mg/l	10.0	1	SM2540D	21-Jul-10	21-Jul-10	SJL	1015486	х

Sample Identification Mid PT SB15497-02 CAS No. Analyte(s) Result			<u>Client Project #</u> J12660.94			<u>Matrix</u> Ground W	<u>c</u> <u>Collection Date/Time</u> /ater 19-Jul-10 13:32			Received 20-Jul-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared I	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS											
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	29-Jul-10	29-Jul-10	eq	1016067	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"		
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"		
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"	"	"		
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"		
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"	"	"		
95-47-6	o-Xylene	BRL		µg/l	1.0	1	u.		"	"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	93			70-130 %			"	"	"		
2037-26-5	Toluene-d8	99			70-130 %			"	"	"		
17060-07-0	1,2-Dichloroethane-d4	112			70-130 %				"	"	"	
1868-53-7	Dibromofluoromethane	94			70-130 %			"	"	"		

Sample Id	entification		Climat	Duning	1	Matuia	Calla	atian Data	/T:	р.	: 4	
Effluent			<u>Unent</u>		<u>+</u>		<u>Colle</u>	L 1 10 12	<u>24</u>	<u>Re</u>	<u>L L L L L L L L L L L L L L L L L L L </u>	
SB15497-	03		J12	660.94	,	Jround W	ater 19	-Jul-10 13	:34	20-	Jui-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared	ganic Aromatics by SW846 826 by method SW846 5030 Water N	<u>0B</u> <u>MS</u>										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	28-Jul-10	29-Jul-10	eq	1016009	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"			"		
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"			"		
91-20-3	Naphthalene	BRL		µg/l	1.0	1				"		
108-88-3	Toluene	BRL		µg/l	1.0	1				"		
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1				"		
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	100			70-130 %			"	"	"	"	
2037-26-5	Toluene-d8	97			70-130 %		"			"		
17060-07-0	1,2-Dichloroethane-d4	102			70-130 %		"					
1868-53-7	Dibromofluoromethane	96			70-130 %					"		
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	22-Jul-10	23-Jul-10	JK	1015527	
Total Meta	lls by EPA 6000/7000 Series Metho	ods										
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	SW846 6010B	28-Jul-10	30-Jul-10	TBG	1016042	
7440-50-8	Copper	BRL		mg/l	0.0050	1			29-Jul-10	"		
7439-89-6	Iron	BRL		mg/l	0.0150	1				"		

Sample Id Trip SB15497-	entification 04		<u>Client</u> J12	<u>Project #</u> 660.94		<u>Matrix</u> Ground W	<u>Colle</u> ater 19	ction Date	<u>/Time</u> :00	<u>Re</u> 20-	<u>ceived</u> Jul-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared	rganic Aromatics by SW846 8260B by method SW846 5030 Water MS											
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	28-Jul-10	29-Jul-10	eq	1016009	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"				
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"				
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"		"		
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"				
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	93			70-130 %			"	"	"	"	
2037-26-5	Toluene-d8	98			70-130 %			"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	113			70-130 %			"		"	"	
1868-53-7	Dibromofluoromethane	101			70-130 %		"	"				

A seclada (~)	Dervit	Ela a	1 J:4-	*001	Spike	Source	0/DEC	%REC	DDD	RPD
Analyte(s)	Kesuit	Flag	Units	*KDL	Level	Result	%KEC	Limits	KPD	Limit
Batch 1016009 - SW846 5030 Water MS					_					
<u>Blank (1016009-BLK1)</u>					Pre	epared & Ar	nalyzed: 28-	<u>Jul-10</u>		
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
	BRL		µg/I	1.0						
loluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/I	1.0						
Surrogate: 4-Bromofluorobenzene	28.9		µg/l		30.0		96	70-130		
Surrogate: Toluene-d8	30.0		µg/l		30.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	32.4		µg/l		30.0		108	70-130		
Surrogate: Dibromofluoromethane	30.9		µg/l		30.0		103	70-130		
LCS (1016009-BS1)					Pre	epared & Ar	nalyzed: 28-	<u>Jul-10</u>		
Benzene	20.6		µg/l		20.0		103	70-130		
Ethylbenzene	20.8		µg/l		20.0		104	70-130		
Methyl tert-butyl ether	12.4	QC2	µg/l		20.0		62	70-130		
Naphthalene	18.9		µg/l		20.0		95	70-130		
Toluene	19.4		µg/l		20.0		97	70-130		
m,p-Xylene	42.0		µg/l		40.0		105	70-130		
o-Xylene	21.4		µg/l		20.0		107	70-130		
Surrogate: 4-Bromofluorobenzene	30.6		µg/l		30.0		102	70-130		
Surrogate: Toluene-d8	29.8		µg/l		30.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	31.2		µg/l		30.0		104	70-130		
Surrogate: Dibromofluoromethane	29.2		µg/l		30.0		97	70-130		
LCS Dup (1016009-BSD1)					Pre	epared & Ar	nalyzed: 28-	Jul-10		
Benzene	20.4		µg/l		20.0		102	70-130	1	25
Ethylbenzene	21.1		µg/l		20.0		106	70-130	1	25
Methyl tert-butyl ether	12.6	QC2	µg/l		20.0		63	70-130	2	25
Naphthalene	21.0		µg/l		20.0		105	70-130	10	25
Toluene	20.7		µg/l		20.0		104	70-130	6	25
m,p-Xylene	42.1		µg/l		40.0		105	70-130	0.2	25
o-Xylene	22.6		µg/l		20.0		113	70-130	6	25
Surrogate: 4-Bromofluorobenzene	30.7		µg/l		30.0		102	70-130		
Surrogate: Toluene-d8	30.0		µg/l		30.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	30.9		µg/l		30.0		103	70-130		
Surrogate: Dibromofluoromethane	31.3		µg/l		30.0		104	70-130		
Batch 1016067 - SW846 5030 Water MS										
<u>Blank (1016067-BLK1)</u>					Pre	epared & Ar	nalyzed: 29-	Jul-10		
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
Naphthalene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	29.8		µg/l		30.0		99	70-130		
Surrogate: Toluene-d8	30.6		µg/l		30.0		102	70-130		
Surrogate: 1,2-Dichloroethane-d4	33.3		µg/l		30.0		111	70-130		
Surrogate: Dibromofluoromethane	31.4		µg/l		30.0		105	70-130		
LCS (1016067-BS1)					Pre	epared & Ar	nalyzed: 29-	Jul-10		
Benzene	20.6		µg/l		20.0		103	70-130		

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* Reportable Detection Limit BRL = Below Reporting Limit

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Patch 1016067 SW846 5020 Watar MS										
L CS (4046067 BS4)					Dr	anarad 8 Ar	aluzad: 20	LUI 10		
<u>LCS (1016067-BS1)</u>	22.0				20.0		110	- <u>Jul-10</u> 70.120		
Eurypenzene Method tort but diether	22.0	002	µg/i		20.0		62	70-130		
	12.0	QUZ	µg/i		20.0		100	70-130		
Taluare	20.1		µg/i		20.0		100	70-130		
Toluene	20.2		µg/i		20.0		101	70-130		
m,p-Xylene	44.4		µg/l		40.0		111	70-130		
o-Xylene	22.5		µg/l		20.0		113	70-130		
Surrogate: 4-Bromofluorobenzene	31.5		µg/l		30.0		105	70-130		
Surrogate: Toluene-d8	29.6		µg/l		30.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	29.8		µg/l		30.0		99	70-130		
Surrogate: Dibromofluoromethane	29.5		µg/l		30.0		98	70-130		
LCS Dup (1016067-BSD1)					Pre	epared & Ar	nalyzed: 29-	<u>-Jul-10</u>		
Benzene	21.4		µg/l		20.0		107	70-130	4	25
Ethylbenzene	22.1		µg/l		20.0		110	70-130	0.2	25
Methyl tert-butyl ether	12.6	QC2	µg/l		20.0		63	70-130	0.7	25
Naphthalene	20.0		µg/l		20.0		100	70-130	0.4	25
Toluene	20.8		µg/l		20.0		104	70-130	3	25
m,p-Xylene	43.9		µg/l		40.0		110	70-130	1	25
o-Xylene	22.2		µg/l		20.0		111	70-130	2	25
Surrogate: 4-Bromofluorobenzene	30.0		µg/l		30.0		100	70-130		
Surrogate: Toluene-d8	29.5		µg/l		30.0		98	70-130		
Surrogate: 1,2-Dichloroethane-d4	28.3		µg/l		30.0		94	70-130		
Surrogate: Dibromofluoromethane	28.8		µg/l		30.0		96	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1015527 - SW846 3510C										
<u>Blank (1015527-BLK1)</u>					Pre	epared: 22-	Jul-10 Ana	lyzed: 23-Ju	<u>l-10</u>	
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (1015527-BS1)					Pre	epared: 22-	Jul-10 Ana	lyzed: 23-Ju	<u>l-10</u>	
Non-polar material (SGT-HEM)	25.9		mg/l		31.0		84	83-101		

Total Metals by EP.	A 6000/7000 Series	Methods - Qual	ity Control
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Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
(interfector)	Rebuit	Thug	enits	RBE	Level	Result	/wither	Linns	NI D	Linnt
Batch 1016042 - SW846 3005A										
<u>Blank (1016042-BLK1)</u>					Pre	epared: 28-	Jul-10 Ana	lyzed: 29-Ju	<u>l-10</u>	
Iron	BRL		mg/l	0.0150						
Copper	BRL		mg/l	0.0050						
Arsenic	BRL		mg/l	0.0040						
LCS (1016042-BS1)					Pre	epared: 28-	Jul-10 Ana	lyzed: 29-Ju	<u>l-10</u>	
Iron	1.19		mg/l	0.0150	1.25		95	85-115		
Arsenic	1.14		mg/l	0.0040	1.25		91	85-115		
Copper	1.35		mg/l	0.0050	1.25		108	85-115		
LCS Dup (1016042-BSD1)					Pre	epared: 28-	Jul-10 Ana	llyzed: 29-Ju	<u>l-10</u>	
Iron	1.21		mg/l	0.0150	1.25		97	85-115	2	20
Copper	1.36		mg/l	0.0050	1.25		109	85-115	1	20
Arsenic	1.16		mg/l	0.0040	1.25		93	85-115	2	20

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1015486 - General Preparation										
<u>Blank (1015486-BLK1)</u>					Pre	epared & Ar	nalyzed: 21-	Jul-10		
Total Suspended Solids	BRL		mg/l	5.00						
LCS (1015486-BS1)					Pre	epared & Ar	nalyzed: 21-	Jul-10		
Total Suspended Solids	88.0		mg/l	10.0	91.3		96	90-110		

Notes and Definitions

- E The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).
- GS1 Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
- QC2 Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- NR Not Reported
- RPD Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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

Validated by: Hanibal C. Tayeh, Ph.D. June O'Connor Kimberly Wisk Nicole Leja

MassDEP Analytical Protocol Certification Form

Labo	ratory Name: Spe	ectrum Analytical, Inc.		Project #: J12660	.94	
Proje	ect Location: FL F	Roberts - Amherst, MA		RTN:		
This	form provides cen	rtifications for the follow	ving data set: S	B15497-01 through SB15	497-04	
Matr	ices: Ground Wa	ater				
CAM	l Protocol					
✓ 82 C	260 VOC AM 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
82 C.	270 SVOC AM 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
✓ 60 C.)10 Metals AM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
		Affirmative responses	to questions A through 1	F are required for "Presu	mptive Certainty" status	
А	Were all samples preserved (incluc times?	s received in a condition ling temperature) in the f	consistent with those deso ield or laboratory, and pr	cribed on the Chain of Cu epared/analyzed within m	stody, properly ethod holding	✓ Yes No
В	Were the analytic protocol(s) follow	cal method(s) and all asse wed?	ociated QC requirements	specified in the selected C	CAM	✓ Yes No
С	Were all required protocol(s) imple	l corrective actions and a mented for all identified	nalytical response action performance standard no	s specified in the selected on-conformances?	CAM	Yes 🖌 No
D	Does the laborate Assurance and Q	ory report comply with a quality Control Guideline	Il the reporting requireme s for the Acquisition and	nts specified in CAM VII Reporting of Analytical I	A, "Quality Data"?	✓ Yes No
E	a. VPH, EPH, an b. APH and TO-	d APH Methods only: W 15 Methods only: Was th	as each method conducter complete analyte list re	ed without significant mod ported for each method?	lification(s)?	Yes No Yes No
F	Were all applical evaluated in a lab	ble CAM protocol QC an poratory narrative (includ	d performance standard r ling all "No" responses to	non-conformances identifi questions A through E)?	ed and	✓ Yes No
		Responses to quest	ions G, H and I below ar	e required for "Presump	tive Certainty" status	
G	Were the reporting	ng limits at or below all (CAM reporting limits spe	cified in the selected CAM	/ protocol(s)?	Yes 🖌 No
<u>Data</u> requir	L <u>User Note:</u> Data tha cements described in	at achieve "Presumptive Ce a 310 CMR 40. 1056 (2)(k)	rtainty" status may not nec and WSC-07-350.	essarily meet the data usabi	lity and representativeness	
Н	Were all QC perf	formance standards speci	fied in the CAM protoco	l(s) achieved?		Yes 🖌 No
Ι	Were results repo	orted for the complete an	alyte list specified in the	selected CAM protocol(s)	?	✓ Yes No
All ne	gative responses are	e addressed in a case narra	tive on the cover page of th	is report.		
I, the inform	undersigned, attest nation, the material	under the pains and penal contained in this analytica	ties of perjury that, based up Il report is, to the best of my	oon my personal inquiry of a v knowledge and belief, accu	those responsible for obtaining rate and complete.	the
					Hanibal C. Taveh. Ph. I	
					President/Laboratory I	Director

Date: 9/30/2010

そうようし DW=Drinking Water GW=Groundwater WW=Wastewater O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air =1XProject Mgr. Telephone #: Report To: _ $8 = NaHSO_4$ Lab Id: $1 = Na_2S2O_3$ 20 2 Relinquished by: SPECTRUM ANALYTICAL, INC HANIBAL TECHNOLOGY SERVICE S TRIP WAUENT A LO CIUN 9= $\overline{}$ Sample Id: 2=HCI - /CΣ 5 0 G=Grab X2 = $3=H_2SO_4$ $4=HNO_3$ C=Composite 11 Almgren Drive • Agawam, MA 01001 • 413-789-9018 • FAX 413-789-4076 • www.spectrum-analytical.com J 19/10 Date: 9 9 2 10= CHAIN OF CUSTODY RECORD X3= ceived by fres 5=NaOH 25 132 05:0 C War Time: P.O. No.: Invoice To: 6=Ascorbic Acid 2 5 3 2 Туре 5 36 32 12 30 Page _ Matrix Date: 2010 3 # of VOA Vials à W atu m _ of / # of Amber Glass 7=CH₃OH RQN:000 Containers: # of Clear Glass 206 Time: # of Plastic N N 1 W 2.9 Temp^oC Sampler(s): Site Name: Project No .: List preservative code below: Location: Ann HENST BTEX, MTBZ+ NAPTHALENCONLY Ambient X Iced Refrigerated Fridge temp TE-mail tokdoherty ECS Censur. Com □ EDD Format X N X PY 82Colo Analyses: W D1+1664 212600 \times Koll-H LICOBERT Standard TAT - 7 to 10 business days Rush TAT - Date Needed: TSS TOTAL As, Cu, F. X 0 · Min. 24-hour notification needed for rushes $\boldsymbol{\times}$ Samples disposed of after 60 days unless otherwise instructed. All TATs subject to laboratory approval 4 X × SB ISUAT BY Special Handling: Provide MA DEP MCP CAM Report State specific reporting standards: □ Other QA/QC Reporting Notes: QA/QC Reporting Level (check as needed) °C Freezer temp State: MAR

F.L. Roberts Amherst MA J12660.00 Phase 05			Groundwa Remedia	ter Treatm ation Gene	ent Syster ral Permit	n	~	
	[1	Gla	assware		,	4
Parmeters	Matrix	Point of Sample or Measuremen	40-ml HCl preserved vials	500 mL preserved with HNO_3	500 mL unpreserved	1 amber liter H_2SO_4 preserved	Reportable Detction Limit	Analytical Method
	CINI	influent &			1		5 mg/l	Method SM2540D
	Gvv	effluent		() ()	1		0 mg/L	
Total Arsenic (As)	GW	effluent					5 ug/L	
Total Copper (Cu)	GW	influent & effluent	-	1	×		5ug/L	ICP
Total Iron (Fe)	GW	effluent					5ug/L	
ТРН	GW	influent & effluent				1	5 mg/L	Method 1664
BTEX, MtBE, naphthalene	GW	influent, midpoint, effluent	3				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only
Trip Blank	DI	in cooler	1				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only
								L.
Notes: Method Detection Limits specified	1	1			, ,			
Measure and Record the followi	ina:							
Instantaneous Flow		system		·			*	4. h.
Total Flow		system						
		The second s						

July 10 RGP xls

System Sampling

Report Date: 30-Sep-10 16:48



Final Report
 Re-Issued Report
 Revised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Kelly Doherty

Project: 399 Northampton St-Amherst, MA Project #: J12660.00

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB16844-01	Influent	Ground Water	17-Aug-10 12:10	17-Aug-10 15:41
SB16844-02	Midpoint	Ground Water	17-Aug-10 12:20	17-Aug-10 15:41
SB16844-03	Effluent	Ground Water	17-Aug-10 12:30	17-Aug-10 15:41
SB16844-04	Trip Blank	Deionized Water	17-Aug-10 08:00	17-Aug-10 15:41

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:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 14 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be

reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

CASE NARRATIVE:

The samples were received 3.1 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

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.

The chain of custody requested method TPH 8100 for the Influent and Effluent samples. This method was used instead of the permit specified method 1664. The LIMS was updated on September 30, 2010 to reference method 1664 must be used in the future.

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

SW846 8260B/C

Calibration:

S007421-ICV1

Analyte percent recovery is outside individual acceptance criteria (70-130).

Methyl tert-butyl ether (220%)

This affected the following samples:

1017727-BLK1 1017727-BSD1 1017727-MSD1 1017727-MSD1 1018136-BLK1 1018136-BSD1 Effluent Influent Midpoint S007682-CCV1 S007858-CCV1 Trip Blank

Samples:

SB16844-01 Influent

Elevated Reporting Limits due to the presence of high levels of non-target analytes.

Sample Id	entification		Client	Drojoot #		Motrix	Calle	ation Data	/Time	Pa	aniwad	
Influent			<u>Unem</u> 112	<u>F10ject #</u>		Tround W	L <u>COIR</u>	Aug 10 12	$\frac{11110}{110}$	17	Aug 10	
SB16844-	01		J12	000.00	,	Jiouna w		-Aug-10 12	2.10	1/-1	Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared	rganic Aromatics by SW846 8260B by method SW846 5030 Water MS		R05									
71-43-2	Benzene	20.0		µg/l	20.0	20	SW846 8260B/C	25-Aug-10	25-Aug-10	JLG	1018136	
100-41-4	Ethylbenzene	187		µg/l	20.0	20	"	"		"		
1634-04-4	Methyl tert-butyl ether	51.4		µg/l	20.0	20	"	"		"		
91-20-3	Naphthalene	91.6		µg/l	20.0	20	"	"		"	"	
108-88-3	Toluene	BRL		µg/l	20.0	20	"	"		"	"	
179601-23-1	m,p-Xylene	418		µg/l	40.0	20	"	"		"	"	
95-47-6	o-Xylene	95.0		µg/l	20.0	20	"			"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	101			70-130 %		"	"				
2037-26-5	Toluene-d8	101			70-130 %		"	"		"		
17060-07-0	1,2-Dichloroethane-d4	102			70-130 %		"	"		"		
1868-53-7	Dibromofluoromethane	104			70-130 %		"	"		"		
Extractabl	e Petroleum Hydrocarbons											
<u>TPH 8100</u> Prepared	<u>by GC</u> by method SW846 3510C											
8006-61-9	Gasoline	Calculated as		mg/l	0.2	1	+SW846 8100Mod	. 20-Aug-10	22-Aug-10	SHM	1017777	
68476-30-2	Fuel Oil #2	BRL		mg/l	0.2	1	"	"		"		
68476-31-3	Fuel Oil #4	BRL		mg/l	0.2	1	"	"			"	
68553-00-4	Fuel Oil #6	BRL		mg/l	0.2	1	"	"		"		
M09800000	Motor Oil	BRL		mg/l	0.2	1	"	"		"		
8032-32-4	Ligroin	BRL		mg/l	0.2	1	"	"		"		
J00100000	Aviation Fuel	BRL		mg/l	0.2	1	"	"		"		
	Hydraulic Oil	BRL		mg/l	0.2	1	"	"		"		
	Dielectric Fluid	BRL		mg/l	0.2	1	"	"		"		
	Unidentified	2.3		mg/l	0.2	1	"	"		"		
	Other Oil	Calculated as		mg/l	0.2	1	"			"		
	Total Petroleum Hydrocarbons	2.3		mg/l	0.2	1	"	"			"	
Surrogate r	ecoveries:											
3386-33-2	1-Chlorooctadecane	126			40-140 %		"	"		"		
Total Meta	lls by EPA 6000/7000 Series Methods											
7440-38-2	Arsenic	0.0082		mg/l	0.0040	1	SW846 6010B	25-Aug-10	26-Aug-10	TBG	1018128	
7440-50-8	Copper	0.0182		mg/l	0.0050	1		"		"		
7439-89-6	Iron	19.3		mg/l	0.0150	1		"		"	"	
General Cl	hemistry Parameters											
	Total Suspended Solids	52.0		mg/l	20.0	1	SM2540D	19-Aug-10	19-Aug-10	SJL	1017760	х

Sample Identification Midpoint SB16844-02		<u>Client Project #</u> J12660.00			<u>Matrix</u> Ground Water		Collection Date/Time 17-Aug-10 12:20			<u>Received</u> 17-Aug-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	ganic Compounds											
Volatile Or Prepared I	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS											
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	19-Aug-10	19-Aug-10	JRO	1017727	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"	"	"		
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"	"	"		
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"			"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	96			70-130 %			"	"	"	"	
2037-26-5	Toluene-d8	100			70-130 %			"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	109			70-130 %			"	"	"		
1868-53-7	Dibromofluoromethane	106			70-130 %			"	"	"		

Sample Id	entification		Client	t Project +	4	Motrix	Calle	ation Data	/Time	Pa	anivad	
Effluent			<u>Unen</u> 112	2660.00	<u>+</u>	Ground W	<u> </u>	Aug 10 1	2.30	17	Aug 10	
SB16844-	03		J12	.000.00				-Aug-10 12	2.50	1/-1	Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or	rganic Aromatics by SW846 8260	<u>B</u>										
Prepared	by method SW846 5030 Water M	<u>s</u>										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	19-Aug-10	19-Aug-10	JRO	1017727	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"		"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"		"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"		"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"		"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"	"	
Surrogate r	recoveries:											
460-00-4	4-Bromofluorobenzene	97			70-130 %		"	"		"	"	
2037-26-5	Toluene-d8	100			70-130 %		"	"		"	"	
17060-07-0	1,2-Dichloroethane-d4	109			70-130 %		"	"		"	"	
1868-53-7	Dibromofluoromethane	103			70-130 %		"	"		"	"	
Extractabl	e Petroleum Hydrocarbons											
<u>TPH 8100</u> Prepared	by GC by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod	. 20-Aug-10	22-Aug-10	SHM	1017777	
68476-30-2	Fuel Oil #2	BRL		mg/l	0.2	1	"	"				
68476-31-3	Fuel Oil #4	BRL		mg/l	0.2	1	"					
68553-00-4	Fuel Oil #6	BRL		mg/l	0.2	1	"	"			"	
M09800000	Motor Oil	BRL		ma/l	0.2	1	"	"			"	
8032-32-4	Liaroin	BRL		ma/l	0.2	1	"	"			"	
J00100000	Aviation Fuel	BRL		ma/l	0.2	1	"	"			"	
	Hydraulic Oil	BRI		ma/l	0.2	1	"					
	Dielectric Fluid	BRI		ma/l	0.2	1	"					
		BRI		ma/l	0.2	1						
	Other Oil	BRI		ma/l	0.2	1						
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"				"	
Surrogate r	ecoveries:											
3386-33-2	1-Chlorooctadecane	116			40-140 %		"				"	
Total Meta	als by EPA 6000/7000 Series Method	ls										
7440-38-2	Arsenic	0.0166		ma/l	0.0040	1	SW846 6010B	25-Aua-10	26-Aua-10	TBG	1018128	
7440-50-8	Copper	BRL		ma/l	0.0050	1	"	"	"	"		
7439-89-6	Iron	0.0254		ma/l	0.0150	1					"	
General C	hemistry Parameters	0.0201			0.0100							
General Cl	Total Suspended Solids	6.00		ma/l	5.00	1	SM2540D	19-Aua-10	19-Aua-10	S,II	1017760	х
		0.00			5.00		CITEOTOD	10 / lug 10	.0 / .09 10	COL		~

Sample Identification Trip Blank SB16844-04		<u>Client Project #</u> J12660.00		D	<u>Matrix</u> Deionized Water		Collection Date/Time 17-Aug-10 08:00			<u>Received</u> 17-Aug-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	ganic Compounds											
Volatile Or Prepared I	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS											
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	19-Aug-10	19-Aug-10	JRO	1017727	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1			"	"		
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	97			70-130 %			"	"	"	"	
2037-26-5	Toluene-d8	100			70-130 %			"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	103			70-130 %			"	"	"		
1868-53-7	Dibromofluoromethane	103			70-130 %		"	"				

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Ratch 1017727 - SW846 5030 Water MS										
Blank (1017727-BI K1)					Pre	enared & Ar	nalvzed [.] 19-	Aug-10		
Benzene	BRI		ua/l	10	<u></u>		<u>a.j.2001 10</u>	<u>, ag io</u>		
Ethylbenzene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		ua/l	1.0						
Naphthalene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		μg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	48.9		ua/l		50.0		98	70-130		
Surrogate: Toluene-d8	49.6		ua/l		50.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	50.8		µg/l		50.0		102	70-130		
Surrogate: Dibromofluoromethane	52.0		µg/l		50.0		104	70-130		
LCS (1017727-BS1)			10		Pre	epared & Ar	alvzed: 19-	Aua-10		
Benzene	19.2		ua/l		20.0		96	70-130		
Ethylbenzene	21.1		µg/l		20.0		106	70-130		
Methyl tert-butyl ether	18.5		ua/l		20.0		92	70-130		
Naphthalene	16.1		µg/l		20.0		80	70-130		
Toluene	19.7		ua/l		20.0		99	70-130		
m.p-Xvlene	44.7		ua/l		40.0		112	70-130		
o-Xylene	21.9		μg/l		20.0		109	70-130		
Surrogate: 4-Bromofluorobenzene	53.4		µg/l		50.0		107	70-130		
Surrogate: Toluene-d8	50.6		µg/l		50.0		101	70-130		
Surrogate: 1,2-Dichloroethane-d4	48.9		µg/l		50.0		98	70-130		
Surrogate: Dibromofluoromethane	51.3		µg/l		50.0		103	70-130		
LCS Dup (1017727-BSD1)					Pre	epared & Ar	alyzed: 19-	Aug-10		
Benzene	18.7		µg/l		20.0		93	70-130	3	25
Ethylbenzene	20.4		µg/l		20.0		102	70-130	4	25
Methyl tert-butyl ether	18.8		µg/l		20.0		94	70-130	1	25
Naphthalene	16.1		µg/l		20.0		81	70-130	0.1	25
Toluene	18.8		µg/l		20.0		94	70-130	5	25
m,p-Xylene	42.0		µg/l		40.0		105	70-130	6	25
o-Xylene	21.5		µg/l		20.0		108	70-130	2	25
Surrogate: 4-Bromofluorobenzene	52.9		µg/l		50.0		106	70-130		
Surrogate: Toluene-d8	49.8		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	48.8		µg/l		50.0		98	70-130		
Surrogate: Dibromofluoromethane	51.0		µg/l		50.0		102	70-130		
Matrix Spike (1017727-MS1)			Source: SE	<u> 16844-02</u>	Pre	epared & Ar	nalyzed: 19-	Aug-10		
Benzene	19.2		µg/l		20.0	BRL	96	70-130		
Ethylbenzene	24.3		µg/l		20.0	BRL	122	70-130		
Methyl tert-butyl ether	17.9		µg/l		20.0	BRL	90	70-130		
Naphthalene	21.2		µg/l		20.0	BRL	106	70-130		
Toluene	21.2		µg/l		20.0	BRL	106	70-130		
m,p-Xylene	50.4		µg/l		40.0	BRL	126	70-130		
o-Xylene	24.9		µg/l		20.0	BRL	125	70-130		
Surrogate: 4-Bromofluorobenzene	52.3		μg/l		50.0		105	70-130		
Surrogate: Toluene-d8	49.8		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	49.9		µg/l		50.0		100	70-130		
Surrogate: Dibromofluoromethane	50.5		µg/l		50.0		101	70-130		
Matrix Spike Dup (1017727-MSD1)			Source: SE	16844-02	Pre	epared & Ar	nalyzed: 19-	Aug-10		
Benzene	19.8		µg/l		20.0	BRL	99	70-130	3	30
Ethylbenzene	24.8		µg/l		20.0	BRL	124	70-130	2	30

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

* Reportable Detection Limit BRL = Below Reporting Limit

					Snike	Source		%REC		RPD
Analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit
Batch 1017727 - SW846 5030 Water MS										
<u>Matrix Spike Dup (1017727-MSD1)</u>			Source: SE	<u>316844-02</u>	Pre	epared & Ar	nalyzed: 19-	Aug-10		
Methyl tert-butyl ether	18.3		µg/l		20.0	BRL	92	70-130	2	30
Naphthalene	22.2		µg/l		20.0	BRL	111	70-130	5	30
Toluene	21.4		µg/l		20.0	BRL	107	70-130	0.8	30
m,p-Xylene	51.3		µg/l		40.0	BRL	128	70-130	2	30
o-Xylene	24.4		µg/l		20.0	BRL	122	70-130	2	30
Surrogate: 4-Bromofluorobenzene	53.3		µg/l		50.0		107	70-130		
Surrogate: Toluene-d8	49.5		µg/l		50.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	51.8		µg/l		50.0		104	70-130		
Surrogate: Dibromofluoromethane	51.4		µg/l		50.0		103	70-130		
Batch 1018136 - SW846 5030 Water MS										
Blank (1018136-BLK1)					Pre	epared & Ar	nalyzed: 25-	Aug-10		
Benzene	BRL		µg/l	1.0						
Ethylbenzene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
Naphthalene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	47.8		µg/l		50.0		96	70-130		
Surrogate: Toluene-d8	49.8		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	54.5		µg/l		50.0		109	70-130		
Surrogate: Dibromofluoromethane	52.1		µg/l		50.0		104	70-130		
LCS (1018136-BS1)					Pre	epared & Ar	nalyzed: 25-	Aug-10		
Benzene	20.3		µg/l		20.0		102	70-130		
Ethylbenzene	22.7		µg/l		20.0		114	70-130		
Methyl tert-butyl ether	20.5		µg/l		20.0		103	70-130		
Naphthalene	18.2		µg/l		20.0		91	70-130		
Toluene	20.7		µg/l		20.0		103	70-130		
m,p-Xylene	47.8		µg/l		40.0		119	70-130		
o-Xylene	23.7		µg/l		20.0		118	70-130		
Surrogate: 4-Bromofluorobenzene	53.9		µg/l		50.0		108	70-130		
Surrogate: Toluene-d8	50.3		µg/l		50.0		101	70-130		
Surrogate: 1,2-Dichloroethane-d4	50.1		µg/l		50.0		100	70-130		
Surrogate: Dibromofluoromethane	51.6		µg/l		50.0		103	70-130		
LCS Dup (1018136-BSD1)					Pre	epared & Ar	nalyzed: 25-	Aug-10		
Benzene	18.9		µg/l		20.0		95	70-130	7	25
Ethylbenzene	20.8		µg/l		20.0		104	70-130	9	25
Methyl tert-butyl ether	20.0		µg/l		20.0		100	70-130	3	25
Naphthalene	17.4		µg/l		20.0		87	70-130	4	25
Toluene	19.2		µg/l		20.0		96	70-130	8	25
m,p-Xylene	42.9		µg/l		40.0		107	70-130	11	25
o-Xylene	21.1		µg/l		20.0		106	70-130	11	25
Surrogate: 4-Bromofluorobenzene	51.5		µg/l		50.0		103	70-130		
Surrogate: Toluene-d8	49.1		µg/l		50.0		98	70-130		
Surrogate: 1,2-Dichloroethane-d4	51.1		µg/l		50.0		102	70-130		
Surrogate: Dibromofluoromethane	50.6		µg/l		50.0		101	70-130		

					Spike	Source		%REC		RPD	
analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limit	
Batch 1017777 - SW846 3510C											
<u>Blank (1017777-BLK1)</u>					Pre	epared & Ar	nalyzed: 20	-Aug-10			
Gasoline	BRL		mg/l	0.1							
Fuel Oil #2	BRL		mg/l	0.1							
Fuel Oil #4	BRL		mg/l	0.1							
Fuel Oil #6	BRL		mg/l	0.1							
Motor Oil	BRL		mg/l	0.1							
Ligroin	BRL		mg/l	0.1							
Aviation Fuel	BRL		mg/l	0.1							
Hydraulic Oil	BRL		mg/l	0.1							
Dielectric Fluid	BRL		mg/l	0.1							
Unidentified	BRL		mg/l	0.1							
Other Oil	BRL		mg/l	0.1							
Total Petroleum Hydrocarbons	BRL		mg/l	0.1							
Surrogate: 1-Chlorooctadecane	0.0373		mg/l		0.0500		75	40-140			
LCS (1017777-BS1)					Pre	epared & Ar	Analyzed: 20-Aug-10				
Fuel Oil #2	9.6		mg/l	0.1	10.0		96	40-140			
Surrogate: 1-Chlorooctadecane	0.0410		mg/l		0.0500		82	40-140			
Duplicate (1017777-DUP1)			Source: SE	816844-01	Pre	epared: 20-	Aug-10 Ar	nalyzed: 22-A	<u>ug-10</u>		
Gasoline	Calculated as		mg/l	0.2		alculated a				50	
Fuel Oil #2	BRL		mg/l	0.2		BRL				50	
Fuel Oil #4	BRL		mg/l	0.2		BRL				50	
Fuel Oil #6	BRL		mg/l	0.2		BRL				50	
Motor Oil	BRL		mg/l	0.2		BRL				50	
Ligroin	BRL		mg/l	0.2		BRL				50	
Aviation Fuel	BRL		mg/l	0.2		BRL				50	
Hydraulic Oil	BRL		mg/l	0.2		BRL				50	
Dielectric Fluid	BRL		mg/l	0.2		BRL				50	
Unidentified	2.4		mg/l	0.2		2.3			4	50	
Other Oil	Calculated as		mg/l	0.2		alculated a				50	
Total Petroleum Hydrocarbons	2.4		mg/l	0.2		2.3			4	50	
Surrogate: 1-Chlorooctadecane	0.0631		mg/l		0.0521		121	40-140			

Units

mg/l

J

Source: SB16844-03

Result

BRL

BRL

BRL

1.19

1.26

1.34

1.20

1.28

1.35

0.0216

0.0020

0.0164

Flag

Analyte(s)

Iron

Iron

Arsenic

Copper

Iron

Arsenic

Copper

Iron

Copper

Arsenic

Arsenic

Copper

Batch 1018128 - SW846 3005A Blank (1018128-BLK1)

LCS (1018128-BS1)

LCS Dup (1018128-BSD1)

Duplicate (1018128-DUP1)

Spike

Level

1.25

1.25

1.25

1.25

1.25

1.25

0.0254

BRL

0.0166

*RDL

0.0150

0.0040 0.0050

0.0150

0.0040

0.0050

0.0150

0.0040

0.0050

0.0150

0.0050

0.0040

Source

Result

%REC

Prepared: 25-Aug-10 Analyzed: 26-Aug-10

Prepared: 25-Aug-10 Analyzed: 26-Aug-10

95

101

107

96

102

108

Prepared: 25-Aug-10 Analyzed: 26-Aug-10

Prepared: 25-Aug-10 Analyzed: 26-Aug-10

%REC

Limits

85-115

85-115

85-115

85-115

85-115

85-115

RPD

0.3

1

0.4

16

2

RPD

Limit

20

20

20

20

20

20

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1017760 - General Preparation										
<u>Blank (1017760-BLK1)</u>					Pre	epared & Ar	nalyzed: 19-	Aug-10		
Total Suspended Solids	BRL		mg/l	5.00						
LCS (1017760-BS1)					Pre	epared & Ar	nalyzed: 19-	Aug-10		
Total Suspended Solids	98.0		mg/l	10.0	91.3		107	90-110		

Notes and Definitions

D05	Elevated Deporting	I imite due to the	presence of high les	als of non-target analytes
KUJ	Elevated Reporting	Linnis due to the	Diesence of mgn iev	eis of non-taiget analytes.
				<u> </u>

- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- 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).

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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

Validated by: Hanibal C. Tayeh, Ph.D. Kimberly Wisk

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc. Project #: J12660.00										
Project Location: 399 Northampton St-Amherst, MA RTN:										
This form provides certifications for the following data set:SB16844-01 through SB16844-04										
Matrices: Deionized Water										
	Ground Wa	ater								
CAM Protocol										
✓ ⁸² C.	260 VOC AM II A	MassDEP APH CAM IX A								
82 C.	270 SVOC AM 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				
✓ 60 C.	010 Metals AM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC	6860 Perchlorate CAM VIII B					
		Affirmative responses	to questions A through 1	F are required for "Presu	mptive Certainty" status					
A Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?										
В	B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?									
С	C Were all required corrective actions and analytical response actions specified in the selected CAM Yes ✓ N protocol(s) implemented for all identified performance standard non-conformances?									
D	DDoes 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"?✓ YesNo									
E	Ea. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)?Yesb. APH and TO-15 Methods only: Was the complete analyte list reported for each method?Yes									
F	Were all applicat evaluated in a lat	ble CAM protocol QC and poratory narrative (includ	d performance standard i ing all "No" responses to	non-conformances identifi o questions A through E)?	ed and	🗸 Yes No				
		Responses to questi	ons G, H and I below ar	e required for "Presump	tive Certainty" status					
G	Were the reporting	ng limits at or below all C	AM reporting limits spe	cified in the selected CAM	A protocol(s)?	Yes 🖌 No				
<u>Data</u> requir	<u>User Note:</u> Data tha ements described in	t achieve "Presumptive Cen 310 CMR 40. 1056 (2)(k) d	tainty" status may not nec and WSC-07-350.	essarily meet the data usabi	lity and representativeness					
Н	Were all QC peri	formance standards speci	fied in the CAM protoco	l(s) achieved?		✓ Yes No				
Ι	Were results repo	orted for the complete and	lyte list specified in the	selected CAM protocol(s)	?	✓ Yes No				
All ne	gative responses are	e addressed in a case narrai	ive on the cover page of th	is report.						
I, the inforn	undersigned, attest nation, the material	under the pains and penalt contained in this analytica	ies of perjury that, based u l report is, to the best of my	pon my personal inquiry of t v knowledge and belief, accu	those responsible for obtaining trate and complete.	the				
					bra	_				
					Hanibal C. Tayeh, Ph.I President/Laboratory E Date: 9/30/2010	D. Director				



Report Date: 30-Sep-10 15:26



Final Report
Re-Issued Report
Revised Report

SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services 588 Silver Street Agawam, MA 01001 Attn: Kelly Doherty

Project: FL Roberts - 399 Northampton Rd - Amherst, MA Project #: J12660

Laboratory ID	Client Sample ID	<u>Matrix</u>	Date Sampled	Date Received
SB18264-01	Influent	Ground Water	17-Sep-10 10:30	17-Sep-10 12:10
SB18264-02	Mid Pt	Ground Water	17-Sep-10 10:32	17-Sep-10 12:10
SB18264-03	Effluent	Ground Water	17-Sep-10 10:34	17-Sep-10 12:10
SB18264-04	Trip	Deionized Water	16-Sep-10 00:00	17-Sep-10 12:10

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:

Hanibal C. Tayeh, Ph.D. President/Laboratory Director

Technical Reviewer's Initial:



Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 14 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report

identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

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

CASE NARRATIVE:

The samples were received 6.0 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/-2.0 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.

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 8260B/C

Calibration:

S008252-ICV1

Analyte percent recovery is outside individual acceptance criteria (70-130).

Methyl tert-butyl ether (185%)

This affected the following samples:

1020082-BLK1 1020082-BSD1 1020082-MSD1 1020082-MSD1 Effluent Influent Mid Pt S008705-CCV1 Trip

Samples:

SB18264-01 Influent

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

Sample Identification			C 1:	D		Matrix Calla			/ m :	D			
Influent SB18264-01			<u>Unent Project #</u>			Matrix		Collection Date/Time			<u>Received</u>		
			J	12660		Ground W	ater 1/	-Sep-10 10	:30	1/-			
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.	
Volatile Or	ganic Compounds												
Volatile Or Prepared	ganic Aromatics by SW846 8260 by method SW846 5030 Water M	<u>B</u> S	GS1										
71-43-2	Benzene	23.6		µg/l	20.0	20	SW846 8260B/C	23-Sep-10	23-Sep-10	EK/	1020082		
100-41-4	Ethylbenzene	264		µg/l	20.0	20	"	"		"			
1634-04-4	Methyl tert-butyl ether	56.6		µg/l	20.0	20	"	"		"	"		
91-20-3	Naphthalene	101		µg/l	20.0	20	"	"		"	"		
108-88-3	Toluene	BRL		µg/l	20.0	20	"	"		"	"		
179601-23-1	m,p-Xylene	533		µg/l	40.0	20	"	"		"	"		
95-47-6	o-Xylene	133		µg/l	20.0	20	"	"		"	"		
Surrogate r	ecoveries:												
460-00-4	4-Bromofluorobenzene	104			70-130 %		"	"	"	"	"		
2037-26-5	Toluene-d8	93			70-130 %		"	"	"	"	"		
17060-07-0	1,2-Dichloroethane-d4	101			70-130 %		"	"	"	"	"		
1868-53-7	Dibromofluoromethane	97			70-130 %			"		"			
Extractabl	e Petroleum Hydrocarbons												
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	23-Sep-10	24-Sep-10	JK	1020055		
Total Meta	lls by EPA 200/6000 Series Method	s											
	Preservation	Field Preserved		N/A		1	EPA 200/6000 methods	20-Sep-10	20-Sep-10	WGP	1019844		
Total Meta	lls by EPA 6000/7000 Series Metho	ds											
7440-38-2	Arsenic	0.0063		mg/l	0.0040	1	SW846 6010B	28-Sep-10	29-Sep-10	ZZZ	1020281		
7440-50-8	Copper	0.0906		mg/l	0.0050	1	"		29-Sep-10	"	"		
7439-89-6	Iron	32.1		mg/l	0.0150	1	"	"		"	"		
General Cl	hemistry Parameters												
	Total Suspended Solids	36.0		mg/l	20.0	1	SM2540D	21-Sep-10	21-Sep-10	SJL	1019944	х	

Sample Identification Mid Pt SB18264-02			<u>Client Project #</u> J12660			<u>Matrix</u> Ground Water		Collection Date/Time 17-Sep-10 10:32		Received 17-Sep-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	ganic Compounds											
Volatile Or Prepared I	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS											
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	23-Sep-10	23-Sep-10	EK/	1020082	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"		
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"	"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"			"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	101			70-130 %			"	"	"	"	
2037-26-5	Toluene-d8	95			70-130 %			"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	102			70-130 %			"	"	"		
1868-53-7	Dibromofluoromethane	95			70-130 %		"	"	"			

Sample Identification Effluent			Client Draiget #			Matria Call			/ T	Dessional		
			Clien	<u>t Project #</u>	<u>-</u>	<u>Iviau IX</u>		17 Ser 10 10:24			<u>Received</u>	
SB18264-03			J	12000		Ground w	ater 17	-Sep-10 10	0.34	1/-Sep-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared	rganic Aromatics by SW846 8260 by method SW846 5030 Water M	<u>)B</u> IS										
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	23-Sep-10	23-Sep-10	EK/	1020082	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1			"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1		"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1			"	"	"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"		"		
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	101			70-130 %		"		"	"	"	
2037-26-5	Toluene-d8	93			70-130 %		"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	102			70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	96			70-130 %		"	"	"	"	"	
Extractabl	e Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	23-Sep-10	24-Sep-10	JK	1020055	
Total Meta	lls by EPA 200/6000 Series Method	s										
	Preservation	Field Preservec		N/A		1	EPA 200/6000 methods	20-Sep-10	20-Sep-10	WGP	1019844	
Total Meta	lls by EPA 6000/7000 Series Metho	ds										
7440-38-2	Arsenic	BRL		mg/l	0.0040	1	SW846 6010B	28-Sep-10	29-Sep-10	LR	1020281	
7440-50-8	Copper	0.0086		mg/l	0.0050	1	"		"	"	"	
7439-89-6	Iron	0.178		mg/l	0.0150	1	"	"	"	"		
General Cl	hemistry Parameters											
	Total Suspended Solids	BRL		mg/l	5.00	1	SM2540D	21-Sep-10	21-Sep-10	SJL	1019944	х

Sample Identification Trip SB18264-04		<u>Client Project #</u> J12660		D	<u>Matrix</u> eionized V	Collection Date/TimeVater16-Sep-10 00:00			Received 17-Sep-10			
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Or	rganic Compounds											
Volatile Or Prepared I	ganic Aromatics by SW846 8260B by method SW846 5030 Water MS											
71-43-2	Benzene	BRL		µg/l	1.0	1	SW846 8260B/C	23-Sep-10	23-Sep-10	EK/	1020082	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1		"			"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1		"			"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1		"				
108-88-3	Toluene	BRL		µg/l	1.0	1		"			"	
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1		"			"	
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"		"	"	
Surrogate r	ecoveries:											
460-00-4	4-Bromofluorobenzene	100			70-130 %			"	"		"	
2037-26-5	Toluene-d8	94			70-130 %			"	"		"	
17060-07-0	1,2-Dichloroethane-d4	107			70-130 %			"	"	"	"	
1868-53-7	Dibromofluoromethane	100			70-130 %			"				
Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDI	Spike Level	Source	%RFC	%REC	RPD	RPD Limit
	itosuit	Thug	emus	IDE	Level	Result	/mee	Linits	NI D	Emm
Batch 1020082 - SW846 5030 Water MS					Dro	parad 8 Ar	aluzad: 22	Son 10		
	וחס			1.0	<u>FI</u>	spareu & Ar	lalyzeu. 25-	<u>Sep-10</u>		
Ethylhonzono			µg/i	1.0						
Methyl tert-hutyl ether	BRI		µg/i	1.0						
Nanhthalene	BRI		µg/i µg/l	1.0						
Toluene	BRI		ug/l	1.0						
m n-Xvlene	BRI		ua/l	2.0						
o-Xylene	BRL		μg/l	1.0						
Surrogate: 4-Bromofluorobenzene	30.0		ua/l		30.0		100	70-130		
Surrogate: Toluene-d8	28.3		ua/l		30.0		.00	70-130		
Surrogate: 1.2-Dichloroethane-d4	33.9		ua/l		30.0		113	70-130		
Surrogate: Dibromofluoromethane	30.4		ua/l		30.0		101	70-130		
LCS (1020082-BS1)			P.3.		Pre	enared & Ar	alvzed: 23-	Sen-10		
Benzene	20.7		ua/l		20.0		104	70-130		
Ethylbenzene	21.3		ua/l		20.0		107	70-130		
Methyl tert-butyl ether	19.3		ua/l		20.0		97	70-130		
Naphthalene	20.8		ua/l		20.0		104	70-130		
Toluene	19.9		ua/l		20.0		100	70-130		
m,p-Xylene	42.8		µg/l		40.0		107	70-130		
o-Xylene	20.8		µg/l		20.0		104	70-130		
Surrogate: 4-Bromofluorobenzene	30.9		µg/l		30.0		103	70-130		
Surrogate: Toluene-d8	28.6		µg/l		30.0		95	70-130		
Surrogate: 1,2-Dichloroethane-d4	30.8		µg/l		30.0		103	70-130		
Surrogate: Dibromofluoromethane	29.5		µg/l		30.0		98	70-130		
LCS Dup (1020082-BSD1)					Pre	epared & Ar	nalyzed: 23-	Sep-10		
Benzene	20.3		µg/l		20.0		101	70-130	2	25
Ethylbenzene	21.6		µg/l		20.0		108	70-130	1	25
Methyl tert-butyl ether	19.5		µg/l		20.0		97	70-130	0.8	25
Naphthalene	20.1		µg/l		20.0		101	70-130	3	25
Toluene	19.9		µg/l		20.0		99	70-130	0.2	25
m,p-Xylene	42.9		µg/l		40.0		107	70-130	0.2	25
o-Xylene	21.1		µg/l		20.0		106	70-130	1	25
Surrogate: 4-Bromofluorobenzene	30.9		µg/l		30.0		103	70-130		
Surrogate: Toluene-d8	28.3		µg/l		30.0		94	70-130		
Surrogate: 1,2-Dichloroethane-d4	31.0		µg/l		30.0		103	70-130		
Surrogate: Dibromofluoromethane	29.4		µg/l		30.0		98	70-130		
<u> Matrix Spike (1020082-MS1)</u>			Source: SE	<u>18264-03</u>	Pre	epared & Ar	nalyzed: 23-	<u>Sep-10</u>		
Benzene	17.4		µg/l		20.0	BRL	87	70-130		
Ethylbenzene	20.7		µg/l		20.0	BRL	104	70-130		
Methyl tert-butyl ether	19.0		µg/l		20.0	BRL	95	70-130		
Naphthalene	20.7		µg/l		20.0	BRL	104	70-130		
Toluene	18.5		µg/l		20.0	BRL	93	70-130		
m,p-Xylene	41.3		µg/l		40.0	BRL	103	70-130		
o-Xylene	20.2		µg/l		20.0	BRL	101	70-130		
Surrogate: 4-Bromofluorobenzene	31.4		µg/l		30.0		105	70-130		
Surrogate: Toluene-d8	28.7		µg/l		30.0		96	70-130		
Surrogate: 1,2-Dichloroethane-d4	32.2		µg/l		30.0		108	70-130		
Surrogate: Dibromofluoromethane	30.9		µg/l		30.0		103	70-130		
Matrix Spike Dup (1020082-MSD1)			Source: SE	18264-03	Pre	epared & Ar	nalyzed: 23-	<u>Sep-10</u>		
Benzene	17.6		µg/l		20.0	BRL	88	70-130	1	30
Ethylbenzene	21.8		µg/l		20.0	BRL	109	70-130	5	30

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* Reportable Detection Limit BRL = Below Reporting Limit

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1020082 - SW846 5030 Water MS										
Matrix Spike Dup (1020082-MSD1)			Source: SE	318264-03	Pre	epared & A	nalyzed: 23	-Sep-10		
Methyl tert-butyl ether	19.4		µg/l		20.0	BRL	97	70-130	2	30
Naphthalene	21.9		µg/l		20.0	BRL	110	70-130	6	30
Toluene	18.7		µg/l		20.0	BRL	93	70-130	0.9	30
m,p-Xylene	44.0		µg/l		40.0	BRL	110	70-130	6	30
o-Xylene	21.0		µg/l		20.0	BRL	105	70-130	4	30
Surrogate: 4-Bromofluorobenzene	31.2		µg/l		30.0		104	70-130		
Surrogate: Toluene-d8	28.1		µg/l		30.0		94	70-130		
Surrogate: 1,2-Dichloroethane-d4	30.5		µg/l		30.0		102	70-130		
Surrogate: Dibromofluoromethane	29.4		µg/l		30.0		98	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1020055 - SW846 3510C										
<u>Blank (1020055-BLK1)</u>					Pre	epared: 23-Sep	p-10 An	alyzed: 24-S	ep-10	
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (1020055-BS1)					Pre	epared: 23-Sep	p-10 An	alyzed: 24-S	ep-10	
Non-polar material (SGT-HEM)	25.9		mg/l		31.0		84	83-101		

Tota	al	Μ	let	als	5	ЭV	El	PA	1	6000/	7000	Se	eries	Μ	letł	ıod	s -	0	ua	litv	С	ontr	ol
						•												_		•			

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1020281 - SW846 3005A										
Blank (1020281-BLK1)					Pr	epared: 28-	Sep-10 A	nalyzed: 29-8	Sep-10	
Iron	BRL		mg/l	0.0150						
Arsenic	BRL		mg/l	0.0040						
Copper	BRL		mg/l	0.0050						
LCS (1020281-BS1)					Pr	epared: 28-	Sep-10 A	nalyzed: 29-8	Sep-10	
Iron	1.28		mg/l	0.0150	1.25		102	85-115		
Arsenic	1.28		mg/l	0.0040	1.25		102	85-115		
Copper	1.26		mg/l	0.0050	1.25		101	85-115		
LCS Dup (1020281-BSD1)					Pr	epared: 28-	Sep-10 A	nalyzed: 29-8	Sep-10	
Iron	1.33		mg/l	0.0150	1.25		107	85-115	4	20
Copper	1.33		mg/l	0.0050	1.25		106	85-115	5	20
Arsenic	1.33		mg/l	0.0040	1.25		106	85-115	4	20
Duplicate (1020281-DUP1)		5	Source: SI	<u>318264-01</u>	Pr	epared: 28-	Sep-10 A	nalyzed: 29-8	Sep-10	
Iron	31.6		mg/l	0.0150		32.1			2	20
Copper	0.0844		mg/l	0.0050		0.0906			7	20
Arsenic	0.0064		mg/l	0.0040		0.0063			2	20
<u>Matrix Spike (1020281-MS1)</u>		5	Source: SI	<u>318264-03</u>	Pr	epared: 28-	Sep-10 A	nalyzed: 29-8	Sep-10	
Iron	1.48		mg/l	0.0150	1.25	0.178	104	75-125		
Copper	1.36		mg/l	0.0050	1.25	0.0086	109	75-125		
Arsenic	1.31		mg/l	0.0040	1.25	BRL	105	75-125		
Matrix Spike Dup (1020281-MSD1)		5	Source: SI	<u>318264-03</u>	Pr	epared: 28-	Sep-10 A	nalyzed: 29-8	Sep-10	
Iron	1.48		mg/l	0.0150	1.25	0.178	105	75-125	0.3	20
Arsenic	1.31		mg/l	0.0040	1.25	BRL	105	75-125	0.5	20
Copper	1.35		mg/l	0.0050	1.25	0.0086	107	75-125	1	20
Post Spike (1020281-PS1)		5	Source: SI	<u>318264-03</u>	Pr	epared: 28-	Sep-10 A	nalyzed: 29-8	Sep-10	
Iron	1.55		mg/l	0.0150	1.25	0.178	110	80-120		
Arsenic	1.37		mg/l	0.0040	1.25	BRL	109	80-120		
Copper	1.41		mg/l	0.0050	1.25	0.0086	112	80-120		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1019944 - General Preparation										
<u>Blank (1019944-BLK1)</u>					Pre	epared & Ar	nalyzed: 21-	-Sep-10		
Total Suspended Solids	BRL		mg/l	5.00						
<u>Blank (1019944-BLK2)</u>					Pre	epared & Ar	nalyzed: 21-	-Sep-10		
Total Suspended Solids	BRL		mg/l	5.00						
LCS (1019944-BS1)					Pre	epared & Ar	nalyzed: 21-	-Sep-10		
Total Suspended Solids	47.0		mg/l	5.00	45.6		103	90-110		
LCS (1019944-BS2)					Pre	epared & Ar	nalyzed: 21-	Sep-10		
Total Suspended Solids	48.0		mg/l	5.00	45.6		105	90-110		
Duplicate (1019944-DUP2)			Source: SE	318264-0 <u>3</u>	Pre	epared & Ar	nalyzed: 21-	Sep-10		
Total Suspended Solids	4.00	J	mg/l	5.00		4.00			0	20

Notes and Definitions

- GS1 Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
- BRL Below Reporting Limit Analyte NOT DETECTED at or above the reporting limit
- 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).

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

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 *TPH (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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Method Detection Limit (MDL)</u>: 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.

<u>Reportable Detection Limit (RDL)</u>: 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.

<u>Surrogate</u>: 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

Validated by: Hanibal C. Tayeh, Ph.D. June O'Connor Kimberly Wisk Nicole Leja Rebecca Merz

Labo	ratory Name: Sp	ectrum Analytical, Inc.		Project #: J12660			
Proje	ect Location: FL	Roberts - 399 Northampt	on Rd - Amherst, MA	RTN:			
This	form provides ce	ertifications for the follow	wing data set: S	SB18264-01 through SB18	3264-04		
Matr	ices: Deionized	Water					
<u></u>	Ground W	ater					
CAM	l Protocol	1	I	1			
✓ ⁸² C	260 VOC Am 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	
82 C	270 SVOC AM 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	
✓ 60 C	010 Metals AM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B		
		Affirmative responses	to questions A through	F are required for "Presu	mptive Certainty" status		
A	Were all sample preserved (inclu times?	es received in a condition ding temperature) in the	consistent with those des field or laboratory, and pr	cribed on the Chain of Cu repared/analyzed within m	stody, properly nethod holding	✓ Yes	No
В	Were the analyt protocol(s) follo	ical method(s) and all ass wed?	ociated QC requirements	specified in the selected (CAM	✔ Yes	No
С	Were all require protocol(s) impl	d corrective actions and a emented for all identified	analytical response action l performance standard no	s specified in the selected on-conformances?	CAM	✓ Yes	No
D	Does the laborate Assurance and C	tory report comply with a Quality Control Guideline	Il the reporting requirements for the Acquisition and	ents specified in CAM VII Reporting of Analytical I	A, "Quality Data"?	✓ Yes	No
E	a. VPH, EPH, and tO	nd APH Methods only: W -15 Methods only: Was th	Vas each method conducted analyte list re	ed without significant mode ported for each method?	dification(s)?	Yes Yes	No No
F	Were all applica evaluated in a la	ble CAM protocol QC an boratory narrative (inclue	nd performance standard i ding all "No" responses to	non-conformances identif o questions A through E)?	ied and	✓ Yes	No
		Responses to quest	tions G, H and I below ar	re required for "Presump	tive Certainty" status		
G	Were the report	ing limits at or below all	CAM reporting limits spe	cified in the selected CAN	M protocol(s)?	Yes 🗸	No
<u>Data</u> requit	<u>User Note:</u> Data th rements described i	at achieve "Presumptive Co in 310 CMR 40. 1056 (2)(k)	ertainty" status may not nec and WSC-07-350.	cessarily meet the data usabi	ility and representativeness		
Н	Were all QC per	rformance standards spec	ified in the CAM protoco	l(s) achieved?		✔ Yes	No
I	Were results rep	ported for the complete an	alyte list specified in the	selected CAM protocol(s))?	Yes 🗸	No
All ne	gative responses a	re addressed in a case narra	utive on the cover page of th	nis report.			
I, the inforn	undersigned, attest nation, the materia	t under the pains and penal I contained in this analytic	ties of perjury that, based u al report is, to the best of my	pon my personal inquiry of y knowledge and belief, acci	those responsible for obtaining trate and complete.	g the	
					bra	_	
					Hanibal C. Tayeh, Ph. President/Laboratory	D. Director	

MassDEP Analytical Protocol Certification Form

This laboratory report is not valid without an authorized signature on the cover page.* Reportable Detection LimitBRL = Below Reporting Limit

Date: 9/30/2010

818264ro X1=_ O=Oil SW= Surface Water $7 = CH_3OH$ Project Mgr .: DW=Drinking Water Report To: A E-mail to KMHSTHC ECSCONSUTICOM Condition upon receipt EDD Format $|=Na_2S2O_3$ Lab Id: Fax results when available to B SPECTRUM ANALYTICAL, INC Featuring HANIBAL TECHNOLOGY $8 = NaHSO_4$ 2=HCl EFFLUED a) ref INFLUCIO TRIP KELLY G=Grab Sample Id: Deficed $3=H_2SO_4$ GW=Groundwater Water SO=Soil 0 X2= 107 9 C=Composite 11 Almgren Drive • Agawam, Massachusetts 01001 • 413-789-9018 • Fax 413-789-4076 • www.spectrum-analytical.com $4=HNO_3$ Ambient 0 0 0 0 Date: 0/19/10 0 1 á 110 6 5=NaOH 10 SL=Sludge A=Air ° WW=Wastewater CHAIN OF CUSTODY RECORD 16:34 10:32 10:30 þ hud Time: 6=Ascorbic Acid ro 10= Invoice To: P.O. No.: 2 2 2 2 Туре 94 90 Gw 10 Matrix ECS Page_ C'il 3 3 Relinquished by: N Preservative W S W # of VOA Vials Acturan In # of Amber Glass Containers: of RQN: Occos # of Clear Glass N N # of Plastic BTEX, MTBE, NAPTHALSUE ONLY BY 8260B TPH 1664 \times × Project No .: × Site Name: X Sampler(s): Location: TSS TOTAL AS, CU, Fe X $\left|\right>$ Received by: × Analyses 395 NORTHA 1602 NORTH AND PTON ٩. · All TATs subject to laboratory approval. □ Standard TAT - 7 to 10 business days □ Rush TAT - Date Needed: 4 660 otherwise instructed. Samples disposed of after 60 days unless Min.24-hour notification needed for rushes. RUBERT ŧ Special Handling: 335 DETECTION LIMUTS Provide MCP CAM Report 5 (Response required for CAM report) Were all field QC requirements met as per MADEP CAM Section 2.0? State specific reporting standards If applicable, please list below. Date: QA Reporting Notes: (check if needed) dry. Yes INO ATTACHED State: C 18264 HWW. Time: 20 RO

Phase 05	A	Groundwater Treatment System Remediation General Permit											
				Gla	assware								
Parmeters	Matrix	Point of Sample or Measurement	40-ml HCl preserved vials	500 mL preserved with HNO ₃	500 mL unpreserved	1 amber liter H ₂ SO ₄ preserved	Reportable Detction Limit	Analytical Method					
SS	GW	influent &			1		5 mg/L	Method SM2540D					
otal Arsenic (As)	GW	influent & effluent					5 ug/L						
[°] otal Copper (Cu)	GW	influent & effluent		1			5ug/L	ICP					
otal Iron (Fe)	GW	influent & effluent					5ug/L						
РН	GW	influent & effluent				1	5 mg/L	Method 1664					
3TEX, MtBE, naphthalene	GW	influent, midpoint, effluent	3				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only					
Γrip Blank	DI	in cooler	1				2 ug/L	Method 8260B for BTEX, MtBE, naphthalene only					
						1.161.2							
Notes:													
Aethod Detection Limits specifie	d	<u>78</u>		ŀ									
leasure and Record the follow	ving:	-											
nstantaneous Flow	1192747	system											
Total Flow	3-6	system											

ŝ.