GeoHydroCycle, Inc.

Hazardous Waste
Water Supply

Assessment
Remediation
Analyses
Permitting
Modeling
Software

September 8, 2009

Mr. Victor Alvarez
United States Environmental Protection Agency
Region I
1 Congress Street, Suite 1100
Boston, MA 02114-2023

re: Remediation General Permit, Notice of Intent
Excavation Dewatering
Petroleum Contaminated Soils Removal
470 Dedham Avenue
Needham, MA 02492
GHC #09029

Dear Mr. Alvarez:

GeoHydroCycle, Inc. (GHC) is submitting this Notice of Intent (NOI) on behalf of our Client, the Town of Needham, Massachusetts. This NOI serves as an application under the National Pollutant Discharge Elimination System (NPDES) for a Remediation General Permit (RGP) to conduct dewatering for remedial response actions at 470 Dedham Avenue in Needham, MA, see Figures 1 and 2.

The planned remediation includes the excavation of approximately 50 cubic yards of petroleum contaminated soil. Because some of the excavation will occur below the water table, dewatering will be necessary. Water from the dewatering system will be discharged to a catch basin that discharges to the nearby Unnamed Brook. Site remediation will be conducted in accordance with the Massachusetts Contingency Plan, 310 CMR 40.0000 (the MCP), and under the oversight of a Licensed Site Professional (LSP).

The enclosed NOI provides Site details, including: approximate limits of excavation, proposed dewatering treatment system, location of discharge point, and the analytic results of groundwater samples collected at the Site.

Site Description

The Site is owned by the Town of Needham, and the existing buildings contains the Public Works Department, Building Inspector, Conservation Commission, and the Zoning Board of Appeals. To the north is the Needham Reservoir, which formerly served as the town's water supply. Now the town's water is provided by wells in other parts of the town.

On August 5, 2009, while excavating soils to replace a catch basin (CB-1) at the entrance to 470 Dedham Avenue in Needham, the contractor noticed that the soil appeared to contain petroleum. Two soil samples (SS-1 and SS-2) taken from that area confirmed the presence of a petroleum product. In addition, the sample analysis showed that the petroleum was similar to a fuel oil and at a concentration that is reportable to the Massachusetts DEP within 120 days, see Figure 2.

151B California Street
Newton, Massachusetts
02458

(617) 527-8074 (v)
(617) 527-8668 (f)

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On August 13 and 14, 2009, GeoHydroCycle conducted subsurface explorations (14 borings, seven finished as wells) to determine the nature and extent of the petroleum, see Figures 3 and 4. Based on the results of the subsurface explorations, an estimated 50 cubic yards of petroleum contaminated soil sits beneath the ground, see Figure 5. Although the contamination appears to be both above and below the water table, groundwater samples from the 7 monitoring wells in that area showed no petroleum hydrocarbons, see attached laboratory report in Enclosure 3. Under the Massachusetts Contingency Plan, 310 CMR 40.0000 (the MCP), a clean up of this size can be conducted as a Limited Removal Action (LRA) as long as it is completed within 120 days.

On September 2, 2009, groundwater samples were collected from monitoring well GHC-3. The samples were sent under chain-of-custody protocol to Spectrum laboratory for the following analyses: total suspended solids, total residual chlorine, total petroleum hydrocarbons, Cr +6, total cyanide, volatile organics, ethylene dibromide, semi-volatile organics, PCBs, chromium VI, metals (Cu, Pb, Hg, Se, Cr +3, Ag, Fe, Sb, As, & Cd), and mercury. The results of these analyses are presented in Notice of Intent presented in Enclosure 2, and the laboratory report in presented in Enclosure 3.

Proposed Limited Removal Action

The LRA will be conducted under the oversight of a Licensed Site Professional, Mr. Stephen Smith, on behalf of the Town of Needham. The goal of the LRA will be to excavate contaminated soils, transport them under a Bill-of-Lading to an asphalt batching facility, and demonstrate through samples taken from the walls of the excavation that the clean up is complete. Prior to soils excavation, because some of the contaminated soils are below the water table, it will be necessary to dewater the soils.

Groundwater in the area to be excavated is between 3 and 4 feet below ground surface. Based on measured groundwater depths taken on August 14, 2009, GHC prepared a groundwater contour map showing flow direction and gradient, see Figure 6. In order to dewater these soils it will be necessary to install three dewatering wells. Each well will pump groundwater into a nearby treatment trailer. In the trailer water will flow through a groundwater treatment system designed to remove particulate matter and any dissolved petroleum contaminants, see Figure 7. The treatment system is to consist of a fractionation tank to settle the water, bag filters to remove silts and fine sands, and an activated granular carbon system to remove dissolved petroleum hydrocarbons, see Figure 8. During dewatering the average flow is expected to be 15 gallons per minute, with a maximum flow of 25 gallons per minute.

During operation of the dewatering treatment system, influent and effluent sampling and analysis will be conducted as required in the permit. Discharge from the treatment system will be to catch basin CB-1. The catch basin discharges to a nearby Unnamed Brook, which discharges to Alder Brook, a tributary to the Charles River.

Based on the USGS Streamflow Stats web site, the Unnamed Brook has a drainage area of 0.39 square miles and a 7-day, 10-year low flow of 0.0339 cubic feet per second, see Enclosure 4. The following is a calculation of the dilution factor:

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

where
D_f = Dilution Factor;
Q_d = Maximum flow of dewatering treatment system (25 gpm = 0.0557 cfs);
Q_s = 7-day, 10-year low flow value for the receiving water (0.0339 cfs).

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Based on this equation and the above flow values, the dilution factor is 1.6.

If you have any questions or need additional information, please call me.

Sincerely,
GeoHydroCycle, Inc.

Stephen W. Smith, P.E., P.HGW., L.S.P.

Enclosures: 1 - Figures
2 - Notice of Intent
3 - Laboratory Reports
4 - Streamflow and Dilution Calculations

cc: Tiffany Shaw, Needham, MA
Massachusetts DEP, Northeast Regional Office

RGP 09029.lwp

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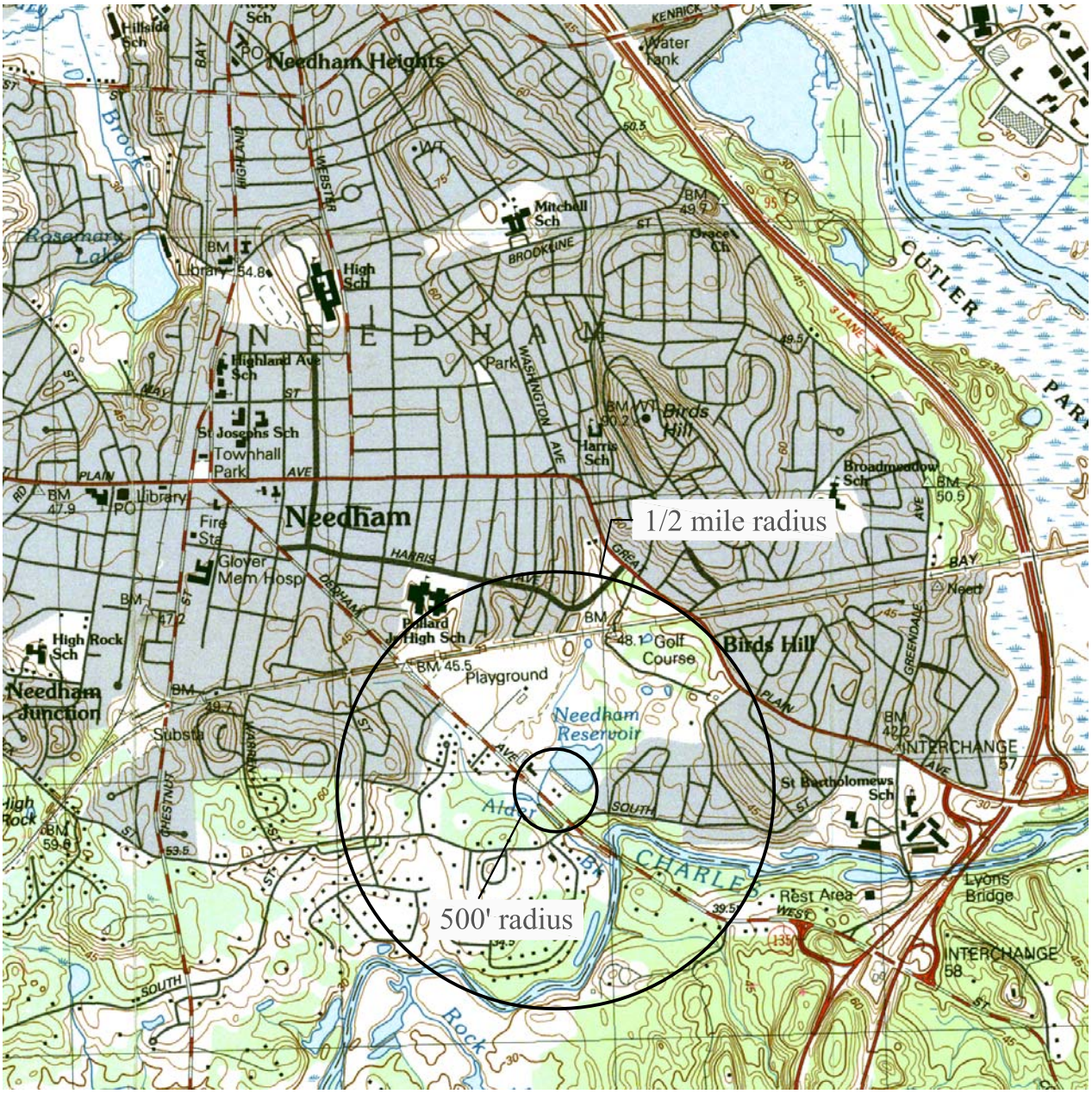
(617) 527-8668 (f)

Enclosure 1 - Figures

F1 Site Locus.dwg



0 2,000

Scale in feet

Base Map: MassGIS Quad q225890.

Figure 1. Site Locus.

Project No.	GHC #09029			RAM Plan Drain Lines 470 Dedham Avenue Needham, MA
Drafted	TWM	Checked	SWS	
Date	8/17/09	Rev		

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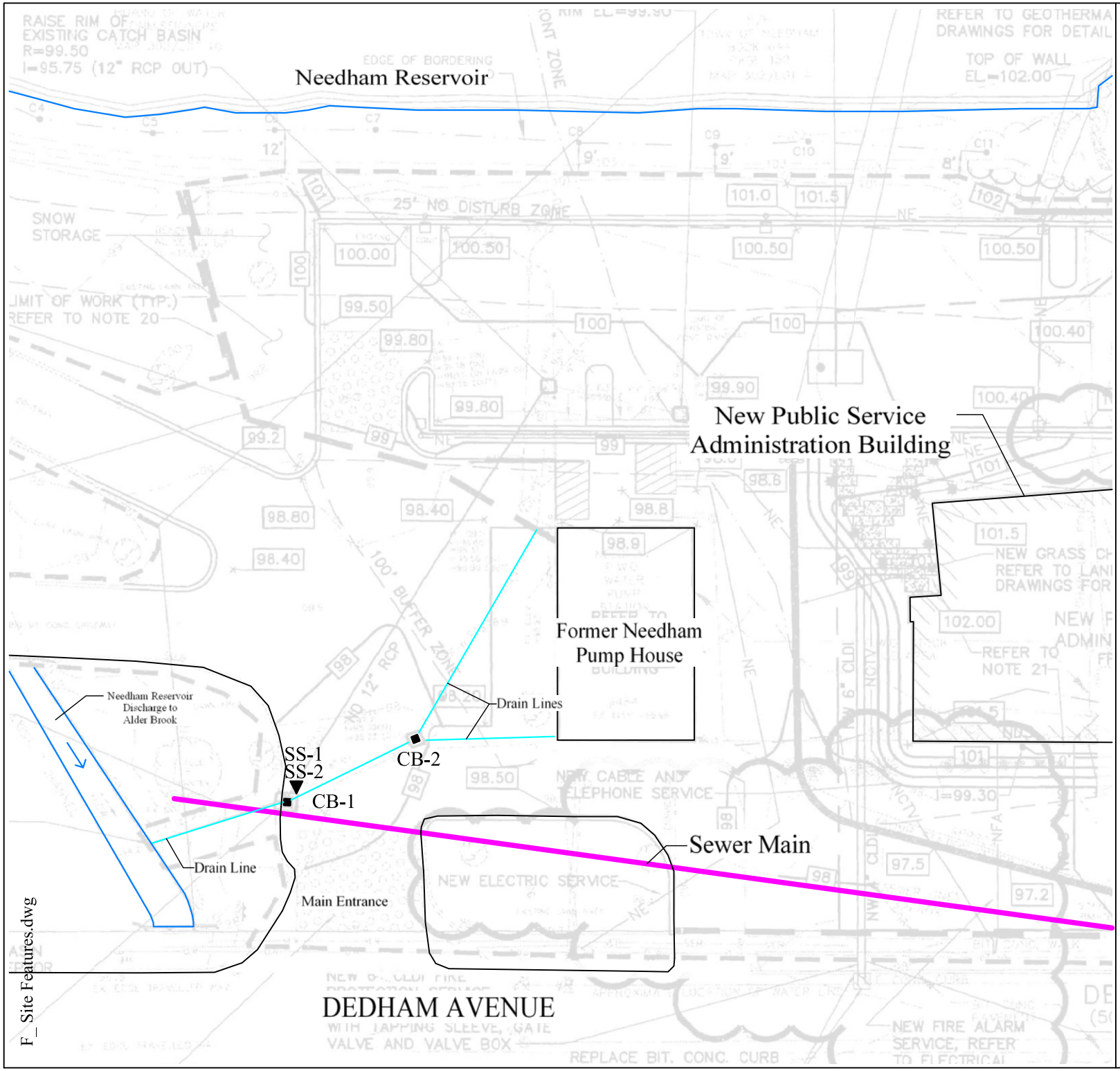

Drain Lines
470 Dedham Avenue
Needham, MA

Figure 2. Site Features.

0 40
Scale in feet

Project No: GHC #09029
Drafted: SWS
Checked: KAR
Date: 08/17/09

Base Map: Plans Obtained from Seaver Construction.

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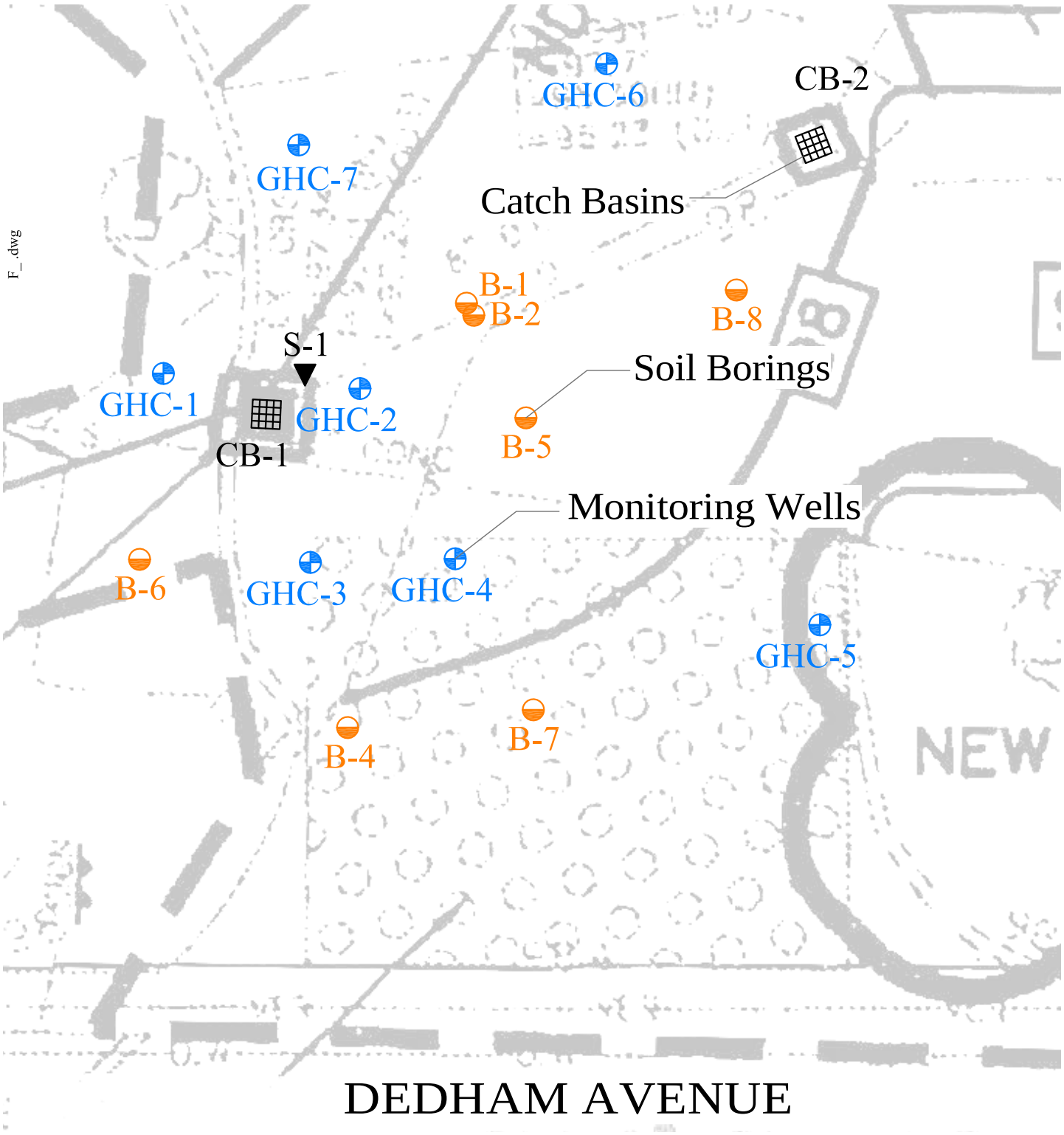

0 10
Scale in feet

Base Maps: Provided by Seaver Construction.

Figure 3. Exploration Locations.

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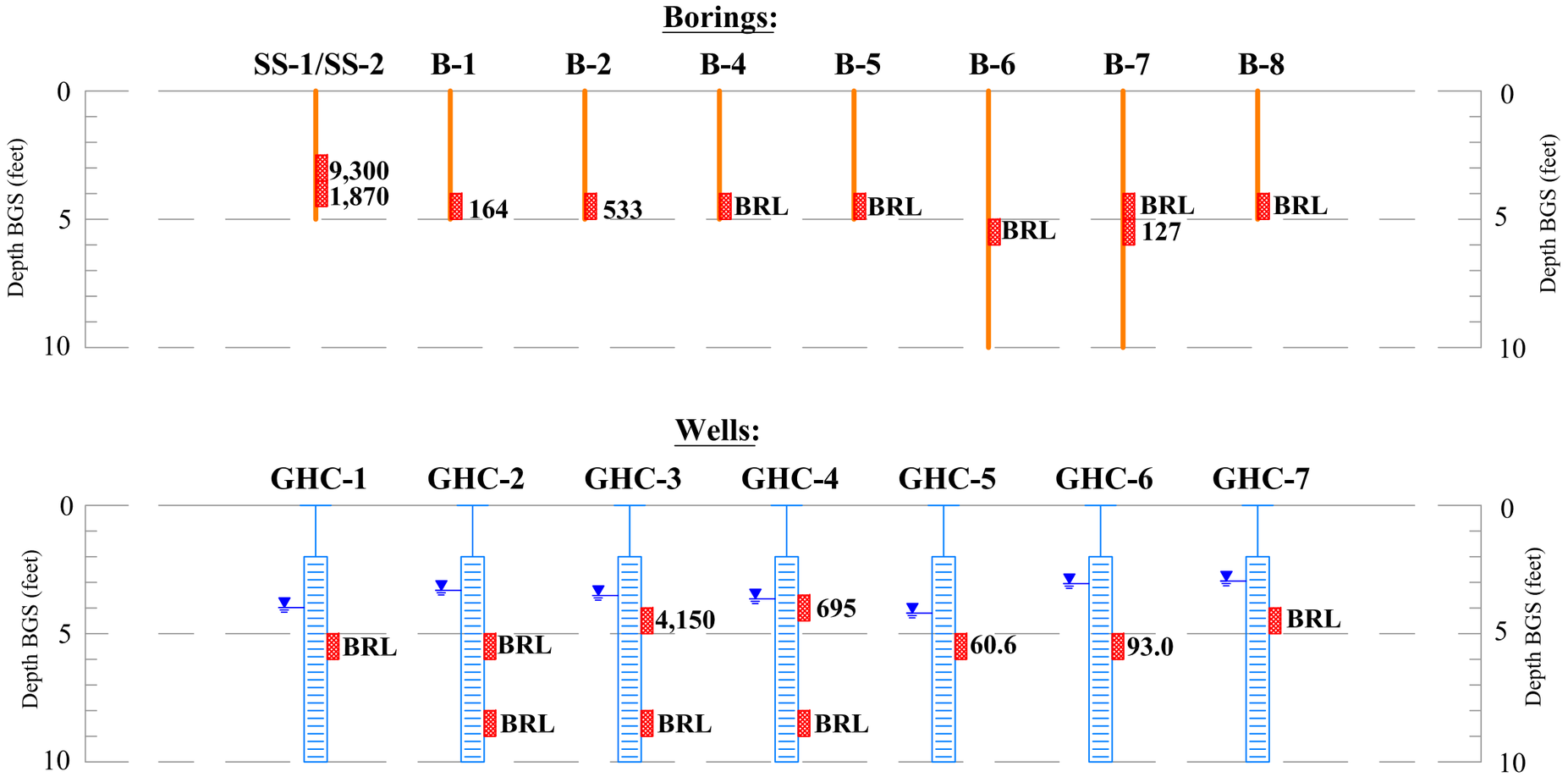
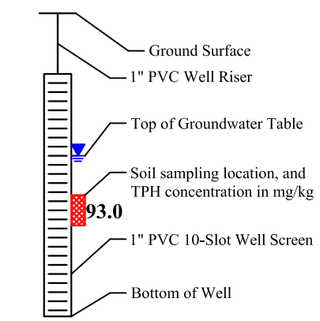
Project No: GHC #09029
Drafted: SWS Checked: KAR
Date: 08/13/09

Drain Lines
470 Dedham Avenue
Needham, MA

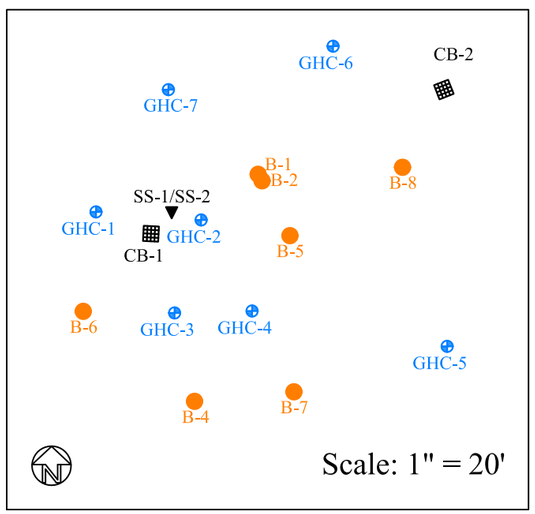
F_ Boring and Well Schematic.dwg



LEGEND:



LOCATION SKETCH:



Scales as shown.

Town of Needham
470 Dedham Avenue
Needham, MA 02492

Figure 4. Soil Boring and Monitoring Well Schematic.

NOTES:

1. Borings and monitoring wells were installed by TDS on August 13, 2009.
2. Depth to groundwater measurements were recorded on August 14, 2009. Groundwater is constantly moving, and the measured depths will likely be different in the future.
3. BRL is Below Reporting Limit, which is 30 mg/kg.
4. Samples SS-1 and SS-2 were obtained on August 5, 2009 from the initial construction excavtion.

Project No. GHC#09029
Drafted SWS Checked KAR
Date 08/19/09 Rev
Base Map: GHC taped survey data.

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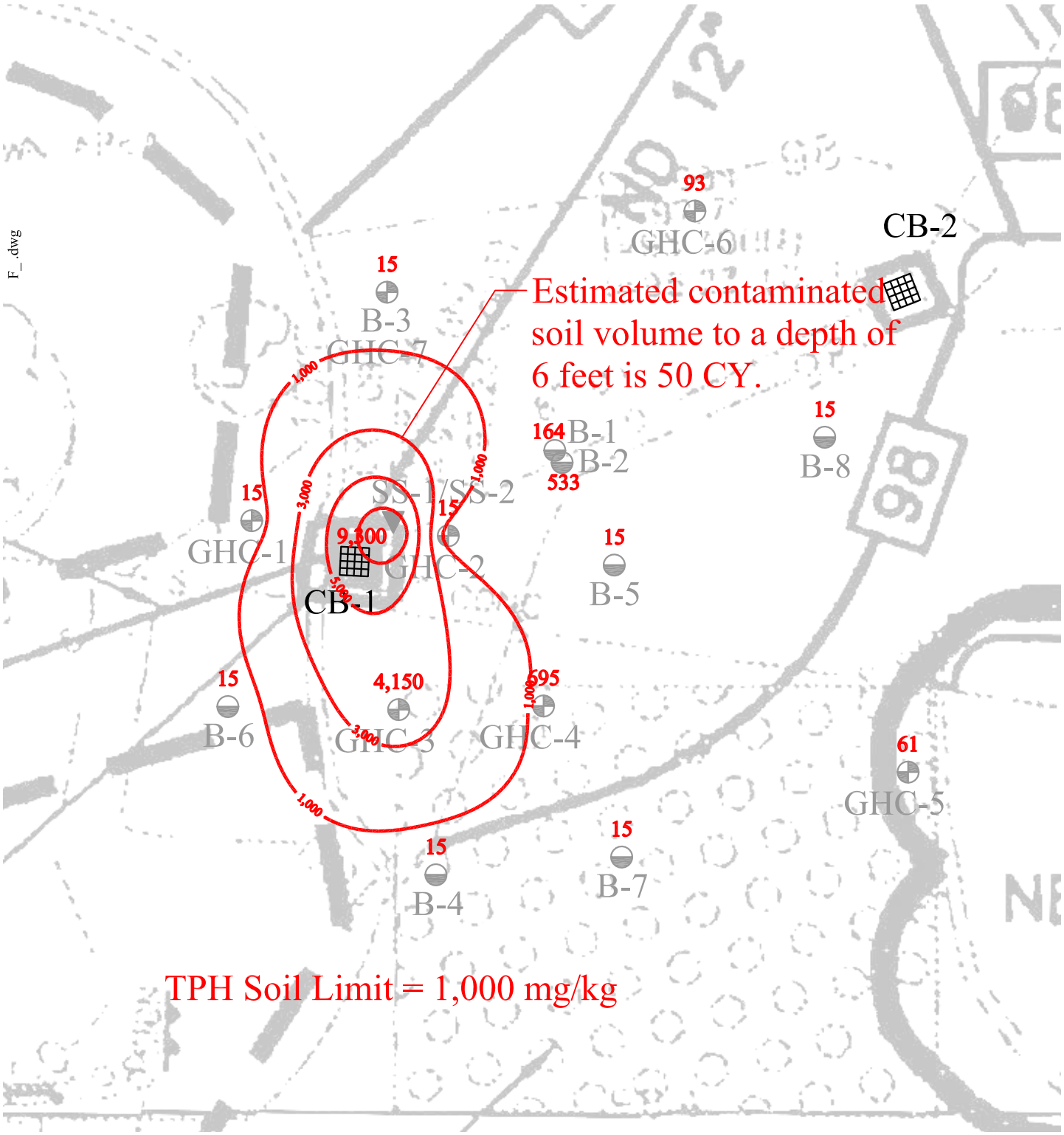

0 10
Scale in feet

Base Maps: Provided by Seaver Construction.

Figure 5. Total Petroleum Hydrocarbons (TPH) in Soil.

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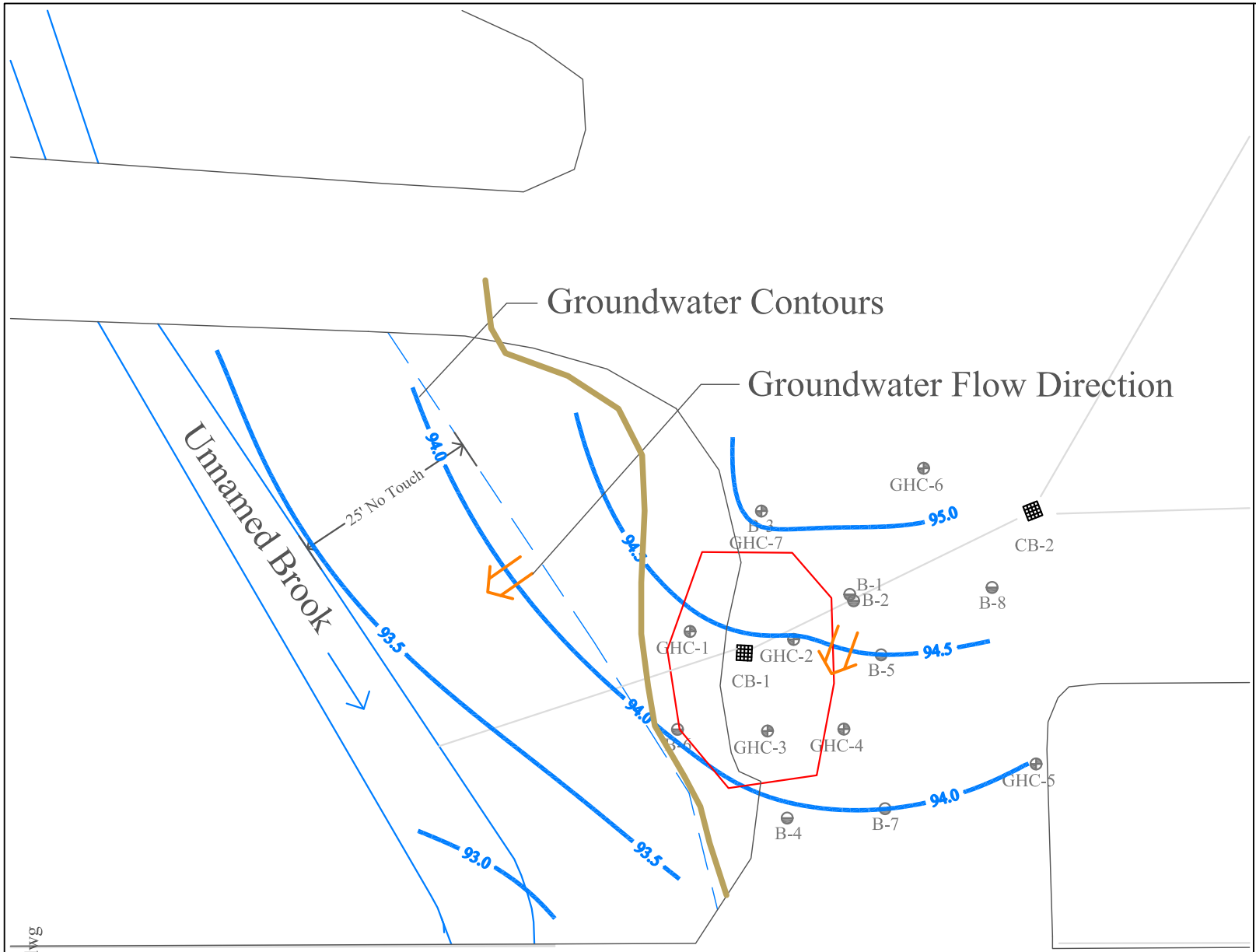
Needham, MA



NOTES:

1. Groundwater contour data are calculated and interpreted as described in the text.
2. Groundwater contours are based on widely spaced well locations and may not reflect actual groundwater elevations.

F6 Groundwater Contours.dwg

Drain Lines
470 Dedham Avenue
Needham, MA

Figure 6. Groundwater Contours, 8/14/09.

0 20
Scale in feet

Project No: GHC #09029
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Checked: KAR
Date: 08/17/09

Base Map: Plans Obtained from Seaver Construction.

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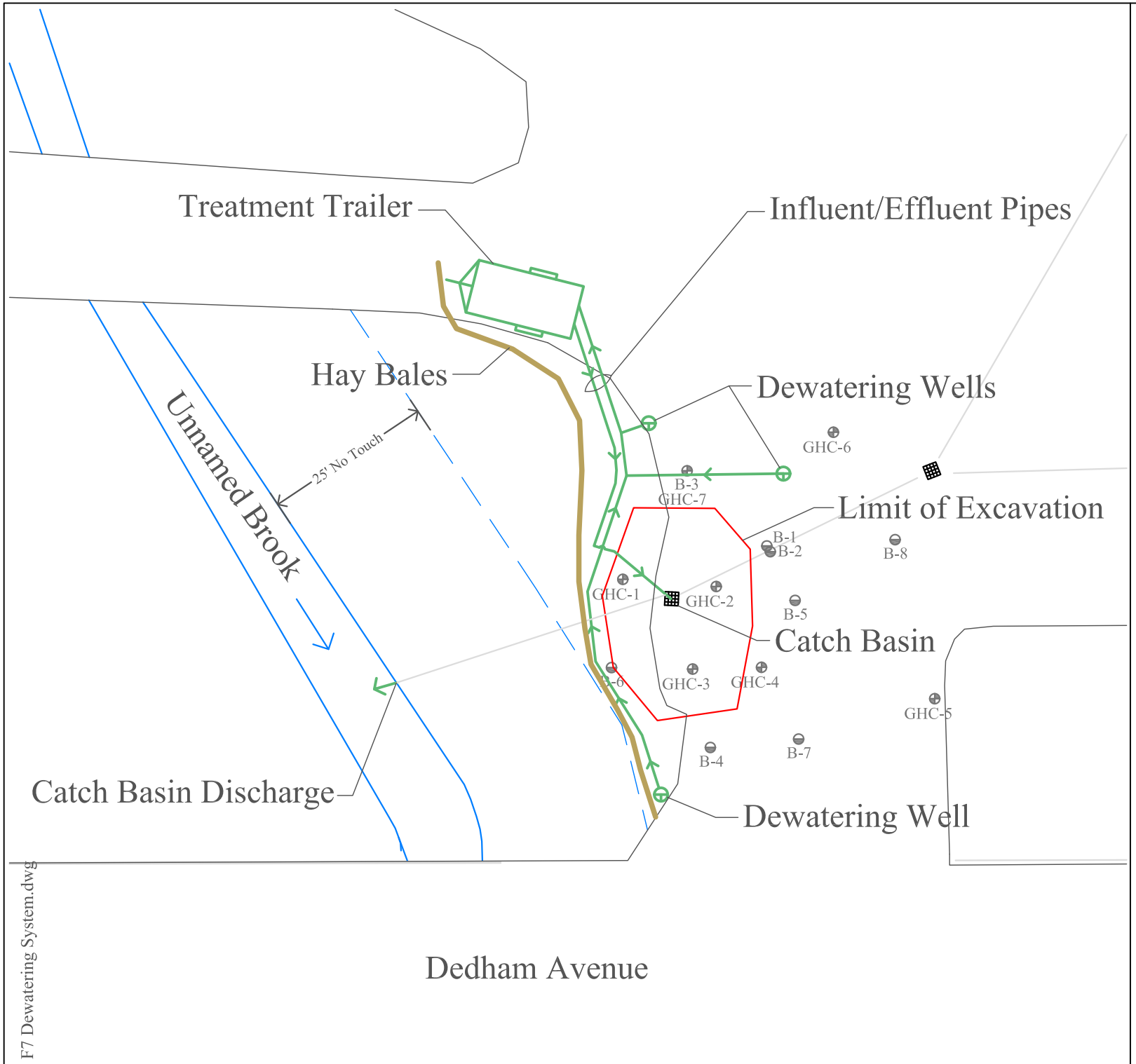

Drain Lines
470 Dedham Avenue
Needham, MA

Figure 7. Dewatering System.

0 20
Scale in feet

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Drafted: SWS
Checked: KAR
Date: 08/17/09

Base Map: Plans Obtained from Seaver Construction.

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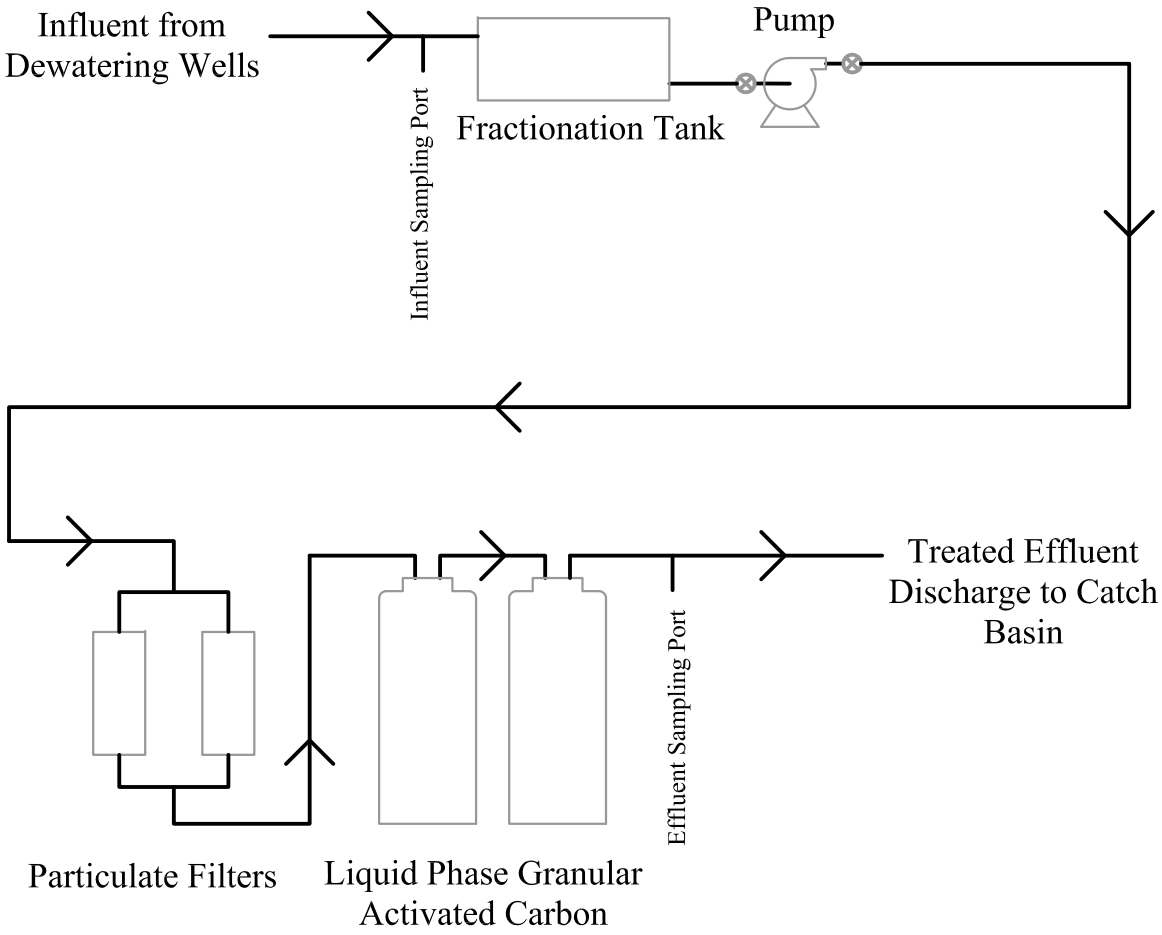
F8 Schematic Flow Diagram.dwg



Not to Scale

Drain Lines
470 Dedham Avenue
Needham, MA

Figure 8. Schematic Flow Diagram, Proposed Dewatering Treatment System.

Project No: GHC #09029
Drafted: SWS
Checked: KAR
Date: 08/29/09

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Enclosure 2 - Notice of Intent

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

1. General site information. Please provide the following information about the site:

a) Name of **facility/site**: Needham Public Building		**Facility/site** address:		
Location of **facility/site**: longitude: -71°13'16.5"W latitude: 42°16'11.7"N	Facility SIC code(s):	Street: 470 Dedham Avenue		
b) Name of **facility/site owner**: Town of Needham		Town: Needham		
Email address of owner: tshaw@needhamma.gov		State: Massachusetts	Zip: 02292	County: Norfolk
Telephone no.of facility/site **owner**: 781-453-8040				
Fax no. of facility/site **owner**: 781-449-9023		**Owner** is (check one): 1. Federal____ 2. State/Tribal____ 3. Private_____ 4. other, if so, describe: Town of Needham		
Address of **owner** (if different from site):				
Street:				
Town:	State:	Zip:	County:	
c) Legal name of **operator**: Town of Needham	**Operator** telephone no: 781-453-8040			
	Operator fax no.: 781-449-9023	**Operator** email: tshaw@needhamma.gov		
Operator contact name and title: Tiffany Shaw, Resident Site Manager				
Address of **operator** (if different from owner):	Street:			
Town:	State:	Zip:	County:	

d) Check "yes" or "no" for the following:
1. Has a prior NPDES permit exclusion been granted for the discharge? Yes___ No ✓, if "yes," number:
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Yes___ No ✓, if "yes," date and tracking #:
3. Is the discharge a "new discharge"as defined by 40 CFR 122.2? Yes ✓ No___
4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes ✓ No___

e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes ✓ No ___ If "yes," please list: 1. site identification # assigned by the state of NH or MA: N/A 2. permit or license # assigned: Limited removal Action, MCP 40.0318 3. state agency contact information: name, location, and telephone number: MassDEP, Northeast Regional Office, 205B Lowell Street, Wilmington, MA 01887 (978)694-3200	f) Is the site/facility covered by any other EPA permit, including: 1. multi-sector storm water general permit? Y___ N✓, if Y, number: 2. phase I or II construction storm water general permit? Y___ N✓, if Y, number: 3. individual NPDES permit? Y___ N✓, if Y, number: 4. any other water quality related permit? Y___ N✓, if Y, number:

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:

For the excavation of petroleum contaminated soils, dewatering will be necessary.

b) Provide the following information about each discharge:	1) Number of discharge points: 1	2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft3/s)? Max. flow 0.0557 Average flow 0.0334 Is maximum flow a **design value**? Y✓ N___ For average flow, include the units and appropriate notation if this value is a design value or estimate if not available.

3) Latitude and longitude of each discharge within 100 feet: pt.1:long. -71°13'17.2"W lat. 42°15'12.0"N; pt.2: long._____ lat._____; pt.3: long._____ lat._____; pt.4:long._____ lat._____; pt.5: long._____ lat._____; pt.6:long._____ lat._____; pt.7: long._____ lat._____; pt.8:long._____ lat._____; etc.

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent ✓ or seasonal _____? Is discharge ongoing Yes ____ No ✓ ?

c) Expected dates of discharge (mm/dd/yy): start 09/22/09 end 09/29/09

d) Please attach a line drawing or flow schematic showing water flow through the facility including:
1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and ✓ Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER	**Believe Absent**	**Believe Present**	**# of Samples (1 min-imum)**	**Type of Sample (e.g., grab)**	**Analytical Method Used (method #)**	**Minimum Level (ML) of Test Method**	**Maximum daily value**		**Avg. daily value**	
							concentration (ug/l)	**mass (kg)**	**concentration (ug/l)**	**mass (kg)**
1. Total Suspended Solids		✓	1	grab	SM 2540D	25,000	150,000		93,750	
2. Total Residual Chlorine	✓		1	grab	Hach 8167	10,000	BDL		BDL	
3. Total Petroleum Hydrocarbons	✓		8	grab	SW846 8100	200	BDL		BDL	
4. Cyanide	✓		1	grab	EPA 335.4	10	BDL		BDL	
5. Benzene	✓		1	grab	8260B	1	BDL		BDL	
6. Toluene	✓		1	grab	8260B	1	BDL		BDL	
7. Ethylbenzene	✓		1	grab	8260B	1	BDL		BDL	
8. (m,p,o) Xylenes	✓		1	grab	8260B	2	BDL		BDL	
9. Total BTEX[4]	✓		1	grab	8260B	4	BDL		BDL	

[4]BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide [5] (1,2- Dibromo-methane)	✓		1	grab	EPA 504.1	0.0100	BDL		BDL	
11. Methyl-tert-Butyl Ether (MtBE)	✓		1	grab	8260B	1	BDL		BDL	
12. tert-Butyl Alcohol (TBA)	✓		1	grab	8260B	10	BDL		BDL	
13. tert-Amyl Methyl Ether (TAME)	✓		1	grab	8260B	1	BDL		BDL	
14. Naphthalene	✓		1	grab	8260B	1	BDL		BDL	
15. Carbon Tetra-chloride	✓		1	grab	8260B	1	BDL		BDL	
16. 1,4 Dichlorobenzene	✓		1	grab	8260B	1	BDL		BDL	
17. 1,2 Dichlorobenzene	✓		1	grab	8260B	1	BDL		BDL	
18. 1,3 Dichlorobenzene	✓		1	grab	8260B	1	BDL		BDL	
19. 1,1 Dichloroethane	✓		1	grab	8260B	1	BDL		BDL	
20. 1,2 Dichloroethane	✓		1	grab	8260B	1	BDL		BDL	
21. 1,1 Dichloroethylene	✓		1	grab	8260B	1	BDL		BDL	
22. cis-1,2 Dichloro-ethylene	✓		1	grab	8260B	1	BDL		BDL	
23. Dichloromethane (Methylene Chloride)	✓		1	grab	8260B	5	BDL		BDL	
24. Tetrachloroethylene	✓		1	grab	8260B	1	BDL		BDL	

[5] EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane	✓		1	grab	8260B	1	BDL		BDL	
26. 1,1,2 Trichloroethane	✓		1	grab	8260B	1	BDL		BDL	
27. Trichloroethylene	✓		1	grab	8260B	1	BDL		BDL	
28. Vinyl Chloride	✓		1	grab	8260B	1	BDL		BDL	
29. Acetone	✓		1	grab	8260B	10	BDL		BDL	
30. 1,4 Dioxane	✓		1	grab	8260B	20	BDL		BDL	
31. Total Phenols	✓		1	grab	EPA 625	5	BDL		BDL	
32. Pentachlorophenol	✓		1	grab	EPA 625	10	BDL		BDL	
33. Total Phthalates [6] (Phthalate esthers)	✓		1	grab	EPA 625	5	BDL		BDL	
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	✓		1	grab	EPA 625	5	BDL		BDL	
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)										
a. Benzo(a) Anthracene	✓		1	grab	EPA 625	5	BDL		BDL	
b. Benzo(a) Pyrene	✓		1	grab	EPA 625	5	BDL		BDL	
c. Benzo(b)Fluoranthene	✓		1	grab	EPA 625	5	BDL		BDL	
d. Benzo(k) Fluoranthene	✓		1	grab	EPA 625	5	BDL		BDL	
e. Chrysene	✓		1	grab	EPA 625	5	BDL		BDL	

[6] The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h) anthracene	✓		1	grab	EPA 625	5	BDL		BDL	
g. Indeno(1,2,3-cd) Pyrene	✓		1	grab	EPA 625	5	BDL		BDL	
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)										
h. Acenaphthene	✓		1	grab	EPA 625	5	BDL		BDL	
i. Acenaphthylene	✓		1	grab	EPA 625	5	BDL		BDL	
j. Anthracene	✓		1	grab	EPA 625	5	BDL		BDL	
k. Benzo(ghi) Perylene	✓		1	grab	EPA 625	5	BDL		BDL	
l. Fluoranthene	✓		1	grab	EPA 625	5	BDL		BDL	
m. Fluorene	✓		1	grab	EPA 625	5	BDL		BDL	
n. Naphthalene-	✓		1	grab	EPA 625	5	BDL		BDL	
o. Phenanthrene	✓		1	grab	EPA 625	5	BDL		BDL	
p. Pyrene	✓		1	grab	EPA 625	5	BDL		BDL	
37. Total Polychlorinated Biphenyls (PCBs)	✓		1	grab	EPA 608	65	BDL		BDL	
38. Antimony	✓		1	grab	EPA 200.7	6	BDL		BDL	
39. Arsenic		✓	1	grab	EPA 200.7	4	19.8		12.4	
40. Cadmium	✓		1	grab	EPA 200.7	1	BDL		BDL	
41. Chromium III		✓	1	grab	EPA 200.7	1	107		66.9	
42. Chromium VI	✓		1	grab	SM 3500 CrD	2.5	BDL		BDL	

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper		✓	1	grab	EPA 200.7	5	116		72.5	
44. Lead		✓	1	grab	EPA 200.7	7.5	60		37.5	
45. Mercury	✓		1	grab	7470A	0.20	BDL		BDL	
46. Nickel		✓	1	grab	EPA 200.7	5	65.4		40.9	
47. Selenium	✓		1	grab	EPA 200.7	15	BDL		BDL	
48. Silver	✓		1	grab	EPA 200.7	5	BDL		BDL	
49. Zinc		✓	1	grab	EPA 200.7	5	203		126.9	
50. Iron		✓	1	grab	EPA 200.7	15	78,100		48,813	
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

Step 1: Do any of the metals in the influent have a **reasonable potential** to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y_✓_ N___	If yes, which metals? As, Cr3, Cu, Pb, Ni, Zn and Fe.
Step 2: For any metals which have **reasonable potential** to 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? Metals: Arsenic, Chromium 3, Copper, Lead, Nickel, Zinc and Iron. DF: 1.6	Look up the limit calculated at the corresponding dilution factor in **Appendix IV.** Do any of the metals in the **influent** have the potential to exceed the corresponding **effluent** limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y_✓_ N___ If "Yes," list which metals: As, Cr3, Cu, Pb, Ni, Zn, Fe

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:						
b) Identify each applicable treatment unit (check all that apply):	Frac. tank ✓	Air stripper	Oil/water separator	Equalization tanks	Bag filter ✓	GAC filter ✓
	Chlorination	Dechlorination	Other (please describe):			
c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate**(s) (gallons per minute) of the treatment system: Average flow rate of discharge 15 GPM Maximum flow rate of treatment system 25 GPM Design flow rate of treatment system 25 GPM						
d) A description of chemical additives being used or planned to be used (attach MSDS sheets): None						

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

a) Identify the discharge pathway:	Direct____	Within facility__	Storm drain____	River/brook__✓	Wetlands____	Other (describe):
b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters: Discharge of treated water to a catch basin, which discharges to a nearby unnamed brook, which disch to Alder Brook, which disch to the Charles River.						
c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water: 1. For multiple discharges, number the discharges sequentially. 2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.						
d) Provide the state water quality classification of the receiving water Class B ,						
e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 0.0339 cfs Please attach any calculation sheets used to support stream flow and dilution calculations.						
f) Is the receiving water a listed 303(d) water quality impaired or limited water? Yes ✓ No____ If yes, for which pollutant(s)? Nutrients & Bacteria Is there a TMDL? Yes ✓ No____ If yes, for which pollutant(s)? Phosphorus & Bacteria						

6. Results of Consultation with Federal Services: Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes ___ No ✓
Has any consultation with the federal services been completed ? ___ Yes ___ No ✓ or is consultation underway? Yes ___ No ✓
What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (check one):
a "no jeopardy" opinion? _____ or written concurrence ____ on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?

b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge?
Yes _____ No ✓ Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes _____ No ✓

7. Supplemental information.

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

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

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

Facility/Site Name: Town of Needham, 470 Dedham Avenue, Needham, MA 02492

Operator Signature: Diane Shaw for the Town of Needham

Title: Resident Site Manager

Date: 8/31/09

Enclosure 3 - Laboratory Reports: August 18, 2009 and September 2, 2009

Report Date:
18-Aug-09 15:28

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

GeoHydroCycle, Inc.
151B California Street
Newton, MA 02458
Attn: Kerri-Ann Richard

Project: Needham Drain - Needham, MA
Project #: 09029

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SA99386-01	GHC-1, S-1	Soil	13-Aug-09 09:15	14-Aug-09 16:21
SA99386-02	GHC-2, S-1	Soil	13-Aug-09 09:20	14-Aug-09 16:21
SA99386-03	GHC-2, S-2	Soil	13-Aug-09 09:30	14-Aug-09 16:21
SA99386-04	B-1, S-1	Soil	13-Aug-09 09:35	14-Aug-09 16:21
SA99386-05	B-2, S-1	Soil	13-Aug-09 09:45	14-Aug-09 16:21
SA99386-06	GHC-3, S-1	Soil	13-Aug-09 09:50	14-Aug-09 16:21
SA99386-07	GHC-3, S-2	Soil	13-Aug-09 09:55	14-Aug-09 16:21
SA99386-08	GHC-4, S-1	Soil	13-Aug-09 10:10	14-Aug-09 16:21
SA99386-09	GHC-4, S-2	Soil	13-Aug-09 10:25	14-Aug-09 16:21
SA99386-10	GHC-5, S-1	Soil	13-Aug-09 10:49	14-Aug-09 16:21
SA99386-11	B-4, S-1	Soil	13-Aug-09 10:20	14-Aug-09 16:21
SA99386-12	B-5, S-1	Soil	13-Aug-09 11:05	14-Aug-09 16:21
SA99386-13	B-6, S-1	Soil	13-Aug-09 11:15	14-Aug-09 16:21
SA99386-14	B-7, S-1	Soil	13-Aug-09 11:25	14-Aug-09 16:21
SA99386-15	B-7, S-2	Soil	13-Aug-09 11:30	14-Aug-09 16:21
SA99386-16	GHC-6, S-1	Soil	13-Aug-09 12:20	14-Aug-09 16:21
SA99386-17	GHC-7, S-1	Soil	13-Aug-09 12:30	14-Aug-09 16:21
SA99386-18	B-8, S-1	Soil	13-Aug-09 12:10	14-Aug-09 16:21
SA99386-19	GHC-1	Ground Water	14-Aug-09 10:16	14-Aug-09 16:21
SA99386-20	GHC-2	Ground Water	14-Aug-09 10:20	14-Aug-09 16:21
SA99386-21	GHC-3	Ground Water	14-Aug-09 10:24	14-Aug-09 16:21
SA99386-22	GHC-4	Ground Water	14-Aug-09 10:29	14-Aug-09 16:21
SA99386-23	GHC-5	Ground Water	14-Aug-09 10:11	14-Aug-09 16:21
SA99386-24	GHC-6	Ground Water	14-Aug-09 09:58	14-Aug-09 16:21
SA99386-25	GHC-7	Ground Water	14-Aug-09 09:50	14-Aug-09 16:21
SA99386-26	C.B. Outlet	Ground Water	14-Aug-09 10:33	14-Aug-09 16:21

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 43 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 sample temperature upon receipt by Spectrum Analytical courier was recorded as 3.6 degrees Celsius. The condition of these samples was further noted as received on ice. The samples were transported on ice to the laboratory facility and the temperature was recorded at 3.0 degrees Celsius upon receipt at the laboratory. Please refer to the Chain of Custody for details specific to sample receipt times.

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.

These samples do not exhibit the characteristics of reactivity as defined in 40 CFR 261.23, sections (1), (2), (4), and (5); however, Spectrum Analytical, Inc. does not test for detonation, explosive reaction or potential, or forbidden explosives as defined in 40 CFR 261.23, sections (3), (6), (7) and (8).

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

SW846 8260B

Laboratory Control Samples:

9081203-BS1

Analyte out of acceptance range in QC spike but no reportable concentration present in sample.

Methyl tert-butyl ether

9081203-BSD1

Analyte out of acceptance range in QC spike but no reportable concentration present in sample.

Methyl tert-butyl ether

The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.

Tetrahydrofuran

Samples:

S907765-CCV1

Analyte percent drift/percent difference is greater than 30%, data is accepted due to all CCC analytes passing within the 20% Drift/Difference criteria

Methyl tert-butyl ether

This affected the following samples:

GHC-2, S-1

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-1, S-1 SA99386-01	09029	Soil	13-Aug-09 09:15	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	29.6	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	29.6	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	29.6	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	29.6	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	29.6	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	29.6	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	29.6	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*89*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	85.9		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081083	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-2, S-1 SA99386-02	09029	Soil	13-Aug-09 09:20	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile Organic Compounds											
	VOC Extraction	Field extracted		N/A		1	VOC Soil Extraction	14-Aug-09	14-Aug-09	9081091	
Volatile Organic Compounds						Initial weight: 33.37 g					
Prepared by method SW846 5030 Soil (high level)											
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/kg dry	30.4	50	SW846 8260B	17-Aug-09	18-Aug-09	9081203	
67-64-1	Acetone	BRL		µg/kg dry	304	50	"	"	"	"	
107-13-1	Acrylonitrile	BRL		µg/kg dry	30.4	50	"	"	"	"	
71-43-2	Benzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
108-86-1	Bromobenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
74-97-5	Bromochloromethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-27-4	Bromodichloromethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-25-2	Bromoform	BRL		µg/kg dry	30.4	50	"	"	"	"	
74-83-9	Bromomethane	BRL		µg/kg dry	60.7	50	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL		µg/kg dry	304	50	"	"	"	"	
104-51-8	n-Butylbenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-15-0	Carbon disulfide	BRL		µg/kg dry	152	50	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL		µg/kg dry	30.4	50	"	"	"	"	
108-90-7	Chlorobenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-00-3	Chloroethane	BRL		µg/kg dry	60.7	50	"	"	"	"	
67-66-3	Chloroform	BRL		µg/kg dry	30.4	50	"	"	"	"	
74-87-3	Chloromethane	BRL		µg/kg dry	60.7	50	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL		µg/kg dry	30.4	50	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL		µg/kg dry	30.4	50	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/kg dry	60.7	50	"	"	"	"	
124-48-1	Dibromochloromethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/kg dry	30.4	50	"	"	"	"	
74-95-3	Dibromomethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/kg dry	60.7	50	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL		µg/kg dry	30.4	50	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL		µg/kg dry	30.4	50	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL		µg/kg dry	30.4	50	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL		µg/kg dry	30.4	50	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL		µg/kg dry	30.4	50	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL		µg/kg dry	30.4	50	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL		µg/kg dry	30.4	50	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/kg dry	30.4	50	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/kg dry	30.4	50	"	"	"	"	
100-41-4	Ethylbenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL		µg/kg dry	30.4	50	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL		µg/kg dry	304	50	"	"	"	"	
98-82-8	Isopropylbenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL		µg/kg dry	30.4	50	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/kg dry	30.4	50	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/kg dry	304	50	"	"	"	"	
75-09-2	Methylene chloride	BRL		µg/kg dry	304	50	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/kg dry	30.4	50	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-2, S-1 SA99386-02	09029	Soil	13-Aug-09 09:20	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile Organic Compounds											
Volatile Organic Compounds						Initial weight: 33.37 g					
Prepared by method SW846 5030 Soil (high level)											
103-65-1	n-Propylbenzene	BRL		µg/kg dry	30.4	50	SW846 8260B	17-Aug-09	18-Aug-09	9081203	
100-42-5	Styrene	BRL		µg/kg dry	30.4	50	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
127-18-4	Tetrachloroethene	BRL		µg/kg dry	30.4	50	"	"	"	"	
108-88-3	Toluene	BRL		µg/kg dry	30.4	50	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL		µg/kg dry	30.4	50	"	"	"	"	
79-01-6	Trichloroethene	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/kg dry	30.4	50	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL		µg/kg dry	30.4	50	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-01-4	Vinyl chloride	BRL		µg/kg dry	30.4	50	"	"	"	"	
179601-23-1	m,p-Xylene	BRL		µg/kg dry	60.7	50	"	"	"	"	
95-47-6	o-Xylene	BRL		µg/kg dry	30.4	50	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL		µg/kg dry	304	50	"	"	"	"	
60-29-7	Ethyl ether	BRL		µg/kg dry	30.4	50	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL		µg/kg dry	30.4	50	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL		µg/kg dry	30.4	50	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL		µg/kg dry	30.4	50	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/kg dry	304	50	"	"	"	"	
123-91-1	1,4-Dioxane	BRL		µg/kg dry	607	50	"	"	"	"	
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/kg dry	152	50	"	"	"	"	
64-17-5	Ethanol	BRL		µg/kg dry	12100	50	"	"	"	"	
Surrogate recoveries:											
460-00-4	*4-Bromofluorobenzene*	*98*		*70-130 %*			"	"	"	"	
2037-26-5	*Toluene-d8*	*99*		*70-130 %*			"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*111*		*70-130 %*			"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*87*		*70-130 %*			"	"	"	"	
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	29.5	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	29.5	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	29.5	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	29.5	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	29.5	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	29.5	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	29.5	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	29.5	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	29.5	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	29.5	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	29.5	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	29.5	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*85*		*40-140 %*			"	"	"	"	

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

* Reportable Detection Limit BRL = Below Reporting Limit

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-2, S-1 SA99386-02	09029	Soil	13-Aug-09 09:20	14-Aug-09

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Cert.*
General Chemistry Parameters											
	% Solids	90.2		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081083	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-2, S-2 SA99386-03	09029	Soil	13-Aug-09 09:30	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	31.7	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	31.7	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	31.7	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	31.7	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	31.7	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	31.7	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	31.7	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	31.7	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	31.7	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	31.7	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	31.7	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	31.7	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*86*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	83.1		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081083	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-1, S-1 SA99386-04	09029	Soil	13-Aug-09 09:35	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	30.8	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	164		mg/kg dry	30.8	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	30.8	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	30.8	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	30.8	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	30.8	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Total Petroleum Hydrocarbons	164		mg/kg dry	30.8	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*94*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	85.5		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081083	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-2, S-1 SA99386-05	09029	Soil	13-Aug-09 09:45	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	35.9	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	533		mg/kg dry	35.9	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	35.9	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	35.9	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	35.9	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	35.9	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	35.9	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	35.9	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	35.9	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	35.9	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	35.9	1	"	"	"	"	
	Total Petroleum Hydrocarbons	533		mg/kg dry	35.9	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*101*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	81.9		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081083	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-3, S-1 SA99386-06	09029	Soil	13-Aug-09 09:50	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Semivolatile Organic Compounds by GC											
Polychlorinated Biphenyls by SW846 8082											
Prepared by method SW846 3545A											
12674-11-2	Aroclor-1016	BRL		µg/kg dry	23.8	1	SW846 8082	15-Aug-09	18-Aug-09	9081101	
11104-28-2	Aroclor-1221	BRL		µg/kg dry	23.8	1	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg dry	23.8	1	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg dry	23.8	1	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg dry	23.8	1	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg dry	23.8	1	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg dry	23.8	1	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg dry	23.8	1	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg dry	23.8	1	"	"	"	"	
Surrogate recoveries:											
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*56*		*30-150 %*			"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*139*		*30-150 %*			"	"	"	"	
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	37.0	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	4,150		mg/kg dry	37.0	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	37.0	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	37.0	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	37.0	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	37.0	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	37.0	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	37.0	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	37.0	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	37.0	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	37.0	1	"	"	"	"	
	Total Petroleum Hydrocarbons	4,150		mg/kg dry	37.0	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*101*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	79.9		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081083	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-3, S-2 SA99386-07	09029	Soil	13-Aug-09 09:55	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	32.4	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	32.4	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	32.4	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	32.4	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	32.4	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	32.4	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	32.4	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	32.4	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	32.4	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	32.4	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	32.4	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	32.4	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*90*		*40-140 %*			"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods											
7440-38-2	Arsenic	4.60		mg/kg dry	1.64	1	SW846 6010B	14-Aug-09	16-Aug-09	9081081	
7440-43-9	Cadmium	BRL		mg/kg dry	0.546	1	"	"	"	"	
7440-47-3	Chromium	17.9		mg/kg dry	1.09	1	"	"	"	"	
7439-97-6	Mercury	BRL		mg/kg dry	0.0297	1	SW846 7471A	"	18-Aug-09	9081082	
7439-92-1	Lead	5.24		mg/kg dry	1.64	1	SW846 6010B	"	16-Aug-09	9081081	
General Chemistry Parameters											
	% Solids	86.9		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081083	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-4, S-1 SA99386-08	09029	Soil	13-Aug-09 10:10	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	33.0	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	695		mg/kg dry	33.0	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	33.0	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	33.0	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	33.0	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	33.0	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	33.0	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	33.0	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	33.0	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	33.0	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	33.0	1	"	"	"	"	
	Total Petroleum Hydrocarbons	695		mg/kg dry	33.0	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*85*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	85.8		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	
Toxicity Characteristics											
	Flashpoint	>200		°F		1	SW846 1010	17-Aug-09	17-Aug-09	9081182	
	pH	6.54	pH	pH Units		1	SW846 9045C	17-Aug-09 12:30	17-Aug-09 13:48	9081183	
Reactivity Cyanide/Sulfide											
Prepared by method General Preparation											
	Reactivity	Nonreactive		mg/kg dry		1	SW846 Ch. 7.3	17-Aug-09	17-Aug-09	9081192	
	Reactive Cyanide	BRL		mg/kg dry	24.8	1	"	"	"	"	
	Reactive Sulfide	BRL		mg/kg dry	49.7	1	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-4, S-2 SA99386-09	09029	Soil	13-Aug-09 10:25	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	27.6	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	27.6	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	27.6	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	27.6	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	27.6	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	27.6	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	27.6	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	27.6	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	27.6	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	27.6	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	27.6	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	27.6	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*87*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	92.3		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-5, S-1 SA99386-10	09029	Soil	13-Aug-09 10:49	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	29.8	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	29.8	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	29.8	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	29.8	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	29.8	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	29.8	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	29.8	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	29.8	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	29.8	1	"	"	"	"	
	Unidentified	60.6		mg/kg dry	29.8	1	"	"	"	"	
	Other Oil	Calculated as		mg/kg dry	29.8	1	"	"	"	"	
	Total Petroleum Hydrocarbons	60.6		mg/kg dry	29.8	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*86*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	85.2		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-4, S-1 SA99386-11	09029	Soil	13-Aug-09 10:20	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	29.6	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	29.6	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	29.6	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	29.6	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	29.6	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	29.6	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	29.6	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	29.6	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*86*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	87.2		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-5, S-1 SA99386-12	09029	Soil	13-Aug-09 11:05	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	39.0	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	39.0	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	39.0	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	39.0	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	39.0	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	39.0	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	39.0	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	39.0	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	39.0	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	39.0	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	39.0	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	39.0	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*86*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	78.4		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-6, S-1 SA99386-13	09029	Soil	13-Aug-09 11:15	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	32.5	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	32.5	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	32.5	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	32.5	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	32.5	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	32.5	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	32.5	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	32.5	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	32.5	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	32.5	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	32.5	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	32.5	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*84*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	80.3		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-7, S-1 SA99386-14	09029	Soil	13-Aug-09 11:25	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	30.6	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	30.6	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	30.6	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	30.6	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	30.6	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	30.6	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	30.6	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	30.6	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	30.6	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	30.6	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	30.6	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	30.6	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*84*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	84.1		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-7, S-2 SA99386-15	09029	Soil	13-Aug-09 11:30	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	31.5	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	31.5	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	31.5	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	31.5	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	31.5	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	31.5	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	31.5	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	31.5	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	31.5	1	"	"	"	"	
	Unidentified	127		mg/kg dry	31.5	1	"	"	"	"	
	Other Oil	Calculated as		mg/kg dry	31.5	1	"	"	"	"	
	Total Petroleum Hydrocarbons	127		mg/kg dry	31.5	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*86*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	82.8		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-6, S-1 SA99386-16	09029	Soil	13-Aug-09 12:20	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	30.8	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	30.8	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	30.8	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	30.8	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	30.8	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	30.8	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Unidentified	93.0		mg/kg dry	30.8	1	"	"	"	"	
	Other Oil	Calculated as		mg/kg dry	30.8	1	"	"	"	"	
	Total Petroleum Hydrocarbons	93.0		mg/kg dry	30.8	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*90*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	84.8		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-7, S-1 SA99386-17	09029	Soil	13-Aug-09 12:30	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	31.1	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	31.1	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	31.1	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	31.1	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	31.1	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	31.1	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	31.1	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	31.1	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	31.1	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	31.1	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	31.1	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	31.1	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*85*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	83.0		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-8, S-1 SA99386-18	09029	Soil	13-Aug-09 12:10	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3550B											
8006-61-9	Gasoline	BRL		mg/kg dry	30.8	1	+SW846 8100Mod.	15-Aug-09	17-Aug-09	9081102	
68476-30-2	Fuel Oil #2	BRL		mg/kg dry	30.8	1	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL		mg/kg dry	30.8	1	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL		mg/kg dry	30.8	1	"	"	"	"	
M09800000	Motor Oil	BRL		mg/kg dry	30.8	1	"	"	"	"	
8032-32-4	Ligroin	BRL		mg/kg dry	30.8	1	"	"	"	"	
J00100000	Aviation Fuel	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Hydraulic Oil	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Dielectric Fluid	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Unidentified	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Other Oil	BRL		mg/kg dry	30.8	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/kg dry	30.8	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*86*		*40-140 %*			"	"	"	"	
General Chemistry Parameters											
	% Solids	85.9		%		1	SM2540 G Mod.	14-Aug-09	14-Aug-09	9081090	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-1 SA99386-19	09029	Ground Water	14-Aug-09 10:16	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod.	17-Aug-09	17-Aug-09	9081135	
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	BRL		mg/l	0.2	1	"	"	"	"	
	Other Oil	BRL		mg/l	0.2	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*70*		*40-140 %*			"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-2 SA99386-20	09029	Ground Water	14-Aug-09 10:20	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod.	17-Aug-09	17-Aug-09	9081135	
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	BRL		mg/l	0.2	1	"	"	"	"	
	Other Oil	BRL		mg/l	0.2	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*71*		*40-140 %*			"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-3 SA99386-21	09029	Ground Water	14-Aug-09 10:24	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod.	17-Aug-09	17-Aug-09	9081135	
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	BRL		mg/l	0.2	1	"	"	"	"	
	Other Oil	BRL		mg/l	0.2	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*61*		*40-140 %*			"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-4 SA99386-22	09029	Ground Water	14-Aug-09 10:29	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod.	17-Aug-09	17-Aug-09	9081135	
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	BRL		mg/l	0.2	1	"	"	"	"	
	Other Oil	BRL		mg/l	0.2	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*74*		*40-140 %*			"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-5 SA99386-23	09029	Ground Water	14-Aug-09 10:11	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod.	17-Aug-09	17-Aug-09	9081135	
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	BRL		mg/l	0.2	1	"	"	"	"	
	Other Oil	BRL		mg/l	0.2	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*82*		*40-140 %*			"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-6 SA99386-24	09029	Ground Water	14-Aug-09 09:58	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod.	17-Aug-09	17-Aug-09	9081135	
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	BRL		mg/l	0.2	1	"	"	"	"	
	Other Oil	BRL		mg/l	0.2	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*85*		*40-140 %*			"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-7 SA99386-25	09029	Ground Water	14-Aug-09 09:50	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod.	17-Aug-09	17-Aug-09	9081135	
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	BRL		mg/l	0.2	1	"	"	"	"	
	Other Oil	BRL		mg/l	0.2	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*77*		*40-140 %*			"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
C.B. Outlet SA99386-26	09029	Ground Water	14-Aug-09 10:33	14-Aug-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Extractable Petroleum Hydrocarbons											
TPH 8100 by GC											
Prepared by method SW846 3510C											
8006-61-9	Gasoline	BRL		mg/l	0.2	1	+SW846 8100Mod.	17-Aug-09	17-Aug-09	9081135	
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	BRL		mg/l	0.2	1	"	"	"	"	
	Other Oil	BRL		mg/l	0.2	1	"	"	"	"	
	Total Petroleum Hydrocarbons	BRL		mg/l	0.2	1	"	"	"	"	
Surrogate recoveries:											
3386-33-2	*1-Chlorooctadecane*	*82*		*40-140 %*			"	"	"	"	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081203 - SW846 5030 Soil (high level)										
Blank (9081203-BLK1)										
Prepared & Analyzed: 17-Aug-09										
1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/kg wet	1.0						
Acetone	BRL		µg/kg wet	10.0						
Acrylonitrile	BRL		µg/kg wet	1.0						
Benzene	BRL		µg/kg wet	1.0						
Bromobenzene	BRL		µg/kg wet	1.0						
Bromochloromethane	BRL		µg/kg wet	1.0						
Bromodichloromethane	BRL		µg/kg wet	1.0						
Bromoform	BRL		µg/kg wet	1.0						
Bromomethane	BRL		µg/kg wet	2.0						
2-Butanone (MEK)	BRL		µg/kg wet	10.0						
n-Butylbenzene	BRL		µg/kg wet	1.0						
sec-Butylbenzene	BRL		µg/kg wet	1.0						
tert-Butylbenzene	BRL		µg/kg wet	1.0						
Carbon disulfide	BRL		µg/kg wet	5.0						
Carbon tetrachloride	BRL		µg/kg wet	1.0						
Chlorobenzene	BRL		µg/kg wet	1.0						
Chloroethane	BRL		µg/kg wet	2.0						
Chloroform	BRL		µg/kg wet	1.0						
Chloromethane	BRL		µg/kg wet	2.0						
2-Chlorotoluene	BRL		µg/kg wet	1.0						
4-Chlorotoluene	BRL		µg/kg wet	1.0						
1,2-Dibromo-3-chloropropane	BRL		µg/kg wet	2.0						
Dibromochloromethane	BRL		µg/kg wet	1.0						
1,2-Dibromoethane (EDB)	BRL		µg/kg wet	1.0						
Dibromomethane	BRL		µg/kg wet	1.0						
1,2-Dichlorobenzene	BRL		µg/kg wet	1.0						
1,3-Dichlorobenzene	BRL		µg/kg wet	1.0						
1,4-Dichlorobenzene	BRL		µg/kg wet	1.0						
Dichlorodifluoromethane (Freon12)	BRL		µg/kg wet	2.0						
1,1-Dichloroethane	BRL		µg/kg wet	1.0						
1,2-Dichloroethane	BRL		µg/kg wet	1.0						
1,1-Dichloroethene	BRL		µg/kg wet	1.0						
cis-1,2-Dichloroethene	BRL		µg/kg wet	1.0						
trans-1,2-Dichloroethene	BRL		µg/kg wet	1.0						
1,2-Dichloropropane	BRL		µg/kg wet	1.0						
1,3-Dichloropropane	BRL		µg/kg wet	1.0						
2,2-Dichloropropane	BRL		µg/kg wet	1.0						
1,1-Dichloropropene	BRL		µg/kg wet	1.0						
cis-1,3-Dichloropropene	BRL		µg/kg wet	1.0						
trans-1,3-Dichloropropene	BRL		µg/kg wet	1.0						
Ethylbenzene	BRL		µg/kg wet	1.0						
Hexachlorobutadiene	BRL		µg/kg wet	1.0						
2-Hexanone (MBK)	BRL		µg/kg wet	10.0						
Isopropylbenzene	BRL		µg/kg wet	1.0						
4-Isopropyltoluene	BRL		µg/kg wet	1.0						
Methyl tert-butyl ether	BRL		µg/kg wet	1.0						
4-Methyl-2-pentanone (MIBK)	BRL		µg/kg wet	10.0						
Methylene chloride	BRL		µg/kg wet	10.0						
Naphthalene	BRL		µg/kg wet	1.0						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081203 - SW846 5030 Soil (high level)										
Blank (9081203-BLK1)										
Prepared & Analyzed: 17-Aug-09										
n-Propylbenzene	BRL		µg/kg wet	1.0						
Styrene	BRL		µg/kg wet	1.0						
1,1,1,2-Tetrachloroethane	BRL		µg/kg wet	1.0						
1,1,2,2-Tetrachloroethane	BRL		µg/kg wet	1.0						
Tetrachloroethene	BRL		µg/kg wet	1.0						
Toluene	BRL		µg/kg wet	1.0						
1,2,3-Trichlorobenzene	BRL		µg/kg wet	1.0						
1,2,4-Trichlorobenzene	BRL		µg/kg wet	1.0						
1,3,5-Trichlorobenzene	BRL		µg/kg wet	1.0						
1,1,1-Trichloroethane	BRL		µg/kg wet	1.0						
1,1,2-Trichloroethane	BRL		µg/kg wet	1.0						
Trichloroethene	BRL		µg/kg wet	1.0						
Trichlorofluoromethane (Freon 11)	BRL		µg/kg wet	1.0						
1,2,3-Trichloropropane	BRL		µg/kg wet	1.0						
1,2,4-Trimethylbenzene	BRL		µg/kg wet	1.0						
1,3,5-Trimethylbenzene	BRL		µg/kg wet	1.0						
Vinyl chloride	BRL		µg/kg wet	1.0						
m,p-Xylene	BRL		µg/kg wet	2.0						
o-Xylene	BRL		µg/kg wet	1.0						
Tetrahydrofuran	BRL		µg/kg wet	10.0						
Ethyl ether	BRL		µg/kg wet	1.0						
Tert-amyl methyl ether	BRL		µg/kg wet	1.0						
Ethyl tert-butyl ether	BRL		µg/kg wet	1.0						
Di-isopropyl ether	BRL		µg/kg wet	1.0						
Tert-Butanol / butyl alcohol	BRL		µg/kg wet	10.0						
1,4-Dioxane	BRL		µg/kg wet	20.0						
trans-1,4-Dichloro-2-butene	BRL		µg/kg wet	5.0						
Ethanol	BRL		µg/kg wet	400						
Surrogate: 4-Bromofluorobenzene	*29.5*		µg/kg wet		*30.0*		*98*	*70-130*		
Surrogate: Toluene-d8	*29.8*		µg/kg wet		*30.0*		*99*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*31.1*		µg/kg wet		*30.0*		*104*	*70-130*		
Surrogate: Dibromofluoromethane	*27.1*		µg/kg wet		*30.0*		*90*	*70-130*		
LCS (9081203-BS1)										
Prepared & Analyzed: 17-Aug-09										
1,1,2-Trichlorotrifluoroethane (Freon 113)	24.1		µg/kg wet		20.0		120	70-130		
Acetone	17.3		µg/kg wet		20.0		87	40-136		
Acrylonitrile	19.3		µg/kg wet		20.0		97	70-130		
Benzene	21.2		µg/kg wet		20.0		106	70-130		
Bromobenzene	22.0		µg/kg wet		20.0		110	70-130		
Bromochloromethane	21.2		µg/kg wet		20.0		106	70-130		
Bromodichloromethane	19.5		µg/kg wet		20.0		97	70-130		
Bromoform	16.4		µg/kg wet		20.0		82	70-130		
Bromomethane	17.8		µg/kg wet		20.0		89	61-151		
2-Butanone (MEK)	20.9		µg/kg wet		20.0		104	61.5-132		
n-Butylbenzene	19.6		µg/kg wet		20.0		98	70-130		
sec-Butylbenzene	22.6		µg/kg wet		20.0		113	70-130		
tert-Butylbenzene	23.2		µg/kg wet		20.0		116	70-130		
Carbon disulfide	16.8		µg/kg wet		20.0		84	70-130		
Carbon tetrachloride	22.4		µg/kg wet		20.0		112	70-130		
Chlorobenzene	21.6		µg/kg wet		20.0		108	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081203 - SW846 5030 Soil (high level)										
LCS (9081203-BS1)										
Prepared & Analyzed: 17-Aug-09										
Chloroethane	16.6		µg/kg wet		20.0		83	66-130		
Chloroform	21.3		µg/kg wet		20.0		107	70-130		
Chloromethane	20.7		µg/kg wet		20.0		103	70-130		
2-Chlorotoluene	22.3		µg/kg wet		20.0		111	70-130		
4-Chlorotoluene	22.4		µg/kg wet		20.0		112	70-130		
1,2-Dibromo-3-chloropropane	16.0		µg/kg wet		20.0		80	70-130		
Dibromochloromethane	15.7		µg/kg wet		20.0		79	64.6-130		
1,2-Dibromoethane (EDB)	20.3		µg/kg wet		20.0		102	70-130		
Dibromomethane	19.6		µg/kg wet		20.0		98	70-130		
1,2-Dichlorobenzene	21.3		µg/kg wet		20.0		107	70-130		
1,3-Dichlorobenzene	22.7		µg/kg wet		20.0		113	70-130		
1,4-Dichlorobenzene	19.9		µg/kg wet		20.0		100	70-130		
Dichlorodifluoromethane (Freon12)	25.3		µg/kg wet		20.0		127	51.9-130		
1,1-Dichloroethane	24.6		µg/kg wet		20.0		123	70-130		
1,2-Dichloroethane	19.9		µg/kg wet		20.0		99	70-130		
1,1-Dichloroethene	19.3		µg/kg wet		20.0		97	70-130		
cis-1,2-Dichloroethene	22.1		µg/kg wet		20.0		110	70-130		
trans-1,2-Dichloroethene	17.8		µg/kg wet		20.0		89	70-130		
1,2-Dichloropropane	21.3		µg/kg wet		20.0		107	70-130		
1,3-Dichloropropane	20.4		µg/kg wet		20.0		102	70-130		
2,2-Dichloropropane	23.3		µg/kg wet		20.0		117	70-130		
1,1-Dichloropropene	22.0		µg/kg wet		20.0		110	70-130		
cis-1,3-Dichloropropene	18.7		µg/kg wet		20.0		93	70-130		
trans-1,3-Dichloropropene	17.4		µg/kg wet		20.0		87	70-130		
Ethylbenzene	22.2		µg/kg wet		20.0		111	70-130		
Hexachlorobutadiene	17.9		µg/kg wet		20.0		90	70-133		
2-Hexanone (MBK)	19.1		µg/kg wet		20.0		95	70-130		
Isopropylbenzene	19.0		µg/kg wet		20.0		95	70-130		
4-Isopropyltoluene	21.7		µg/kg wet		20.0		108	70-130		
Methyl tert-butyl ether	26.6	QC2	µg/kg wet		20.0		133	70-130		
4-Methyl-2-pentanone (MIBK)	18.5		µg/kg wet		20.0		92	50.3-133		
Methylene chloride	17.4		µg/kg wet		20.0		87	70-130		
Naphthalene	18.1		µg/kg wet		20.0		90	70-130		
n-Propylbenzene	21.9		µg/kg wet		20.0		110	70-130		
Styrene	22.4		µg/kg wet		20.0		112	70-130		
1,1,1,2-Tetrachloroethane	17.0		µg/kg wet		20.0		85	70-130		
1,1,2,2-Tetrachloroethane	20.3		µg/kg wet		20.0		101	70-130		
Tetrachloroethene	24.6		µg/kg wet		20.0		123	70-130		
Toluene	19.8		µg/kg wet		20.0		99	70-130		
1,2,3-Trichlorobenzene	19.2		µg/kg wet		20.0		96	70-130		
1,2,4-Trichlorobenzene	17.7		µg/kg wet		20.0		89	70-130		
1,3,5-Trichlorobenzene	18.6		µg/kg wet		20.0		93	70-130		
1,1,1-Trichloroethane	21.9		µg/kg wet		20.0		110	70-130		
1,1,2-Trichloroethane	22.5		µg/kg wet		20.0		113	70-130		
Trichloroethene	22.0		µg/kg wet		20.0		110	70-130		
Trichlorofluoromethane (Freon 11)	20.2		µg/kg wet		20.0		101	70-147		
1,2,3-Trichloropropane	22.6		µg/kg wet		20.0		113	70-130		
1,2,4-Trimethylbenzene	21.9		µg/kg wet		20.0		110	70-130		
1,3,5-Trimethylbenzene	23.1		µg/kg wet		20.0		116	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081203 - SW846 5030 Soil (high level)										
LCS (9081203-BS1)										
Prepared & Analyzed: 17-Aug-09										
Vinyl chloride	16.0		µg/kg wet		20.0		80	70-130		
m,p-Xylene	44.2		µg/kg wet		40.0		110	70-130		
o-Xylene	23.1		µg/kg wet		20.0		115	70-130		
Tetrahydrofuran	23.2		µg/kg wet		20.0		116	70-130		
Ethyl ether	19.0		µg/kg wet		20.0		95	70-130		
Tert-amyl methyl ether	20.8		µg/kg wet		20.0		104	70-130		
Ethyl tert-butyl ether	21.4		µg/kg wet		20.0		107	70-130		
Di-isopropyl ether	19.5		µg/kg wet		20.0		98	70-130		
Tert-Butanol / butyl alcohol	220		µg/kg wet		200		110	70-130		
1,4-Dioxane	251		µg/kg wet		200		125	60-146		
trans-1,4-Dichloro-2-butene	16.4		µg/kg wet		20.0		82	70-130		
Ethanol	440		µg/kg wet		400		110	70-130		
Surrogate: 4-Bromofluorobenzene	*32.2*		µg/kg wet		*30.0*		*107*	*70-130*		
Surrogate: Toluene-d8	*29.4*		µg/kg wet		*30.0*		*98*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*29.2*		µg/kg wet		*30.0*		*97*	*70-130*		
Surrogate: Dibromofluoromethane	*29.9*		µg/kg wet		*30.0*		*100*	*70-130*		
LCS Dup (9081203-BSD1)										
Prepared & Analyzed: 17-Aug-09										
1,1,2-Trichlorotrifluoroethane (Freon 113)	22.8		µg/kg wet		20.0		114	70-130	6	25
Acetone	21.0		µg/kg wet		20.0		105	40-136	19	50
Acrylonitrile	21.1		µg/kg wet		20.0		105	70-130	9	25
Benzene	21.4		µg/kg wet		20.0		107	70-130	1	25
Bromobenzene	20.2		µg/kg wet		20.0		101	70-130	9	25
Bromochloromethane	21.6		µg/kg wet		20.0		108	70-130	2	25
Bromodichloromethane	20.2		µg/kg wet		20.0		101	70-130	4	25
Bromoform	16.0		µg/kg wet		20.0		80	70-130	3	25
Bromomethane	16.6		µg/kg wet		20.0		83	61-151	7	50
2-Butanone (MEK)	23.2		µg/kg wet		20.0		116	61.5-132	10	50
n-Butylbenzene	20.6		µg/kg wet		20.0		103	70-130	5	25
sec-Butylbenzene	21.1		µg/kg wet		20.0		106	70-130	7	25
tert-Butylbenzene	21.5		µg/kg wet		20.0		108	70-130	8	25
Carbon disulfide	15.8		µg/kg wet		20.0		79	70-130	6	25
Carbon tetrachloride	21.2		µg/kg wet		20.0		106	70-130	5	25
Chlorobenzene	20.1		µg/kg wet		20.0		101	70-130	7	25
Chloroethane	16.2		µg/kg wet		20.0		81	66-130	2	50
Chloroform	21.7		µg/kg wet		20.0		108	70-130	2	25
Chloromethane	21.0		µg/kg wet		20.0		105	70-130	2	25
2-Chlorotoluene	21.2		µg/kg wet		20.0		106	70-130	5	25
4-Chlorotoluene	21.4		µg/kg wet		20.0		107	70-130	5	25
1,2-Dibromo-3-chloropropane	17.6		µg/kg wet		20.0		88	70-130	9	25
Dibromochloromethane	16.1		µg/kg wet		20.0		80	64.6-130	2	50
1,2-Dibromoethane (EDB)	20.8		µg/kg wet		20.0		104	70-130	2	25
Dibromomethane	21.0		µg/kg wet		20.0		105	70-130	6	25
1,2-Dichlorobenzene	21.0		µg/kg wet		20.0		105	70-130	1	25
1,3-Dichlorobenzene	20.7		µg/kg wet		20.0		103	70-130	9	25
1,4-Dichlorobenzene	20.2		µg/kg wet		20.0		101	70-130	1	25
Dichlorodifluoromethane (Freon12)	20.4		µg/kg wet		20.0		102	51.9-130	22	50
1,1-Dichloroethane	23.4		µg/kg wet		20.0		117	70-130	5	25
1,2-Dichloroethane	21.2		µg/kg wet		20.0		106	70-130	7	25
1,1-Dichloroethene	18.6		µg/kg wet		20.0		93	70-130	4	25

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081203 - SW846 5030 Soil (high level)										
LCS Dup (9081203-BSD1)										
Prepared & Analyzed: 17-Aug-09										
cis-1,2-Dichloroethene	21.5		µg/kg wet		20.0		107	70-130	3	25
trans-1,2-Dichloroethene	17.4		µg/kg wet		20.0		87	70-130	2	25
1,2-Dichloropropane	22.3		µg/kg wet		20.0		111	70-130	4	25
1,3-Dichloropropane	22.0		µg/kg wet		20.0		110	70-130	8	25
2,2-Dichloropropane	22.0		µg/kg wet		20.0		110	70-130	6	25
1,1-Dichloropropene	21.8		µg/kg wet		20.0		109	70-130	0.6	25
cis-1,3-Dichloropropene	19.0		µg/kg wet		20.0		95	70-130	2	25
trans-1,3-Dichloropropene	18.3		µg/kg wet		20.0		91	70-130	5	25
Ethylbenzene	21.2		µg/kg wet		20.0		106	70-130	4	25
Hexachlorobutadiene	16.4		µg/kg wet		20.0		82	70-133	9	50
2-Hexanone (MBK)	20.7		µg/kg wet		20.0		104	70-130	8	25
Isopropylbenzene	17.6		µg/kg wet		20.0		88	70-130	8	25
4-Isopropyltoluene	21.6		µg/kg wet		20.0		108	70-130	0.4	25
Methyl tert-butyl ether	27.5	QC2	µg/kg wet		20.0		137	70-130	3	25
4-Methyl-2-pentanone (MIBK)	20.5		µg/kg wet		20.0		102	50.3-133	10	50
Methylene chloride	17.8		µg/kg wet		20.0		89	70-130	2	25
Naphthalene	18.9		µg/kg wet		20.0		95	70-130	4	25
n-Propylbenzene	21.0		µg/kg wet		20.0		105	70-130	5	25
Styrene	19.6		µg/kg wet		20.0		98	70-130	13	25
1,1,1,2-Tetrachloroethane	16.2		µg/kg wet		20.0		81	70-130	5	25
1,1,2,2-Tetrachloroethane	21.1		µg/kg wet		20.0		105	70-130	4	25
Tetrachloroethene	21.7		µg/kg wet		20.0		109	70-130	12	25
Toluene	19.7		µg/kg wet		20.0		98	70-130	0.6	25
1,2,3-Trichlorobenzene	18.6		µg/kg wet		20.0		93	70-130	3	25
1,2,4-Trichlorobenzene	17.7		µg/kg wet		20.0		88	70-130	0.3	25
1,3,5-Trichlorobenzene	17.9		µg/kg wet		20.0		90	70-130	4	25
1,1,1-Trichloroethane	21.7		µg/kg wet		20.0		108	70-130	1	25
1,1,2-Trichloroethane	23.3		µg/kg wet		20.0		116	70-130	3	25
Trichloroethene	21.5		µg/kg wet		20.0		107	70-130	3	25
Trichlorofluoromethane (Freon 11)	19.0		µg/kg wet		20.0		95	70-147	6	50
1,2,3-Trichloropropane	23.4		µg/kg wet		20.0		117	70-130	3	25
1,2,4-Trimethylbenzene	20.8		µg/kg wet		20.0		104	70-130	5	25
1,3,5-Trimethylbenzene	21.4		µg/kg wet		20.0		107	70-130	8	25
Vinyl chloride	17.8		µg/kg wet		20.0		89	70-130	10	25
m,p-Xylene	41.5		µg/kg wet		40.0		104	70-130	6	25
o-Xylene	21.6		µg/kg wet		20.0		108	70-130	7	25
Tetrahydrofuran	26.1	QM9	µg/kg wet		20.0		131	70-130	12	25
Ethyl ether	18.7		µg/kg wet		20.0		94	70-130	1	50
Tert-amyl methyl ether	21.2		µg/kg wet		20.0		106	70-130	2	25
Ethyl tert-butyl ether	22.3		µg/kg wet		20.0		112	70-130	4	25
Di-isopropyl ether	21.6		µg/kg wet		20.0		108	70-130	10	25
Tert-Butanol / butyl alcohol	220		µg/kg wet		200		110	70-130	0.06	25
1,4-Dioxane	268		µg/kg wet		200		134	60-146	6	25
trans-1,4-Dichloro-2-butene	16.9		µg/kg wet		20.0		85	70-130	3	25
Ethanol	462		µg/kg wet		400		115	70-130	5	30
Surrogate: 4-Bromofluorobenzene	*31.6*		µg/kg wet		*30.0*		*105*	*70-130*		
Surrogate: Toluene-d8	*29.2*		µg/kg wet		*30.0*		*97*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*31.6*		µg/kg wet		*30.0*		*106*	*70-130*		
Surrogate: Dibromofluoromethane	*30.7*		µg/kg wet		*30.0*		*102*	*70-130*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081101 - SW846 3545A										
Blank (9081101-BLK1)										
Prepared: 15-Aug-09 Analyzed: 18-Aug-09										
Aroclor-1016	BRL		µg/kg wet	20.0						
Aroclor-1016 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1221	BRL		µg/kg wet	20.0						
Aroclor-1221 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1232	BRL		µg/kg wet	20.0						
Aroclor-1232 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1242	BRL		µg/kg wet	20.0						
Aroclor-1242 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1248	BRL		µg/kg wet	20.0						
Aroclor-1248 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1254	BRL		µg/kg wet	20.0						
Aroclor-1254 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1260	BRL		µg/kg wet	20.0						
Aroclor-1260 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1262	BRL		µg/kg wet	20.0						
Aroclor-1262 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1268	BRL		µg/kg wet	20.0						
Aroclor-1268 [2C]	BRL		µg/kg wet	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*14.0*		µg/kg wet		*20.0*		*70*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2	*13.8*		µg/kg wet		*20.0*		*69*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*29.3*		µg/kg wet		*20.0*		*147*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*19.4*		µg/kg wet		*20.0*		*97*	*30-150*		
LCS (9081101-BS1)										
Prepared: 15-Aug-09 Analyzed: 18-Aug-09										
Aroclor-1016	293		µg/kg wet	20.0	250		117	50-140		
Aroclor-1016 [2C]	280		µg/kg wet	20.0	250		112	50-140		
Aroclor-1260	335		µg/kg wet	20.0	250		134	50-140		
Aroclor-1260 [2C]	274		µg/kg wet	20.0	250		110	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*14.4*		µg/kg wet		*20.0*		*72*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2	*13.3*		µg/kg wet		*20.0*		*66*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*29.3*		µg/kg wet		*20.0*		*147*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*20.0*		µg/kg wet		*20.0*		*100*	*30-150*		
LCS Dup (9081101-BSD1)										
Prepared: 15-Aug-09 Analyzed: 18-Aug-09										
Aroclor-1016	286		µg/kg wet	20.0	250		114	50-140	3	30
Aroclor-1016 [2C]	281		µg/kg wet	20.0	250		112	50-140	0.2	30
Aroclor-1260	323		µg/kg wet	20.0	250		129	50-140	4	30
Aroclor-1260 [2C]	289		µg/kg wet	20.0	250		115	50-140	5	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*14.3*		µg/kg wet		*20.0*		*72*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2	*13.3*		µg/kg wet		*20.0*		*66*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*27.5*		µg/kg wet		*20.0*		*138*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*21.9*		µg/kg wet		*20.0*		*110*	*30-150*		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081102 - SW846 3550B										
Blank (9081102-BLK1)										
Prepared: 15-Aug-09 Analyzed: 17-Aug-09										
Gasoline	BRL		mg/kg wet	13.3						
Fuel Oil #2	BRL		mg/kg wet	13.3						
Fuel Oil #4	BRL		mg/kg wet	13.3						
Fuel Oil #6	BRL		mg/kg wet	13.3						
Motor Oil	BRL		mg/kg wet	13.3						
Ligroin	BRL		mg/kg wet	13.3						
Aviation Fuel	BRL		mg/kg wet	13.3						
Hydraulic Oil	BRL		mg/kg wet	13.3						
Dielectric Fluid	BRL		mg/kg wet	13.3						
Unidentified	BRL		mg/kg wet	13.3						
Other Oil	BRL		mg/kg wet	13.3						
Total Petroleum Hydrocarbons	BRL		mg/kg wet	13.3						
Surrogate: 1-Chlorooctadecane	*2.48*		mg/kg wet		*3.33*		*74*	*40-140*		
Duplicate (9081102-DUP1) **Source: SA99386-04**										
Prepared: 15-Aug-09 Analyzed: 17-Aug-09										
Gasoline	BRL		mg/kg dry	29.9		BRL				50
Fuel Oil #2	110		mg/kg dry	29.9		164			39	50
Fuel Oil #4	BRL		mg/kg dry	29.9		BRL				50
Fuel Oil #6	BRL		mg/kg dry	29.9		BRL				50
Motor Oil	BRL		mg/kg dry	29.9		BRL				50
Ligroin	BRL		mg/kg dry	29.9		BRL				50
Aviation Fuel	BRL		mg/kg dry	29.9		BRL				50
Hydraulic Oil	BRL		mg/kg dry	29.9		BRL				50
Dielectric Fluid	BRL		mg/kg dry	29.9		BRL				50
Unidentified	BRL		mg/kg dry	29.9		BRL				50
Other Oil	BRL		mg/kg dry	29.9		BRL				50
Total Petroleum Hydrocarbons	110		mg/kg dry	29.9		164			39	50
Surrogate: 1-Chlorooctadecane	*3.21*		mg/kg dry		*3.75*		*86*	*40-140*		
Batch 9081135 - SW846 3510C										
Blank (9081135-BLK1)										
Prepared & Analyzed: 17-Aug-09										
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	*0.0288*		mg/l		*0.0500*		*58*	*40-140*		
LCS (9081135-BS1)										
Prepared & Analyzed: 17-Aug-09										
Fuel Oil #2	10.5		mg/l	0.1	10.0		105	40-140		
Surrogate: 1-Chlorooctadecane	*0.0493*		mg/l		*0.0500*		*99*	*40-140*		

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

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081081 - SW846 3050B										
Blank (9081081-BLK1)										
Prepared: 14-Aug-09 Analyzed: 16-Aug-09										
Lead	BRL		mg/kg wet	1.40						
Chromium	BRL		mg/kg wet	0.931						
Cadmium	BRL		mg/kg wet	0.465						
Arsenic	BRL		mg/kg wet	1.40						
Duplicate (9081081-DUP1) **Source: SA99386-07**										
Prepared: 14-Aug-09 Analyzed: 16-Aug-09										
Lead	5.40		mg/kg dry	1.54		5.24			3	20
Cadmium	0.118	J	mg/kg dry	0.514		BRL				20
Arsenic	4.24		mg/kg dry	1.54		4.60			8	20
Chromium	17.0		mg/kg dry	1.03		17.9			5	20
Reference (9081081-SRM1)										
Prepared: 14-Aug-09 Analyzed: 16-Aug-09										
Lead	49.2		mg/kg wet	1.50	52.5		94	79-121.2		
Arsenic	43.2		mg/kg wet	1.50	44.6		97	78.1-122.3		
Cadmium	45.7		mg/kg wet	0.500	45.9		99	81.4-118.7		
Chromium	73.7		mg/kg wet	1.00	72.7		101	80.6-119.4		
Reference (9081081-SRM2)										
Prepared: 14-Aug-09 Analyzed: 16-Aug-09										
Lead	56.8		mg/kg wet	1.50	53.8		106	79-121.2		
Arsenic	43.6		mg/kg wet	1.50	45.7		95	78.1-122.3		
Chromium	74.0		mg/kg wet	1.00	74.4		99	80.6-119.4		
Cadmium	45.6		mg/kg wet	0.500	47.0		97	81.4-118.7		
Batch 9081082 - EPA200/SW7000 Series										
Blank (9081082-BLK1)										
Prepared: 14-Aug-09 Analyzed: 18-Aug-09										
Mercury	BRL		mg/kg wet	0.0260						
Duplicate (9081082-DUP1) **Source: SA99386-07**										
Prepared: 14-Aug-09 Analyzed: 18-Aug-09										
Mercury	BRL		mg/kg dry	0.0309		BRL				20
Reference (9081082-SRM1)										
Prepared: 14-Aug-09 Analyzed: 18-Aug-09										
Mercury	2.06		mg/kg wet	0.0300	1.72		119	71.8-128.2		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081090 - General Preparation										
Duplicate (9081090-DUP1) **Source: SA99386-08**										
Prepared & Analyzed: 14-Aug-09										
% Solids	74.9		%			85.8			14	200

Toxicity Characteristics - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9081182 - General Preparation										
Reference (9081182-SRM1)										
Prepared & Analyzed: 17-Aug-09										
Flashpoint	81		°F		81.0		100	95-105		
Batch 9081183 - General Preparation										
Reference (9081183-SRM1)										
Prepared & Analyzed: 17-Aug-09										
pH	5.96		pH Units		6.00		99	97.5-102.5		
Reference (9081183-SRM2)										
Prepared & Analyzed: 17-Aug-09										
pH	5.95		pH Units		6.00		99	97.5-102.5		
Batch 9081192 - General Preparation										
Blank (9081192-BLK1)										
Prepared & Analyzed: 17-Aug-09										
Reactivity	Nonreactive		mg/kg wet							
Reactive Cyanide	BRL		mg/kg wet	25.0						
Reactive Sulfide	BRL		mg/kg wet	50.0						
Reference (9081192-SRM1)										
Prepared & Analyzed: 17-Aug-09										
Reactive Cyanide	BRL		mg/kg wet	25.0	100			0-200		
Reference (9081192-SRM2)										
Prepared & Analyzed: 17-Aug-09										
Reactive Sulfide	152		mg/kg wet	50.0	6700		2	0-200		

Notes and Definitions

CAL2	Analyte percent drift/percent difference is greater than 30%, data is accepted due to all CCC analytes passing within the 20% Drift/Difference criteria
QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
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).
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

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.

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

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

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

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

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

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

Laboratory Name: Spectrum Analytical, Inc. - Agawam, MA	Project #: 09029
Project Location: Needham Drain - Needham, MA	MADEP RTN [1]:

This form provides certifications for the following data set:
SA99386-01 through SA99386-26

Sample matrices:	Ground Water Soil				
MCP SW-846 Methods Used	☑ 8260B	☐ 8151A	☐ 8330	☑ 6010B	☑ 7470A/1A
	☐ 8270C	☐ 8081A	☐ VPH	☐ 6020	☐ 9014M [2]
	☑ 8082	☐ 8021B	☐ EPH	☐ 7000S [3]	☐ 7196A

1 List Release Tracking Number (RTN), if known
2 M - SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method
3 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	Were all samples received by the laboratory in a condition consistent with that described on the Chain of Custody documentation for the data set?	☑ Yes	☐ No
B	Were 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?	☑ Yes	☐ No
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	***VPH and EPH methods only***: 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	Were results for all analyte-list compounds/elements for the specified method(s) reported?	☐ Yes	☑ No

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

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

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

Date: 8/18/2009

SA99386 CK

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 3

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 8/18/09
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: GeoHydroCycle, Inc.
151B California St.
Newton, MA 02458
Project Mgr.: KAR
Telephone #: 617-527-8074

Invoice To: SAME
P.O. No.: ______ RQN: ______

Project No.: 09029
Site Name: Needham Drain
Location: Needham State: MA
Sampler(s): KAR, SWS

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9=______ 10=______ 11=______

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

G=Grab C=Composite

List preservative code below: NA | 7 | NA | NA | NA | NA | NA

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	TPH 8100	VOC's 8260	PCB's	As, Cd, Cr, Hg, Pb	Flash, pH	Reactivity soil cyan	
SA99386-01	GHC-1, S-1	8/13/09	9:15	C	SO		1			X						
02	GHC-2, S-1	↓	9:20	C	↓	3	1			X	X					
03	GHC-2, S-2		9:30	C			1			X						
04	B-1, S-1		9:35	C			1			X						
05	B-2, S-1		9:45	C			1			X						
06	GHC-3, S-1		9:50	C			1			X		X				
07	GHC-3, S-2		9:55	C			1			X			X			
08	GHC-4, S-1		10:10	C			1			X				X	X	
09	GHC-4, S-2		10:25	C			1			X						
10	GHC-5, S-1	↓	10:49	C	↓		1			X						

QA/QC Reporting Notes: (check as needed)
- ☒ Provide MA DEP MCP CAM Report
- ☐ Provide CT DPH RCP Report

QA/QC Reporting Level
- ☒ Standard ☐ No QC
- ☐ Other ______

State specific reporting standards:

MADEP

GW-1/S-1/S-2/S-3 cleanup

EDD Format ______
☐ E-mail to ______

Relinquished by:	Received by:	Date:	Time:
[signature]	[signature]	8/14/09	1315
[signature]		8/14/09	1621

3.0

Condition upon receipt: ☒ Iced ☐ Ambient ☒ °C 3.6

SA99386 CK

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 2 of 3

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 8/18/09
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: GeoHydroCycle, Inc
151 B California St.
Newton, MA 02458
Project Mgr.: KAR
Telephone #: 6175278074

Invoice To: SAME

P.O. No.: _____ RQN: _____

Project No.: 09029
Site Name: Needham Drain
Location: Needham State: MA
Sampler(s): KAR, SWS

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9=_____ 10=_____ 11=_____

List preservative code below: NA

QA/QC Reporting Notes: (check as needed)

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

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses: TPH 8100	QA/QC Reporting Notes:
SA99386-11	B-4, S-1	8/13/09	10:20	C	SO		1				
12	B-5, S-1		11:05	C			1				MADEP
13	B-6, S-1		11:15	C			1				S-1, S-2, S-3
14	B-7, S-1		11:25	C			1				
15	B-7, S-2		11:30	C			1				GW-1/S-1
16	GHC-6, S-1		12:20	C			1				GW-2/S-1
17	GHC-7, S-1		12:30	C			1				GW-3, S-1
18	B-8, S-1	8/13/09	12:10	C	SO		1			X	

☒ Provide MA DEP MCP CAM Report
☐ Provide CT DPH RCP Report

QA/QC Reporting Level
☐ Standard ☐ No QC
☐ Other

State specific reporting standards:

EDD Format _____
☐ E-mail to _____

Condition upon receipt: ☒ Iced ☐ Ambient ☒ °C 3.6

Relinquished by:	Received by:	Date:	Time:
Brian Hennessy	Brian Hennessy	8/14/09	1315
		8/14/09	1621

30

✓ SA99388 CK

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 3 of 3

Special Handling:

- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 8/18/09
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: GeoHydroCycle, Inc.
151 B California St.
Newton, MA 02458
Project Mgr.: KAR
Telephone #: 617 527 8074

Invoice To: SAME
P.O. No.: ______ RQN: ______

Project No.: GHC #09029
Site Name: Needham Drain
Location: Needham State: MA
Sampler(s): KAR

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9=______ 10=______ 11=______

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

G=Grab C=Composite

List preservative code below: 2

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	TPH 8100
SA99388-19	GHC-1	8/14/09	10:16	G	GW		1			X
20	GHC-2	↓	10:20	↓	↓		1			X
21	GHC-3		10:24				1			X
22	GHC-4		10:29				1			X
23	GHC-5		10:11				1			X
24	GHC-6		9:58				1			X
25	GHC-7		9:50				1			X
26	C.B. Outlet	8/14/09	10:33				1			X

QA/QC Reporting Notes: (check as needed)

- ☒ Provide MA DEP MCP CAM Report
- ☐ Provide CT DPH RCP Report

QA/QC Reporting Level: ☒ Standard ☐ No QC ☐ Other ______

State specific reporting standards: MCP. GW-1/GW-2/GW-3

EDD Format ______
☐ E-mail to ______

Relinquished by:	Received by:	Date:	Time:
[signature]	[signature]	8/14/09	1315
[signature]	[signature]	8/14/09	1621

3.0

Condition upon receipt: ☒ Iced ☐ Ambient ☒ °C 4.6 CLR

Report Date:
04-Sep-09 13:09

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

GeoHydroCycle, Inc.
151B California Street
Newton, MA 02458
Attn: Kerri-Ann Richard

Project: Needham Drain - Needham, MA
Project #: 09029

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB00263-01	GHC-3	Ground Water	02-Sep-09 10:40	02-Sep-09 17:06
SB00263-02	TB	Aqueous	02-Sep-09 00:00	02-Sep-09 17:06
SB00263-03	RB	Aqueous	02-Sep-09 00:00	02-Sep-09 17:06

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 33 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 sample temperature upon receipt by Spectrum Analytical courier was recorded as 8.0 degrees Celsius. The samples were transported on ice to the laboratory facility and the temperature was recorded at 3.4 degrees Celsius upon receipt at the laboratory. Please refer to the Chain of Custody for details specific to sample receipt times.

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

Spikes:

9090234-MS1 *Source: SB00263-01*

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

Iron

9090234-PS1 *Source: SB00263-01*

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

Iron

Duplicates:

9090234-DUP1 *Source: SB00263-01*

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.

Selenium

EPA 625

EPA 625

Laboratory Control Samples:

9090206 LCS/LCSD

N-Nitrosodimethylamine recoveries (29%/31%) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GHC-3

Phenol recoveries (26%/29%) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GHC-3

9090206-BS1

Analyte out of acceptance range in QC spike but no reportable concentration present in sample.

4-Nitrophenol
N-Nitrosodimethylamine
Phenol

9090206-BSD1

Analyte out of acceptance range in QC spike but no reportable concentration present in sample.

N-Nitrosodimethylamine
Phenol

RPD out of acceptance range.

Benzidine

Hach 8167

Samples:

SB00263-01 *GHC-3*

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

Total Residual Chlorine

SW846 7196A/SM3500CrD

Samples:

SB00263-01 *GHC-3*

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

Hexavalent Chromium

SW846 8260B

SW846 8260B

Laboratory Control Samples:

9090231-BS1

The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.

1,1,2-Trichlorotrifluoroethane (Freon 113)
Carbon tetrachloride

9090231-BSD1

RPD out of acceptance range.

1,2-Dibromo-3-chloropropane
2-Hexanone (MBK)
Tert-Butanol / butyl alcohol
Tetrahydrofuran
trans-1,4-Dichloro-2-butene

The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

1,1,2,2-Tetrachloroethane
1,2,3-Trichloropropane
1,4-Dioxane
4-Methyl-2-pentanone (MIBK)
Acrylonitrile
Methyl tert-butyl ether
Naphthalene
Tert-amyl methyl ether

The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.

1,2-Dibromo-3-chloropropane
2-Hexanone (MBK)
Tert-Butanol / butyl alcohol
Tetrahydrofuran
trans-1,4-Dichloro-2-butene

Samples:

S908377-CCV1

Analyte percent drift/percent difference is greater than 30%, data is accepted due to all CCC analytes passing within the 20% Drift/Difference criteria

Carbon tetrachloride

This affected the following samples:

GHC-3
TB

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-3 SB00263-01	09029	Ground Water	02-Sep-09 10:40	02-Sep-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile Organic Compounds											
Volatile Organic Compounds											
Prepared by method SW846 5030 Water MS											
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0	1	SW846 8260B	03-Sep-09	03-Sep-09	9090231	
67-64-1	Acetone	BRL		µg/l	10.0	1	"	"	"	"	
107-13-1	Acrylonitrile	BRL		µg/l	0.5	1	"	"	"	"	
71-43-2	Benzene	BRL		µg/l	1.0	1	"	"	"	"	
108-86-1	Bromobenzene	BRL		µg/l	1.0	1	"	"	"	"	
74-97-5	Bromochloromethane	BRL		µg/l	1.0	1	"	"	"	"	
75-27-4	Bromodichloromethane	BRL		µg/l	0.5	1	"	"	"	"	
75-25-2	Bromoform	BRL		µg/l	1.0	1	"	"	"	"	
74-83-9	Bromomethane	BRL		µg/l	2.0	1	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL		µg/l	10.0	1	"	"	"	"	
104-51-8	n-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
75-15-0	Carbon disulfide	BRL		µg/l	5.0	1	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL		µg/l	1.0	1	"	"	"	"	
108-90-7	Chlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
75-00-3	Chloroethane	BRL		µg/l	2.0	1	"	"	"	"	
67-66-3	Chloroform	BRL		µg/l	1.0	1	"	"	"	"	
74-87-3	Chloromethane	BRL		µg/l	2.0	1	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0	1	"	"	"	"	
124-48-1	Dibromochloromethane	BRL		µg/l	0.5	1	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	0.5	1	"	"	"	"	
74-95-3	Dibromomethane	BRL		µg/l	1.0	1	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0	1	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL		µg/l	1.0	1	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL		µg/l	0.5	1	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL		µg/l	10.0	1	"	"	"	"	
98-82-8	Isopropylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL		µg/l	1.0	1	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0	1	"	"	"	"	
75-09-2	Methylene chloride	BRL		µg/l	5.0	1	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"	
103-65-1	n-Propylbenzene	BRL		µg/l	1.0	1	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-3	09029	Ground Water	02-Sep-09 10:40	02-Sep-09
SB00263-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile Organic Compounds											
Volatile Organic Compounds											
Prepared by method SW846 5030 Water MS											
100-42-5	Styrene	BRL		µg/l	1.0	1	SW846 8260B	03-Sep-09	03-Sep-09	9090231	
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5	1	"	"	"	"	
127-18-4	Tetrachloroethene	BRL		µg/l	1.0	1	"	"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	
79-01-6	Trichloroethene	BRL		µg/l	1.0	1	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0	1	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL		µg/l	1.0	1	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
75-01-4	Vinyl chloride	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	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL		µg/l	10.0	1	"	"	"	"	
60-29-7	Ethyl ether	BRL		µg/l	1.0	1	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL		µg/l	1.0	1	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL		µg/l	1.0	1	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/l	10.0	1	"	"	"	"	
123-91-1	1,4-Dioxane	BRL		µg/l	20.0	1	"	"	"	"	
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0	1	"	"	"	"	
64-17-5	Ethanol	BRL		µg/l	400	1	"	"	"	"	
Surrogate recoveries:											
460-00-4	*4-Bromofluorobenzene*	*94*		*70-130 %*			"	"	"	"	
2037-26-5	*Toluene-d8*	*102*		*70-130 %*			"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*101*		*70-130 %*			"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*100*		*70-130 %*			"	"	"	"	
Microextractable Organic Compounds											
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	0.0100	1	EPA 504.1	03-Sep-09	03-Sep-09	9090214	
Semivolatile Organic Compounds by GCMS											
Semivolatile Organic Compounds by EPA 625											
Prepared by method SW846 3510C											
83-32-9	Acenaphthene	BRL		µg/l	5.00	1	EPA 625	03-Sep-09	03-Sep-09	9090206	
208-96-8	Acenaphthylene	BRL		µg/l	5.00	1	"	"	"	"	
62-53-3	Aniline	BRL		µg/l	5.00	1	"	"	"	"	
120-12-7	Anthracene	BRL		µg/l	5.00	1	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL		µg/l	5.00	1	"	"	"	"	
92-87-5	Benzidine	BRL		µg/l	5.00	1	"	"	"	"	
56-55-3	Benzo (a) anthracene	BRL		µg/l	5.00	1	"	"	"	"	
50-32-8	Benzo (a) pyrene	BRL		µg/l	5.00	1	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	BRL		µg/l	5.00	1	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	BRL		µg/l	5.00	1	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	BRL		µg/l	5.00	1	"	"	"	"	
65-85-0	Benzoic acid	BRL		µg/l	5.00	1	"	"	"	"	
100-51-6	Benzyl alcohol	BRL		µg/l	5.00	1	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-3 SB00263-01	09029	Ground Water	02-Sep-09 10:40	02-Sep-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Semivolatile Organic Compounds by GCMS											
Semivolatile Organic Compounds by EPA 625											
Prepared by method SW846 3510C											
111-91-1	Bis(2-chloroethoxy)methane	BRL		µg/l	5.00	1	EPA 625	03-Sep-09	03-Sep-09	9090206	
111-44-4	Bis(2-chloroethyl)ether	BRL		µg/l	5.00	1	"	"	"	"	
108-60-1	Bis(2-chloroisopropyl)ether	BRL		µg/l	5.00	1	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	BRL		µg/l	5.00	1	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	BRL		µg/l	5.00	1	"	"	"	"	
85-68-7	Butyl benzyl phthalate	BRL		µg/l	5.00	1	"	"	"	"	
86-74-8	Carbazole	BRL		µg/l	5.00	1	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	BRL		µg/l	5.00	1	"	"	"	"	
106-47-8	4-Chloroaniline	BRL		µg/l	5.00	1	"	"	"	"	
91-58-7	2-Chloronaphthalene	BRL		µg/l	5.00	1	"	"	"	"	
95-57-8	2-Chlorophenol	BRL		µg/l	5.00	1	"	"	"	"	
7005-72-3	4-Chlorophenyl phenyl ether	BRL		µg/l	5.00	1	"	"	"	"	
218-01-9	Chrysene	BRL		µg/l	5.00	1	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL		µg/l	5.00	1	"	"	"	"	
132-64-9	Dibenzofuran	BRL		µg/l	5.00	1	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	5.00	1	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	5.00	1	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	5.00	1	"	"	"	"	
91-94-1	3,3´-Dichlorobenzidine	BRL		µg/l	5.00	1	"	"	"	"	
120-83-2	2,4-Dichlorophenol	BRL		µg/l	5.00	1	"	"	"	"	
84-66-2	Diethyl phthalate	BRL		µg/l	5.00	1	"	"	"	"	
131-11-3	Dimethyl phthalate	BRL		µg/l	5.00	1	"	"	"	"	
105-67-9	2,4-Dimethylphenol	BRL		µg/l	5.00	1	"	"	"	"	
84-74-2	Di-n-butyl phthalate	BRL		µg/l	5.00	1	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	BRL		µg/l	5.00	1	"	"	"	"	
51-28-5	2,4-Dinitrophenol	BRL		µg/l	5.00	1	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	BRL		µg/l	5.00	1	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	BRL		µg/l	5.00	1	"	"	"	"	
117-84-0	Di-n-octyl phthalate	BRL		µg/l	5.00	1	"	"	"	"	
206-44-0	Fluoranthene	BRL		µg/l	5.00	1	"	"	"	"	
86-73-7	Fluorene	BRL		µg/l	5.00	1	"	"	"	"	
118-74-1	Hexachlorobenzene	BRL		µg/l	5.00	1	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL		µg/l	5.00	1	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	BRL		µg/l	5.00	1	"	"	"	"	
67-72-1	Hexachloroethane	BRL		µg/l	5.00	1	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL		µg/l	5.00	1	"	"	"	"	
78-59-1	Isophorone	BRL		µg/l	5.00	1	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL		µg/l	5.00	1	"	"	"	"	
95-48-7	2-Methylphenol	BRL		µg/l	5.00	1	"	"	"	"	
108-39-4, 106-44-5	3 & 4-Methylphenol	BRL		µg/l	10.0	1	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	5.00	1	"	"	"	"	
88-74-4	2-Nitroaniline	BRL		µg/l	5.00	1	"	"	"	"	
99-09-2	3-Nitroaniline	BRL		µg/l	5.00	1	"	"	"	"	
100-01-6	4-Nitroaniline	BRL		µg/l	5.00	1	"	"	"	"	
98-95-3	Nitrobenzene	BRL		µg/l	5.00	1	"	"	"	"	
88-75-5	2-Nitrophenol	BRL		µg/l	5.00	1	"	"	"	"	
100-02-7	4-Nitrophenol	BRL		µg/l	5.00	1	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	BRL		µg/l	5.00	1	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	BRL		µg/l	5.00	1	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	BRL		µg/l	5.00	1	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-3 SB00263-01	09029	Ground Water	02-Sep-09 10:40	02-Sep-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Semivolatile Organic Compounds by GCMS											
Semivolatile Organic Compounds by EPA 625											
Prepared by method SW846 3510C											
87-86-5	Pentachlorophenol	BRL		µg/l	5.00	1	EPA 625	03-Sep-09	03-Sep-09	9090206	
85-01-8	Phenanthrene	BRL		µg/l	5.00	1	"	"	"	"	
108-95-2	Phenol	BRL		µg/l	5.00	1	"	"	"	"	
129-00-0	Pyrene	BRL		µg/l	5.00	1	"	"	"	"	
110-86-1	Pyridine	BRL		µg/l	5.00	1	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	5.00	1	"	"	"	"	
95-95-4	2,4,5-Trichlorophenol	BRL		µg/l	5.00	1	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	BRL		µg/l	5.00	1	"	"	"	"	
Surrogate recoveries:											
321-60-8	*2-Fluorobiphenyl*	*54*		*30-130 %*			"	"	"	"	
367-12-4	*2-Fluorophenol*	*24*		*15-110 %*			"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*48*		*30-130 %*			"	"	"	"	
4165-62-2	*Phenol-d5*	*16*		*15-110 %*			"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*42*		*30-130 %*			"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*59*		*15-110 %*			"	"	"	"	
Semivolatile Organic Compounds by GC											
Polychlorinated Biphenyls by EPA 608											
Prepared by method SW846 3510C											
12674-11-2	Aroclor-1016	BRL		µg/l	0.0650	1	EPA 608	03-Sep-09	03-Sep-09	9090226	
11104-28-2	Aroclor-1221	BRL		µg/l	0.0650	1	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/l	0.0650	1	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/l	0.0650	1	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/l	0.0650	1	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/l	0.0650	1	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/l	0.0650	1	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/l	0.0650	1	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/l	0.0650	1	"	"	"	"	
Surrogate recoveries:											
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*61*		*30-150 %*			"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*98*		*30-150 %*			"	"	"	"	
Extractable Petroleum Hydrocarbons											
	Non-polar material (SGT-HEM)	BRL		mg/l	1.0	1	EPA 1664 Rev. A	03-Sep-09	04-Sep-09	9090212	
Total Metals by EPA 200 Series Methods											
7440-22-4	Silver	BRL		mg/l	0.0050	1	EPA 200.7	03-Sep-09	04-Sep-09	9090234	X
7440-38-2	Arsenic	0.0198		mg/l	0.0040	1	"	"	"	"	X
7440-43-9	Cadmium	BRL		mg/l	0.0025	1	"	"	03-Sep-09	"	X
7440-47-3	Chromium	0.107		mg/l	0.0050	1	"	"	04-Sep-09	"	X
7440-50-8	Copper	0.116		mg/l	0.0050	1	"	"	"	"	X
7439-89-6	Iron	78.1		mg/l	0.0150	1	"	"	"	"	X
7439-97-6	Mercury	BRL		mg/l	0.00020	1	EPA 245.1/7470A	"	03-Sep-09	9090235	X
7440-02-0	Nickel	0.0654		mg/l	0.0050	1	EPA 200.7	"	04-Sep-09	9090234	X
7439-92-1	Lead	0.0600		mg/l	0.0075	1	"	"	"	"	X
7440-36-0	Antimony	BRL		mg/l	0.0060	1	"	"	"	"	X
7782-49-2	Selenium	BRL		mg/l	0.0150	1	"	"	"	"	
7440-66-6	Zinc	0.203		mg/l	0.0050	1	"	"	03-Sep-09	"	X
General Chemistry Parameters											
16065-83-1	Trivalent Chromium	0.107		mg/l	0.0050	1	Calculation	03-Sep-09	04-Sep-09	9090234	
18540-29-9	Hexavalent Chromium	BRL	R01	mg/l	2.50	500	SW846 7196A/SM3500CrD	02-Sep-09 19:00	02-Sep-09 19:00	9090195	
57-12-5	Cyanide (total)	BRL		mg/l	0.0100	1	EPA 335.4	03-Sep-09	04-Sep-09	9090229	X

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

* Reportable Detection Limit BRL = Below Reporting Limit

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GHC-3 SB00263-01	09029	Ground Water	02-Sep-09 10:40	02-Sep-09

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Cert.*
General Chemistry Parameters											
7782-50-5	Total Residual Chlorine	BRL	R01,CI HT	mg/l	10.0	500	Hach 8167	02-Sep-09 18:30	02-Sep-09 18:30	9090196	X
	Total Suspended Solids	150		mg/l	25.0	5	SM2540D	03-Sep-09	03-Sep-09	9090267	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB SB00263-02	09029	Aqueous	02-Sep-09 00:00	02-Sep-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile Organic Compounds											
Volatile Organic Compounds											
Prepared by method SW846 5030 Water MS											
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0	1	SW846 8260B	03-Sep-09	03-Sep-09	9090231	
67-64-1	Acetone	BRL		µg/l	10.0	1	"	"	"	"	
107-13-1	Acrylonitrile	BRL		µg/l	0.5	1	"	"	"	"	
71-43-2	Benzene	BRL		µg/l	1.0	1	"	"	"	"	
108-86-1	Bromobenzene	BRL		µg/l	1.0	1	"	"	"	"	
74-97-5	Bromochloromethane	BRL		µg/l	1.0	1	"	"	"	"	
75-27-4	Bromodichloromethane	BRL		µg/l	0.5	1	"	"	"	"	
75-25-2	Bromoform	BRL		µg/l	1.0	1	"	"	"	"	
74-83-9	Bromomethane	BRL		µg/l	2.0	1	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL		µg/l	10.0	1	"	"	"	"	
104-51-8	n-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
75-15-0	Carbon disulfide	BRL		µg/l	5.0	1	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL		µg/l	1.0	1	"	"	"	"	
108-90-7	Chlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
75-00-3	Chloroethane	BRL		µg/l	2.0	1	"	"	"	"	
67-66-3	Chloroform	BRL		µg/l	1.0	1	"	"	"	"	
74-87-3	Chloromethane	BRL		µg/l	2.0	1	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0	1	"	"	"	"	
124-48-1	Dibromochloromethane	BRL		µg/l	0.5	1	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	0.5	1	"	"	"	"	
74-95-3	Dibromomethane	BRL		µg/l	1.0	1	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0	1	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL		µg/l	1.0	1	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL		µg/l	0.5	1	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL		µg/l	10.0	1	"	"	"	"	
98-82-8	Isopropylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL		µg/l	1.0	1	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0	1	"	"	"	"	
75-09-2	Methylene chloride	BRL		µg/l	5.0	1	"	"	"	"	
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"	
103-65-1	n-Propylbenzene	BRL		µg/l	1.0	1	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB SB00263-02	09029	Aqueous	02-Sep-09 00:00	02-Sep-09

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.
Volatile Organic Compounds											
Volatile Organic Compounds											
Prepared by method SW846 5030 Water MS											
100-42-5	Styrene	BRL		µg/l	1.0	1	SW846 8260B	03-Sep-09	03-Sep-09	9090231	
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5	1	"	"	"	"	
127-18-4	Tetrachloroethene	BRL		µg/l	1.0	1	"	"	"	"	
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	
79-01-6	Trichloroethene	BRL		µg/l	1.0	1	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0	1	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL		µg/l	1.0	1	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	
75-01-4	Vinyl chloride	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	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL		µg/l	10.0	1	"	"	"	"	
60-29-7	Ethyl ether	BRL		µg/l	1.0	1	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL		µg/l	1.0	1	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL		µg/l	1.0	1	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/l	10.0	1	"	"	"	"	
123-91-1	1,4-Dioxane	BRL		µg/l	20.0	1	"	"	"	"	
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0	1	"	"	"	"	
64-17-5	Ethanol	BRL		µg/l	400	1	"	"	"	"	
Surrogate recoveries:											
460-00-4	*4-Bromofluorobenzene*	*94*		*70-130 %*			"	"	"	"	
2037-26-5	*Toluene-d8*	*101*		*70-130 %*			"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*101*		*70-130 %*			"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*99*		*70-130 %*			"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
RB SB00263-03	09029	Aqueous	02-Sep-09 00:00	02-Sep-09

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Cert.*
Microextractable Organic Compounds											
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	0.0100	1	EPA 504.1	03-Sep-09	03-Sep-09	9090214	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090231 - SW846 5030 Water MS										
Blank (9090231-BLK1)										
Prepared & Analyzed: 03-Sep-09										
1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0						
Acetone	BRL		µg/l	10.0						
Acrylonitrile	BRL		µg/l	0.5						
Benzene	BRL		µg/l	1.0						
Bromobenzene	BRL		µg/l	1.0						
Bromochloromethane	BRL		µg/l	1.0						
Bromodichloromethane	BRL		µg/l	0.5						
Bromoform	BRL		µg/l	1.0						
Bromomethane	BRL		µg/l	2.0						
2-Butanone (MEK)	BRL		µg/l	10.0						
n-Butylbenzene	BRL		µg/l	1.0						
sec-Butylbenzene	BRL		µg/l	1.0						
tert-Butylbenzene	BRL		µg/l	1.0						
Carbon disulfide	BRL		µg/l	5.0						
Carbon tetrachloride	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
Chloroethane	BRL		µg/l	2.0						
Chloroform	BRL		µg/l	1.0						
Chloromethane	BRL		µg/l	2.0						
2-Chlorotoluene	BRL		µg/l	1.0						
4-Chlorotoluene	BRL		µg/l	1.0						
1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0						
Dibromochloromethane	BRL		µg/l	0.5						
1,2-Dibromoethane (EDB)	BRL		µg/l	0.5						
Dibromomethane	BRL		µg/l	1.0						
1,2-Dichlorobenzene	BRL		µg/l	1.0						
1,3-Dichlorobenzene	BRL		µg/l	1.0						
1,4-Dichlorobenzene	BRL		µg/l	1.0						
Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0						
1,1-Dichloroethane	BRL		µg/l	1.0						
1,2-Dichloroethane	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
cis-1,2-Dichloroethene	BRL		µg/l	1.0						
trans-1,2-Dichloroethene	BRL		µg/l	1.0						
1,2-Dichloropropane	BRL		µg/l	1.0						
1,3-Dichloropropane	BRL		µg/l	1.0						
2,2-Dichloropropane	BRL		µg/l	1.0						
1,1-Dichloropropene	BRL		µg/l	1.0						
cis-1,3-Dichloropropene	BRL		µg/l	0.5						
trans-1,3-Dichloropropene	BRL		µg/l	0.5						
Ethylbenzene	BRL		µg/l	1.0						
Hexachlorobutadiene	BRL		µg/l	0.5						
2-Hexanone (MBK)	BRL		µg/l	10.0						
Isopropylbenzene	BRL		µg/l	1.0						
4-Isopropyltoluene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0						
Methylene chloride	BRL		µg/l	5.0						
Naphthalene	BRL		µg/l	1.0						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090231 - SW846 5030 Water MS										
Blank (9090231-BLK1)										
Prepared & Analyzed: 03-Sep-09										
n-Propylbenzene	BRL		µg/l	1.0						
Styrene	BRL		µg/l	1.0						
1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0						
1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5						
Tetrachloroethene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
1,2,3-Trichlorobenzene	BRL		µg/l	1.0						
1,2,4-Trichlorobenzene	BRL		µg/l	1.0						
1,3,5-Trichlorobenzene	BRL		µg/l	1.0						
1,1,1-Trichloroethane	BRL		µg/l	1.0						
1,1,2-Trichloroethane	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0						
1,2,3-Trichloropropane	BRL		µg/l	1.0						
1,2,4-Trimethylbenzene	BRL		µg/l	1.0						
1,3,5-Trimethylbenzene	BRL		µg/l	1.0						
Vinyl chloride	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Tetrahydrofuran	BRL		µg/l	10.0						
Ethyl ether	BRL		µg/l	1.0						
Tert-amyl methyl ether	BRL		µg/l	1.0						
Ethyl tert-butyl ether	BRL		µg/l	1.0						
Di-isopropyl ether	BRL		µg/l	1.0						
Tert-Butanol / butyl alcohol	BRL		µg/l	10.0						
1,4-Dioxane	BRL		µg/l	20.0						
trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0						
Ethanol	BRL		µg/l	400						
Surrogate: 4-Bromofluorobenzene	*28.2*		µg/l		*30.0*		*94*	*70-130*		
Surrogate: Toluene-d8	*30.5*		µg/l		*30.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*29.4*		µg/l		*30.0*		*98*	*70-130*		
Surrogate: Dibromofluoromethane	*29.5*		µg/l		*30.0*		*98*	*70-130*		
LCS (9090231-BS1)										
Prepared & Analyzed: 03-Sep-09										
1,1,2-Trichlorotrifluoroethane (Freon 113)	28.4	QM9	µg/l		20.0		142	70-130		
Acetone	20.6		µg/l		20.0		103	52.2-144		
Acrylonitrile	20.0		µg/l		20.0		100	70-130		
Benzene	21.3		µg/l		20.0		106	70-130		
Bromobenzene	22.8		µg/l		20.0		114	70-130		
Bromochloromethane	21.3		µg/l		20.0		107	70-130		
Bromodichloromethane	20.3		µg/l		20.0		102	70-130		
Bromoform	18.5		µg/l		20.0		92	70-130		
Bromomethane	20.6		µg/l		20.0		103	40-167		
2-Butanone (MEK)	21.3		µg/l		20.0		107	57.7-141		
n-Butylbenzene	21.7		µg/l		20.0		109	70-130		
sec-Butylbenzene	22.2		µg/l		20.0		111	70-130		
tert-Butylbenzene	22.1		µg/l		20.0		111	70-130		
Carbon disulfide	20.4		µg/l		20.0		102	70-130		
Carbon tetrachloride	26.3	QM9	µg/l		20.0		131	70-130		
Chlorobenzene	22.0		µg/l		20.0		110	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090231 - SW846 5030 Water MS										
LCS (9090231-BS1)										
Prepared & Analyzed: 03-Sep-09										
Chloroethane	21.0		µg/l		20.0		105	65.1-130		
Chloroform	20.7		µg/l		20.0		103	70-130		
Chloromethane	19.2		µg/l		20.0		96	70-130		
2-Chlorotoluene	24.2		µg/l		20.0		121	70-130		
4-Chlorotoluene	24.2		µg/l		20.0		121	70-130		
1,2-Dibromo-3-chloropropane	17.3		µg/l		20.0		87	70-130		
Dibromochloromethane	18.1		µg/l		20.0		91	55.6-155		
1,2-Dibromoethane (EDB)	22.9		µg/l		20.0		115	70-130		
Dibromomethane	21.9		µg/l		20.0		109	70-130		
1,2-Dichlorobenzene	24.1		µg/l		20.0		121	70-130		
1,3-Dichlorobenzene	23.8		µg/l		20.0		119	70-130		
1,4-Dichlorobenzene	21.4		µg/l		20.0		107	70-130		
Dichlorodifluoromethane (Freon12)	19.4		µg/l		20.0		97	45.8-135		
1,1-Dichloroethane	21.9		µg/l		20.0		110	70-130		
1,2-Dichloroethane	20.4		µg/l		20.0		102	70-130		
1,1-Dichloroethene	24.3		µg/l		20.0		121	70-130		
cis-1,2-Dichloroethene	22.9		µg/l		20.0		115	70-130		
trans-1,2-Dichloroethene	21.4		µg/l		20.0		107	70-130		
1,2-Dichloropropane	22.4		µg/l		20.0		112	70-130		
1,3-Dichloropropane	22.0		µg/l		20.0		110	70-130		
2,2-Dichloropropane	22.8		µg/l		20.0		114	70-130		
1,1-Dichloropropene	23.6		µg/l		20.0		118	70-130		
cis-1,3-Dichloropropene	18.8		µg/l		20.0		94	70-130		
trans-1,3-Dichloropropene	17.5		µg/l		20.0		87	70-130		
Ethylbenzene	23.9		µg/l		20.0		120	70-130		
Hexachlorobutadiene	23.8		µg/l		20.0		119	63.3-141		
2-Hexanone (MBK)	16.8		µg/l		20.0		84	70-130		
Isopropylbenzene	20.5		µg/l		20.0		103	70-130		
4-Isopropyltoluene	21.9		µg/l		20.0		109	70-130		
Methyl tert-butyl ether	21.3		µg/l		20.0		106	70-130		
4-Methyl-2-pentanone (MIBK)	18.0		µg/l		20.0		90	40-157		
Methylene chloride	19.9		µg/l		20.0		99	70-130		
Naphthalene	19.5		µg/l		20.0		97	70-130		
n-Propylbenzene	21.5		µg/l		20.0		108	70-130		
Styrene	20.4		µg/l		20.0		102	70-130		
1,1,1,2-Tetrachloroethane	20.3		µg/l		20.0		102	70-130		
1,1,2,2-Tetrachloroethane	21.2		µg/l		20.0		106	70-130		
Tetrachloroethene	22.8		µg/l		20.0		114	70-130		
Toluene	22.7		µg/l		20.0		114	70-130		
1,2,3-Trichlorobenzene	25.0		µg/l		20.0		125	70-130		
1,2,4-Trichlorobenzene	23.1		µg/l		20.0		115	70-130		
1,3,5-Trichlorobenzene	22.9		µg/l		20.0		114	70-130		
1,1,1-Trichloroethane	24.1		µg/l		20.0		120	70-130		
1,1,2-Trichloroethane	22.8		µg/l		20.0		114	70-130		
Trichloroethene	23.9		µg/l		20.0		119	70-130		
Trichlorofluoromethane (Freon 11)	25.6		µg/l		20.0		128	61.9-167		
1,2,3-Trichloropropane	22.8		µg/l		20.0		114	70-130		
1,2,4-Trimethylbenzene	20.9		µg/l		20.0		104	70-130		
1,3,5-Trimethylbenzene	20.8		µg/l		20.0		104	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090231 - SW846 5030 Water MS										
LCS (9090231-BS1)										
Prepared & Analyzed: 03-Sep-09										
Vinyl chloride	22.0		µg/l		20.0		110	70-130		
m,p-Xylene	48.6		µg/l		40.0		122	70-130		
o-Xylene	24.6		µg/l		20.0		123	70-130		
Tetrahydrofuran	21.3		µg/l		20.0		107	70-130		
Ethyl ether	20.7		µg/l		20.0		104	70-133		
Tert-amyl methyl ether	20.9		µg/l		20.0		105	70-130		
Ethyl tert-butyl ether	20.9		µg/l		20.0		105	70-130		
Di-isopropyl ether	20.6		µg/l		20.0		103	70-130		
Tert-Butanol / butyl alcohol	182		µg/l		200		91	70-130		
1,4-Dioxane	180		µg/l		200		90	50.6-156		
trans-1,4-Dichloro-2-butene	19.1		µg/l		20.0		96	70-130		
Ethanol	393		µg/l		400		98	70-130		
Surrogate: 4-Bromofluorobenzene	*30.5*		µg/l		*30.0*		*102*	*70-130*		
Surrogate: Toluene-d8	*31.0*		µg/l		*30.0*		*103*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*29.1*		µg/l		*30.0*		*97*	*70-130*		
Surrogate: Dibromofluoromethane	*30.1*		µg/l		*30.0*		*100*	*70-130*		
LCS Dup (9090231-BSD1)										
Prepared & Analyzed: 03-Sep-09										
1,1,2-Trichlorotrifluoroethane (Freon 113)	24.8		µg/l		20.0		124	70-130	13	25
Acetone	13.1		µg/l		20.0		65	52.2-144	44	50
Acrylonitrile	14.3	QR2	µg/l		20.0		71	70-130	34	25
Benzene	18.2		µg/l		20.0		91	70-130	15	25
Bromobenzene	20.0		µg/l		20.0		100	70-130	13	25
Bromochloromethane	18.3		µg/l		20.0		91	70-130	15	25
Bromodichloromethane	18.1		µg/l		20.0		91	70-130	11	25
Bromoform	15.7		µg/l		20.0		78	70-130	16	25
Bromomethane	17.9		µg/l		20.0		90	40-167	14	50
2-Butanone (MEK)	13.2		µg/l		20.0		66	57.7-141	47	50
n-Butylbenzene	19.8		µg/l		20.0		99	70-130	9	25
sec-Butylbenzene	19.8		µg/l		20.0		99	70-130	11	25
tert-Butylbenzene	19.3		µg/l		20.0		96	70-130	14	25
Carbon disulfide	18.2		µg/l		20.0		91	70-130	11	25
Carbon tetrachloride	20.8		µg/l		20.0		104	70-130	23	25
Chlorobenzene	20.0		µg/l		20.0		100	70-130	10	25
Chloroethane	18.1		µg/l		20.0		90	65.1-130	15	50
Chloroform	18.4		µg/l		20.0		92	70-130	12	25
Chloromethane	17.4		µg/l		20.0		87	70-130	10	25
2-Chlorotoluene	21.4		µg/l		20.0		107	70-130	12	25
4-Chlorotoluene	22.0		µg/l		20.0		110	70-130	9	25
1,2-Dibromo-3-chloropropane	12.8	QM9, QR5	µg/l		20.0		64	70-130	30	25
Dibromochloromethane	15.5		µg/l		20.0		77	55.6-155	16	50
1,2-Dibromoethane (EDB)	17.9		µg/l		20.0		89	70-130	25	25
Dibromomethane	17.7		µg/l		20.0		88	70-130	21	25
1,2-Dichlorobenzene	21.0		µg/l		20.0		105	70-130	14	25
1,3-Dichlorobenzene	21.1		µg/l		20.0		106	70-130	12	25
1,4-Dichlorobenzene	19.2		µg/l		20.0		96	70-130	11	25
Dichlorodifluoromethane (Freon12)	18.6		µg/l		20.0		93	45.8-135	4	50
1,1-Dichloroethane	19.0		µg/l		20.0		95	70-130	14	25
1,2-Dichloroethane	17.1		µg/l		20.0		86	70-130	17	25

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090231 - SW846 5030 Water MS										
LCS Dup (9090231-BSD1)										
Prepared & Analyzed: 03-Sep-09										
1,1-Dichloroethene	20.8		µg/l		20.0		104	70-130	15	25
cis-1,2-Dichloroethene	19.7		µg/l		20.0		99	70-130	15	25
trans-1,2-Dichloroethene	18.6		µg/l		20.0		93	70-130	14	25
1,2-Dichloropropane	19.7		µg/l		20.0		99	70-130	13	25
1,3-Dichloropropane	17.4		µg/l		20.0		87	70-130	23	25
2,2-Dichloropropane	21.7		µg/l		20.0		108	70-130	5	25
1,1-Dichloropropene	20.6		µg/l		20.0		103	70-130	13	25
cis-1,3-Dichloropropene	17.0		µg/l		20.0		85	70-130	10	25
trans-1,3-Dichloropropene	15.4		µg/l		20.0		77	70-130	13	25
Ethylbenzene	21.1		µg/l		20.0		105	70-130	13	25
Hexachlorobutadiene	21.6		µg/l		20.0		108	63.3-141	10	50
2-Hexanone (MBK)	11.2	QM9, QR5	µg/l		20.0		56	70-130	41	25
Isopropylbenzene	18.3		µg/l		20.0		91	70-130	12	25
4-Isopropyltoluene	19.7		µg/l		20.0		99	70-130	10	25
Methyl tert-butyl ether	15.8	QR2	µg/l		20.0		79	70-130	30	25
4-Methyl-2-pentanone (MIBK)	9.4	QR2	µg/l		20.0		47	40-157	63	50
Methylene chloride	17.3		µg/l		20.0		86	70-130	14	25
Naphthalene	14.2	QR2	µg/l		20.0		71	70-130	31	25
n-Propylbenzene	19.2		µg/l		20.0		96	70-130	11	25
Styrene	18.2		µg/l		20.0		91	70-130	11	25
1,1,1,2-Tetrachloroethane	18.4		µg/l		20.0		92	70-130	10	25
1,1,2,2-Tetrachloroethane	15.1	QR2	µg/l		20.0		75	70-130	34	25
Tetrachloroethene	19.9		µg/l		20.0		99	70-130	14	25
Toluene	19.8		µg/l		20.0		99	70-130	14	25
1,2,3-Trichlorobenzene	20.0		µg/l		20.0		100	70-130	22	25
1,2,4-Trichlorobenzene	19.8		µg/l		20.0		99	70-130	15	25
1,3,5-Trichlorobenzene	20.7		µg/l		20.0		104	70-130	10	25
1,1,1-Trichloroethane	20.6		µg/l		20.0		103	70-130	16	25
1,1,2-Trichloroethane	17.7		µg/l		20.0		88	70-130	25	25
Trichloroethene	20.8		µg/l		20.0		104	70-130	14	25
Trichlorofluoromethane (Freon 11)	22.4		µg/l		20.0		112	61.9-167	14	50
1,2,3-Trichloropropane	16.5	QR2	µg/l		20.0		82	70-130	32	25
1,2,4-Trimethylbenzene	18.4		µg/l		20.0		92	70-130	13	25
1,3,5-Trimethylbenzene	18.6		µg/l		20.0		93	70-130	11	25
Vinyl chloride	25.0		µg/l		20.0		125	70-130	13	25
m,p-Xylene	42.2		µg/l		40.0		105	70-130	14	25
o-Xylene	21.7		µg/l		20.0		108	70-130	13	25
Tetrahydrofuran	13.6	QM9, QR5	µg/l		20.0		68	70-130	44	25
Ethyl ether	16.0		µg/l		20.0		80	70-133	26	50
Tert-amyl methyl ether	15.9	QR2	µg/l		20.0		80	70-130	27	25
Ethyl tert-butyl ether	16.4		µg/l		20.0		82	70-130	24	25
Di-isopropyl ether	17.0		µg/l		20.0		85	70-130	19	25
Tert-Butanol / butyl alcohol	123	QM9, QR5	µg/l		200		61	70-130	39	25
1,4-Dioxane	137	QR2	µg/l		200		69	50.6-156	27	25
trans-1,4-Dichloro-2-butene	13.6	QM9, QR5	µg/l		20.0		68	70-130	33	25
Ethanol	294		µg/l		400		73	70-130	29	30
Surrogate: 4-Bromofluorobenzene	*30.1*		µg/l		*30.0*		*100*	*70-130*		
Surrogate: Toluene-d8	*30.8*		µg/l		*30.0*		*103*	*70-130*		

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090231 - SW846 5030 Water MS										
LCS Dup (9090231-BSD1)										
Prepared & Analyzed: 03-Sep-09										
Surrogate: 1,2-Dichloroethane-d4	*26.6*		µg/l		*30.0*		*89*	*70-130*		
Surrogate: Dibromofluoromethane	*29.0*		µg/l		*30.0*		*97*	*70-130*		
Matrix Spike (9090231-MS1)	**Source: SB00263-01**									
Prepared & Analyzed: 03-Sep-09										
Benzene	19.4		µg/l		20.0	BRL	97	70-130		
Chlorobenzene	20.8		µg/l		20.0	BRL	104	70-130		
1,1-Dichloroethene	20.8		µg/l		20.0	BRL	104	70-130		
Toluene	21.2		µg/l		20.0	BRL	106	70-130		
Trichloroethene	22.1		µg/l		20.0	BRL	110	70-130		
Surrogate: 4-Bromofluorobenzene	*30.9*		µg/l		*30.0*		*103*	*70-130*		
Surrogate: Toluene-d8	*31.0*		µg/l		*30.0*		*103*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*30.6*		µg/l		*30.0*		*102*	*70-130*		
Surrogate: Dibromofluoromethane	*30.9*		µg/l		*30.0*		*103*	*70-130*		
Matrix Spike Dup (9090231-MSD1)	**Source: SB00263-01**									
Prepared & Analyzed: 03-Sep-09										
Benzene	19.4		µg/l		20.0	BRL	97	70-130	0.05	30
Chlorobenzene	20.9		µg/l		20.0	BRL	105	70-130	0.6	30
1,1-Dichloroethene	20.3		µg/l		20.0	BRL	102	70-130	3	30
Toluene	22.5		µg/l		20.0	BRL	113	70-130	6	30
Trichloroethene	22.2		µg/l		20.0	BRL	111	70-130	0.4	30
Surrogate: 4-Bromofluorobenzene	*30.1*		µg/l		*30.0*		*100*	*70-130*		
Surrogate: Toluene-d8	*31.0*		µg/l		*30.0*		*103*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*29.5*		µg/l		*30.0*		*98*	*70-130*		
Surrogate: Dibromofluoromethane	*30.3*		µg/l		*30.0*		*101*	*70-130*		

Microextractable Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090214 - General Preparation SVOC										
Blank (9090214-BLK1)										
Prepared & Analyzed: 03-Sep-09										
1,2-Dibromoethane (EDB)	BRL		µg/l	0.0100						
LCS (9090214-BS1)										
Prepared & Analyzed: 03-Sep-09										
1,2-Dibromoethane (EDB)	0.201		µg/l	0.0100	0.200		100	50-150		
LCS Dup (9090214-BSD1)										
Prepared & Analyzed: 03-Sep-09										
1,2-Dibromoethane (EDB)	0.229		µg/l	0.0100	0.200		114	50-150	13	50

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090206 - SW846 3510C										
Blank (9090206-BLK1)										
Prepared & Analyzed: 03-Sep-09										
Acenaphthene	BRL		µg/l	5.00						
Acenaphthylene	BRL		µg/l	5.00						
Aniline	BRL		µg/l	5.00						
Anthracene	BRL		µg/l	5.00						
Azobenzene/Diphenyldiazine	BRL		µg/l	5.00						
Benzidine	BRL		µg/l	5.00						
Benzo (a) anthracene	BRL		µg/l	5.00						
Benzo (a) pyrene	BRL		µg/l	5.00						
Benzo (b) fluoranthene	BRL		µg/l	5.00						
Benzo (g,h,i) perylene	BRL		µg/l	5.00						
Benzo (k) fluoranthene	BRL		µg/l	5.00						
Benzoic acid	BRL		µg/l	5.00						
Benzyl alcohol	BRL		µg/l	5.00						
Bis(2-chloroethoxy)methane	BRL		µg/l	5.00						
Bis(2-chloroethyl)ether	BRL		µg/l	5.00						
Bis(2-chloroisopropyl)ether	BRL		µg/l	5.00						
Bis(2-ethylhexyl)phthalate	BRL		µg/l	5.00						
4-Bromophenyl phenyl ether	BRL		µg/l	5.00						
Butyl benzyl phthalate	BRL		µg/l	5.00						
Carbazole	BRL		µg/l	5.00						
4-Chloro-3-methylphenol	BRL		µg/l	5.00						
4-Chloroaniline	BRL		µg/l	5.00						
2-Chloronaphthalene	BRL		µg/l	5.00						
2-Chlorophenol	BRL		µg/l	5.00						
4-Chlorophenyl phenyl ether	BRL		µg/l	5.00						
Chrysene	BRL		µg/l	5.00						
Dibenzo (a,h) anthracene	BRL		µg/l	5.00						
Dibenzofuran	BRL		µg/l	5.00						
1,2-Dichlorobenzene	BRL		µg/l	5.00						
1,3-Dichlorobenzene	BRL		µg/l	5.00						
1,4-Dichlorobenzene	BRL		µg/l	5.00						
3,3´-Dichlorobenzidine	BRL		µg/l	5.00						
2,4-Dichlorophenol	BRL		µg/l	5.00						
Diethyl phthalate	BRL		µg/l	5.00						
Dimethyl phthalate	BRL		µg/l	5.00						
2,4-Dimethylphenol	BRL		µg/l	5.00						
Di-n-butyl phthalate	BRL		µg/l	5.00						
4,6-Dinitro-2-methylphenol	BRL		µg/l	5.00						
2,4-Dinitrophenol	BRL		µg/l	5.00						
2,4-Dinitrotoluene	BRL		µg/l	5.00						
2,6-Dinitrotoluene	BRL		µg/l	5.00						
Di-n-octyl phthalate	BRL		µg/l	5.00						
Fluoranthene	BRL		µg/l	5.00						
Fluorene	BRL		µg/l	5.00						
Hexachlorobenzene	BRL		µg/l	5.00						
Hexachlorobutadiene	BRL		µg/l	5.00						
Hexachlorocyclopentadiene	BRL		µg/l	5.00						
Hexachloroethane	BRL		µg/l	5.00						
Indeno (1,2,3-cd) pyrene	BRL		µg/l	5.00						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090206 - SW846 3510C										
Blank (9090206-BLK1)										
Prepared & Analyzed: 03-Sep-09										
Isophorone	BRL		µg/l	5.00						
2-Methylnaphthalene	BRL		µg/l	5.00						
2-Methylphenol	BRL		µg/l	5.00						
3 & 4-Methylphenol	BRL		µg/l	10.0						
Naphthalene	BRL		µg/l	5.00						
2-Nitroaniline	BRL		µg/l	5.00						
3-Nitroaniline	BRL		µg/l	5.00						
4-Nitroaniline	BRL		µg/l	5.00						
Nitrobenzene	BRL		µg/l	5.00						
2-Nitrophenol	BRL		µg/l	5.00						
4-Nitrophenol	BRL		µg/l	5.00						
N-Nitrosodimethylamine	BRL		µg/l	5.00						
N-Nitrosodi-n-propylamine	BRL		µg/l	5.00						
N-Nitrosodiphenylamine	BRL		µg/l	5.00						
Pentachlorophenol	BRL		µg/l	5.00						
Phenanthrene	BRL		µg/l	5.00						
Phenol	BRL		µg/l	5.00						
Pyrene	BRL		µg/l	5.00						
Pyridine	BRL		µg/l	5.00						
1,2,4-Trichlorobenzene	BRL		µg/l	5.00						
2,4,5-Trichlorophenol	BRL		µg/l	5.00						
2,4,6-Trichlorophenol	BRL		µg/l	5.00						
Surrogate: 2-Fluorobiphenyl	*30.7*		µg/l		*50.0*		*61*	*30-130*		
Surrogate: 2-Fluorophenol	*14.2*		µg/l		*50.0*		*28*	*15-110*		
Surrogate: Nitrobenzene-d5	*27.0*		µg/l		*50.0*		*54*	*30-130*		
Surrogate: Phenol-d5	*9.57*		µg/l		*50.0*		*19*	*15-110*		
Surrogate: Terphenyl-dl4	*27.4*		µg/l		*50.0*		*55*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*31.9*		µg/l		*50.0*		*64*	*15-110*		
LCS (9090206-BS1)										
Prepared & Analyzed: 03-Sep-09										
Acenaphthene	35.2		µg/l	5.00	50.0		70	40-140		
Acenaphthylene	31.6		µg/l	5.00	50.0		63	40-140		
Aniline	23.2		µg/l	5.00	50.0		46	40-140		
Anthracene	31.7		µg/l	5.00	50.0		63	40-140		
Azobenzene/Diphenyldiazine	35.7		µg/l	5.00	50.0		71	40-140		
Benzidine	BRL		µg/l	5.00	50.0			0-140		
Benzo (a) anthracene	29.4		µg/l	5.00	50.0		59	40-140		
Benzo (a) pyrene	32.5		µg/l	5.00	50.0		65	40-140		
Benzo (b) fluoranthene	37.5		µg/l	5.00	50.0		75	40-140		
Benzo (g,h,i) perylene	31.7		µg/l	5.00	50.0		63	40-140		
Benzo (k) fluoranthene	26.1		µg/l	5.00	50.0		52	40-140		
Benzoic acid	18.5		µg/l	5.00	50.0		37	12.6-140		
Benzyl alcohol	32.9		µg/l	5.00	50.0		66	40-140		
Bis(2-chloroethoxy)methane	24.4		µg/l	5.00	50.0		49	40-140		
Bis(2-chloroethyl)ether	27.5		µg/l	5.00	50.0		55	40-140		
Bis(2-chloroisopropyl)ether	31.6		µg/l	5.00	50.0		63	40-140		
Bis(2-ethylhexyl)phthalate	32.5		µg/l	5.00	50.0		65	40-140		
4-Bromophenyl phenyl ether	32.8		µg/l	5.00	50.0		66	40-140		
Butyl benzyl phthalate	28.6		µg/l	5.00	50.0		57	40-140		
Carbazole	29.6		µg/l	5.00	50.0		59	0-200		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090206 - SW846 3510C										
LCS (9090206-BS1)										
Prepared & Analyzed: 03-Sep-09										
4-Chloro-3-methylphenol	30.8		µg/l	5.00	50.0		62	30-130		
4-Chloroaniline	29.5		µg/l	5.00	50.0		59	40-140		
2-Chloronaphthalene	29.2		µg/l	5.00	50.0		58	40-140		
2-Chlorophenol	26.7		µg/l	5.00	50.0		53	30-130		
4-Chlorophenyl phenyl ether	35.1		µg/l	5.00	50.0		70	40-140		
Chrysene	33.5		µg/l	5.00	50.0		67	40-140		
Dibenzo (a,h) anthracene	38.5		µg/l	5.00	50.0		77	40-140		
Dibenzofuran	33.0		µg/l	5.00	50.0		66	40-140		
1,2-Dichlorobenzene	27.6		µg/l	5.00	50.0		55	40-140		
1,3-Dichlorobenzene	22.6		µg/l	5.00	50.0		45	40-140		
1,4-Dichlorobenzene	28.6		µg/l	5.00	50.0		57	40-140		
3,3´-Dichlorobenzidine	30.3		µg/l	5.00	50.0		61	40-140		
2,4-Dichlorophenol	30.4		µg/l	5.00	50.0		61	30-130		
Diethyl phthalate	38.4		µg/l	5.00	50.0		77	40-140		
Dimethyl phthalate	35.5		µg/l	5.00	50.0		71	40-140		
2,4-Dimethylphenol	26.5		µg/l	5.00	50.0		53	30-130		
Di-n-butyl phthalate	36.3		µg/l	5.00	50.0		73	40-140		
4,6-Dinitro-2-methylphenol	26.1		µg/l	5.00	50.0		52	30-130		
2,4-Dinitrophenol	30.8		µg/l	5.00	50.0		62	30-130		
2,4-Dinitrotoluene	33.4		µg/l	5.00	50.0		67	40-140		
2,6-Dinitrotoluene	30.8		µg/l	5.00	50.0		62	40-140		
Di-n-octyl phthalate	34.9		µg/l	5.00	50.0		70	40-140		
Fluoranthene	32.6		µg/l	5.00	50.0		65	40-140		
Fluorene	32.5		µg/l	5.00	50.0		65	40-140		
Hexachlorobenzene	31.6		µg/l	5.00	50.0		63	40-140		
Hexachlorobutadiene	30.8		µg/l	5.00	50.0		62	40-140		
Hexachlorocyclopentadiene	26.9		µg/l	5.00	50.0		54	40-140		
Hexachloroethane	31.3		µg/l	5.00	50.0		63	40-140		
Indeno (1,2,3-cd) pyrene	35.4		µg/l	5.00	50.0		71	40-140		
Isophorone	24.3		µg/l	5.00	50.0		49	40-140		
2-Methylnaphthalene	30.0		µg/l	5.00	50.0		60	40-140		
2-Methylphenol	25.6		µg/l	5.00	50.0		51	40-140		
3 & 4-Methylphenol	25.7		µg/l	10.0	50.0		51	40-140		
Naphthalene	30.0		µg/l	5.00	50.0		60	40-140		
2-Nitroaniline	31.4		µg/l	5.00	50.0		63	40-140		
3-Nitroaniline	34.7		µg/l	5.00	50.0		69	40-140		
4-Nitroaniline	31.1		µg/l	5.00	50.0		62	40-140		
Nitrobenzene	29.4		µg/l	5.00	50.0		59	40-140		
2-Nitrophenol	26.4		µg/l	5.00	50.0		53	30-130		
4-Nitrophenol	14.6	QC2	µg/l	5.00	50.0		29	30-130		
N-Nitrosodimethylamine	14.5	QC2	µg/l	5.00	50.0		29	40-140		
N-Nitrosodi-n-propylamine	29.1		µg/l	5.00	50.0		58	40-140		
N-Nitrosodiphenylamine	31.0		µg/l	5.00	50.0		62	40-140		
Pentachlorophenol	29.9		µg/l	5.00	50.0		60	30-130		
Phenanthrene	31.2		µg/l	5.00	50.0		62	40-140		
Phenol	12.9	QC2	µg/l	5.00	50.0		26	30-130		
Pyrene	29.0		µg/l	5.00	50.0		58	40-140		
Pyridine	30.7		µg/l	5.00	50.0		61	40-140		
1,2,4-Trichlorobenzene	27.9		µg/l	5.00	50.0		56	40-140		

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090206 - SW846 3510C										
LCS (9090206-BS1)										
Prepared & Analyzed: 03-Sep-09										
2,4,5-Trichlorophenol	32.6		µg/l	5.00	50.0		65	30-130		
2,4,6-Trichlorophenol	30.8		µg/l	5.00	50.0		62	30-130		
Surrogate: 2-Fluorobiphenyl	*29.7*		µg/l		*50.0*		*59*	*30-130*		
Surrogate: 2-Fluorophenol	*12.6*		µg/l		*50.0*		*25*	*15-110*		
Surrogate: Nitrobenzene-d5	*27.5*		µg/l		*50.0*		*55*	*30-130*		
Surrogate: Phenol-d5	*8.33*		µg/l		*50.0*		*17*	*15-110*		
Surrogate: Terphenyl-dl4	*25.3*		µg/l		*50.0*		*51*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*31.1*		µg/l		*50.0*		*62*	*15-110*		
LCS Dup (9090206-BSD1)										
Prepared & Analyzed: 03-Sep-09										
Acenaphthene	38.7		µg/l	5.00	50.0		77	40-140	10	20
Acenaphthylene	34.9		µg/l	5.00	50.0		70	40-140	10	20
Aniline	22.6		µg/l	5.00	50.0		45	40-140	3	20
Anthracene	35.3		µg/l	5.00	50.0		71	40-140	11	20
Azobenzene/Diphenyldiazine	40.3		µg/l	5.00	50.0		81	40-140	12	20
Benzidine	1.57	QR5	µg/l	5.00	50.0		3	0-140		20
Benzo (a) anthracene	34.3		µg/l	5.00	50.0		69	40-140	15	20
Benzo (a) pyrene	36.6		µg/l	5.00	50.0		73	40-140	12	20
Benzo (b) fluoranthene	44.4		µg/l	5.00	50.0		89	40-140	17	20
Benzo (g,h,i) perylene	35.3		µg/l	5.00	50.0		71	40-140	11	20
Benzo (k) fluoranthene	27.6		µg/l	5.00	50.0		55	40-140	5	20
Benzoic acid	20.4		µg/l	5.00	50.0		41	12.6-140	10	20
Benzyl alcohol	36.5		µg/l	5.00	50.0		73	40-140	10	20
Bis(2-chloroethoxy)methane	27.8		µg/l	5.00	50.0		56	40-140	13	20
Bis(2-chloroethyl)ether	29.5		µg/l	5.00	50.0		59	40-140	7	20
Bis(2-chloroisopropyl)ether	34.7		µg/l	5.00	50.0		69	40-140	9	20
Bis(2-ethylhexyl)phthalate	36.0		µg/l	5.00	50.0		72	40-140	10	20
4-Bromophenyl phenyl ether	37.3		µg/l	5.00	50.0		75	40-140	13	20
Butyl benzyl phthalate	32.5		µg/l	5.00	50.0		65	40-140	13	20
Carbazole	33.2		µg/l	5.00	50.0		66	0-200	11	20
4-Chloro-3-methylphenol	35.6		µg/l	5.00	50.0		71	30-130	15	20
4-Chloroaniline	33.3		µg/l	5.00	50.0		67	40-140	12	20
2-Chloronaphthalene	31.6		µg/l	5.00	50.0		63	40-140	8	20
2-Chlorophenol	28.1		µg/l	5.00	50.0		56	30-130	5	20
4-Chlorophenyl phenyl ether	38.3		µg/l	5.00	50.0		77	40-140	9	20
Chrysene	38.0		µg/l	5.00	50.0		76	40-140	13	20
Dibenzo (a,h) anthracene	42.9		µg/l	5.00	50.0		86	40-140	11	20
Dibenzofuran	35.8		µg/l	5.00	50.0		72	40-140	8	20
1,2-Dichlorobenzene	27.8		µg/l	5.00	50.0		56	40-140	1	20
1,3-Dichlorobenzene	21.6		µg/l	5.00	50.0		43	40-140	4	20
1,4-Dichlorobenzene	30.4		µg/l	5.00	50.0		61	40-140	6	20
3,3´-Dichlorobenzidine	35.5		µg/l	5.00	50.0		71	40-140	16	20
2,4-Dichlorophenol	34.2		µg/l	5.00	50.0		68	30-130	12	20
Diethyl phthalate	43.3		µg/l	5.00	50.0		87	40-140	12	20
Dimethyl phthalate	39.3		µg/l	5.00	50.0		79	40-140	10	20
2,4-Dimethylphenol	29.7		µg/l	5.00	50.0		59	30-130	11	20
Di-n-butyl phthalate	40.2		µg/l	5.00	50.0		80	40-140	10	20
4,6-Dinitro-2-methylphenol	29.3		µg/l	5.00	50.0		59	30-130	11	20
2,4-Dinitrophenol	34.0		µg/l	5.00	50.0		68	30-130	10	20
2,4-Dinitrotoluene	37.3		µg/l	5.00	50.0		75	40-140	11	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090206 - SW846 3510C										
LCS Dup (9090206-BSD1)										
Prepared & Analyzed: 03-Sep-09										
2,6-Dinitrotoluene	33.7		µg/l	5.00	50.0		67	40-140	9	20
Di-n-octyl phthalate	39.5		µg/l	5.00	50.0		79	40-140	12	20
Fluoranthene	36.3		µg/l	5.00	50.0		73	40-140	11	20
Fluorene	35.7		µg/l	5.00	50.0		71	40-140	9	20
Hexachlorobenzene	34.5		µg/l	5.00	50.0		69	40-140	9	20
Hexachlorobutadiene	31.4		µg/l	5.00	50.0		63	40-140	2	20
Hexachlorocyclopentadiene	26.8		µg/l	5.00	50.0		54	40-140	0.2	20
Hexachloroethane	31.3		µg/l	5.00	50.0		63	40-140	0.3	20
Indeno (1,2,3-cd) pyrene	39.9		µg/l	5.00	50.0		80	40-140	12	20
Isophorone	28.9		µg/l	5.00	50.0		58	40-140	17	20
2-Methylnaphthalene	33.6		µg/l	5.00	50.0		67	40-140	11	20
2-Methylphenol	28.0		µg/l	5.00	50.0		56	40-140	9	20
3 & 4-Methylphenol	29.3		µg/l	10.0	50.0		59	40-140	13	20
Naphthalene	33.0		µg/l	5.00	50.0		66	40-140	10	20
2-Nitroaniline	34.3		µg/l	5.00	50.0		69	40-140	9	20
3-Nitroaniline	36.8		µg/l	5.00	50.0		74	40-140	6	20
4-Nitroaniline	33.6		µg/l	5.00	50.0		67	40-140	8	20
Nitrobenzene	31.8		µg/l	5.00	50.0		64	40-140	8	20
2-Nitrophenol	28.9		µg/l	5.00	50.0		58	30-130	9	20
4-Nitrophenol	17.3		µg/l	5.00	50.0		35	30-130	17	20
N-Nitrosodimethylamine	15.6	QC2	µg/l	5.00	50.0		31	40-140	7	20
N-Nitrosodi-n-propylamine	32.1		µg/l	5.00	50.0		64	40-140	10	20
N-Nitrosodiphenylamine	35.2		µg/l	5.00	50.0		70	40-140	13	20
Pentachlorophenol	32.2		µg/l	5.00	50.0		64	30-130	7	20
Phenanthrene	35.1		µg/l	5.00	50.0		70	40-140	12	20
Phenol	14.7	QC2	µg/l	5.00	50.0		29	30-130	13	20
Pyrene	32.6		µg/l	5.00	50.0		65	40-140	12	20
Pyridine	25.9		µg/l	5.00	50.0		52	40-140	17	20
1,2,4-Trichlorobenzene	29.3		µg/l	5.00	50.0		59	40-140	5	20
2,4,5-Trichlorophenol	36.0		µg/l	5.00	50.0		72	30-130	10	20
2,4,6-Trichlorophenol	34.0		µg/l	5.00	50.0		68	30-130	10	20
Surrogate: 2-Fluorobiphenyl	*32.2*		µg/l		*50.0*		*64*	*30-130*		
Surrogate: 2-Fluorophenol	*13.8*		µg/l		*50.0*		*28*	*15-110*		
Surrogate: Nitrobenzene-d5	*30.1*		µg/l		*50.0*		*60*	*30-130*		
Surrogate: Phenol-d5	*9.29*		µg/l		*50.0*		*19*	*15-110*		
Surrogate: Terphenyl-dl4	*28.9*		µg/l		*50.0*		*58*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*35.5*		µg/l		*50.0*		*71*	*15-110*		

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090226 - SW846 3510C										
Blank (9090226-BLK1)										
Prepared & Analyzed: 03-Sep-09										
Aroclor-1016	BRL		µg/l	0.200						
Aroclor-1016 [2C]	BRL		µg/l	0.200						
Aroclor-1221	BRL		µg/l	0.200						
Aroclor-1221 [2C]	BRL		µg/l	0.200						
Aroclor-1232	BRL		µg/l	0.200						
Aroclor-1232 [2C]	BRL		µg/l	0.200						
Aroclor-1242	BRL		µg/l	0.200						
Aroclor-1242 [2C]	BRL		µg/l	0.200						
Aroclor-1248	BRL		µg/l	0.200						
Aroclor-1248 [2C]	BRL		µg/l	0.200						
Aroclor-1254	BRL		µg/l	0.200						
Aroclor-1254 [2C]	BRL		µg/l	0.200						
Aroclor-1260	BRL		µg/l	0.200						
Aroclor-1260 [2C]	BRL		µg/l	0.200						
Aroclor-1262	BRL		µg/l	0.200						
Aroclor-1262 [2C]	BRL		µg/l	0.200						
Aroclor-1268	BRL		µg/l	0.200						
Aroclor-1268 [2C]	BRL		µg/l	0.200						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.110*		µg/l		*0.200*		*55*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2	*0.157*		µg/l		*0.200*		*78*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.172*		µg/l		*0.200*		*86*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.167*		µg/l		*0.200*		*84*	*30-150*		
LCS (9090226-BS1)										
Prepared & Analyzed: 03-Sep-09										
Aroclor-1016	2.15		µg/l	0.200	2.50		86	50-114		
Aroclor-1016 [2C]	2.21		µg/l	0.200	2.50		88	50-114		
Aroclor-1260	2.02		µg/l	0.200	2.50		81	40-127		
Aroclor-1260 [2C]	2.18		µg/l	0.200	2.50		87	40-127		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0950*		µg/l		*0.200*		*48*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2	*0.0980*		µg/l		*0.200*		*49*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.152*		µg/l		*0.200*		*76*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.158*		µg/l		*0.200*		*79*	*30-150*		
LCS Dup (9090226-BSD1)										
Prepared & Analyzed: 03-Sep-09										
Aroclor-1016	2.16		µg/l	0.200	2.50		87	50-114	0.8	20
Aroclor-1016 [2C]	2.21		µg/l	0.200	2.50		88	50-114	0.09	20
Aroclor-1260	2.04		µg/l	0.200	2.50		82	40-127	1	20
Aroclor-1260 [2C]	2.17		µg/l	0.200	2.50		87	40-127	0.8	20
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.0990*		µg/l		*0.200*		*50*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2	*0.0990*		µg/l		*0.200*		*50*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.157*		µg/l		*0.200*		*78*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.148*		µg/l		*0.200*		*74*	*30-150*		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090212 - SW846 3510C										
Blank (9090212-BLK1)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Non-polar material (SGT-HEM)	BRL		mg/l	1.0						
LCS (9090212-BS1)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Non-polar material (SGT-HEM)	33.2		mg/l		38.4		86	83-101		

Total Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090234 - EPA 200 Series										
Blank (9090234-BLK1)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Nickel	BRL		mg/l	0.0050						
Selenium	BRL		mg/l	0.0150						
Zinc	BRL		mg/l	0.0050						
Lead	BRL		mg/l	0.0075						
Antimony	BRL		mg/l	0.0060						
Iron	BRL		mg/l	0.0150						
Silver	BRL		mg/l	0.0050						
Arsenic	BRL		mg/l	0.0040						
Cadmium	BRL		mg/l	0.0025						
Copper	BRL		mg/l	0.0050						
Chromium	BRL		mg/l	0.0050						
LCS (9090234-BS1)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Iron	1.37		mg/l	0.0150	1.25		109	85-115		
Antimony	1.29		mg/l	0.0060	1.25		103	85-115		
Zinc	1.37		mg/l	0.0050	1.25		110	85-115		
Selenium	1.35		mg/l	0.0150	1.25		108	85-115		
Lead	1.30		mg/l	0.0075	1.25		104	85-115		
Nickel	1.31		mg/l	0.0050	1.25		105	85-115		
Silver	1.29		mg/l	0.0050	1.25		103	85-115		
Arsenic	1.26		mg/l	0.0040	1.25		101	85-115		
Chromium	1.32		mg/l	0.0050	1.25		106	85-115		
Copper	1.31		mg/l	0.0050	1.25		105	85-115		
Cadmium	1.34		mg/l	0.0025	1.25		107	85-115		
Duplicate (9090234-DUP1) **Source: SB00263-01**										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Nickel	0.0646		mg/l	0.0050		0.0654			1	20
Antimony	BRL		mg/l	0.0060		BRL				20
Selenium	0.0046	J,QR8	mg/l	0.0150		0.0059			25	20
Lead	0.0586		mg/l	0.0075		0.0600			2	20
Zinc	0.204		mg/l	0.0050		0.203			0.7	20
Iron	76.6		mg/l	0.0150		78.1			2	20
Silver	BRL		mg/l	0.0050		BRL				20
Arsenic	0.0208		mg/l	0.0040		0.0198			5	20
Chromium	0.103		mg/l	0.0050		0.107			4	20
Copper	0.116		mg/l	0.0050		0.116			0.3	20
Cadmium	BRL		mg/l	0.0025		BRL				20
Matrix Spike (9090234-MS1) **Source: SB00263-01**										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Antimony	1.06		mg/l	0.0060	1.25	BRL	85	70-130		
Lead	1.08		mg/l	0.0075	1.25	0.0600	82	70-130		
Iron	80.6	QM2	mg/l	0.0150	1.25	78.1	204	70-130		
Zinc	1.52		mg/l	0.0050	1.25	0.203	105	70-130		
Selenium	1.25		mg/l	0.0150	1.25	0.0059	99	70-130		
Nickel	1.12		mg/l	0.0050	1.25	0.0654	85	70-130		
Copper	1.28		mg/l	0.0050	1.25	0.116	93	70-130		
Cadmium	1.18		mg/l	0.0025	1.25	BRL	94	70-130		
Chromium	1.27		mg/l	0.0050	1.25	0.107	93	70-130		

Total Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090234 - EPA 200 Series										
Matrix Spike (9090234-MS1)	**Source: SB00263-01**									
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Silver	1.23		mg/l	0.0050	1.25	BRL	98	70-130		
Arsenic	1.21		mg/l	0.0040	1.25	0.0198	95	70-130		
Post Spike (9090234-PS1)	**Source: SB00263-01**									
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Selenium	1.25		mg/l	0.0150	1.25	0.0059	100	85-115		
Zinc	1.49		mg/l	0.0050	1.25	0.203	103	85-115		
Iron	81.6	QM2	mg/l	0.0150	1.25	78.1	284	85-115		
Nickel	1.14		mg/l	0.0050	1.25	0.0654	86	85-115		
Lead	1.12		mg/l	0.0075	1.25	0.0600	85	85-115		
Chromium	1.33		mg/l	0.0050	1.25	0.107	97	85-115		
Arsenic	1.22		mg/l	0.0040	1.25	0.0198	96	85-115		
Cadmium	1.20		mg/l	0.0025	1.25	BRL	96	85-115		
Copper	1.25		mg/l	0.0050	1.25	0.116	91	85-115		
Silver	1.22		mg/l	0.0050	1.25	BRL	98	85-115		
Batch 9090235 - EPA200/SW7000 Series										
Blank (9090235-BLK1)										
Prepared & Analyzed: 03-Sep-09										
Mercury	BRL		mg/l	0.00020						
LCS (9090235-BS1)										
Prepared & Analyzed: 03-Sep-09										
Mercury	0.00482		mg/l	0.00020	0.00500		96	85-115		
Duplicate (9090235-DUP1)	**Source: SB00263-01**									
Prepared & Analyzed: 03-Sep-09										
Mercury	BRL		mg/l	0.00020		BRL				20
Matrix Spike (9090235-MS1)	**Source: SB00263-01**									
Prepared & Analyzed: 03-Sep-09										
Mercury	0.00536		mg/l	0.00020	0.00500	BRL	107	75-125		
Post Spike (9090235-PS1)	**Source: SB00263-01**									
Prepared & Analyzed: 03-Sep-09										
Mercury	0.00519		mg/l	0.00020	0.00500	BRL	104	85-115		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090195 - General Preparation										
Blank (9090195-BLK1)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	BRL		mg/l	0.005						
LCS (9090195-BS1)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	0.053		mg/l	0.005	0.0500		106	90-110		
Calibration Blank (9090195-CCB1)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	0.001		mg/l							
Calibration Blank (9090195-CCB2)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	0.001		mg/l							
Calibration Blank (9090195-CCB3)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	0.001		mg/l							
Calibration Check (9090195-CCV1)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	0.052		mg/l		0.0500		104	90-110		
Calibration Check (9090195-CCV2)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	0.048		mg/l		0.0500		96	90-110		
Calibration Check (9090195-CCV3)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	0.048		mg/l		0.0500		96	90-110		
Duplicate (9090195-DUP1)	**Source: SB00263-01**									
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	BRL		mg/l	2.50		BRL				20
Matrix Spike (9090195-MS1)	**Source: SB00263-01**									
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	23.5		mg/l	2.50	25.0	BRL	94	80-120		
Matrix Spike Dup (9090195-MSD1)	**Source: SB00263-01**									
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	24.0		mg/l	2.50	25.0	BRL	96	80-120	2	20
Reference (9090195-SRM1)										
Prepared & Analyzed: 02-Sep-09										
Hexavalent Chromium	0.025		mg/l	0.005	0.0250		100	85-115		
Batch 9090196 - General Preparation										
Blank (9090196-BLK1)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	BRL		mg/l	0.020						
LCS (9090196-BS1)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	0.048		mg/l	0.020	0.0500		96	90-110		
Calibration Blank (9090196-CCB1)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	0.001		mg/l							

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090196 - General Preparation										
Calibration Blank (9090196-CCB1)										
Prepared & Analyzed: 02-Sep-09										
Calibration Blank (9090196-CCB2)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	0.001		mg/l							
Calibration Blank (9090196-CCB3)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	0.001		mg/l							
Calibration Check (9090196-CCV1)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	0.046		mg/l		0.0500		92	90-110		
Calibration Check (9090196-CCV2)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	0.049		mg/l		0.0500		98	90-110		
Calibration Check (9090196-CCV3)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	0.049		mg/l		0.0500		98	90-110		
Duplicate (9090196-DUP1)	**Source: SB00263-01**									
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	BRL		mg/l	10.0		BRL				20
Matrix Spike (9090196-MS1)	**Source: SB00263-01**									
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	20.5		mg/l	10.0	25.0	BRL	82	80-120		
Matrix Spike Dup (9090196-MSD1)	**Source: SB00263-01**									
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	20.0		mg/l	10.0	25.0	BRL	80	80-120	2	20
Reference (9090196-SRM1)										
Prepared & Analyzed: 02-Sep-09										
Total Residual Chlorine	0.108		mg/l	0.020	0.109		99	85-115		
Batch 9090229 - General Preparation										
Blank (9090229-BLK1)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Cyanide (total)	BRL		mg/l	0.0100						
Blank (9090229-BLK2)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Cyanide (total)	BRL		mg/l	0.0100						
LCS (9090229-BS1)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Cyanide (total)	0.324		mg/l	0.0100	0.300		108	90-110		
LCS (9090229-BS2)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Cyanide (total)	0.812		mg/l	0.0100	0.800		102	90-110		
LCS (9090229-BS3)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Cyanide (total)	0.323		mg/l	0.0100	0.300		108	90-110		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 9090229 - General Preparation										
LCS (9090229-BS4)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Cyanide (total)	0.848		mg/l	0.0100	0.800		106	90-110		
Reference (9090229-SRM1)										
Prepared: 03-Sep-09 Analyzed: 04-Sep-09										
Cyanide (total)	0.268		mg/l	0.0100	0.287		93	74.9-125.1		
Batch 9090267 - General Preparation										
Blank (9090267-BLK1)										
Prepared & Analyzed: 03-Sep-09										
Total Suspended Solids	BRL		mg/l	5.00						
Blank (9090267-BLK2)										
Prepared & Analyzed: 03-Sep-09										
Total Suspended Solids	BRL		mg/l	5.00						
LCS (9090267-BS1)										
Prepared & Analyzed: 03-Sep-09										
Total Suspended Solids	96.0		mg/l	10.0	88.8		108	90-110		
LCS (9090267-BS2)										
Prepared & Analyzed: 03-Sep-09										
Total Suspended Solids	96.0		mg/l	10.0	88.8		108	90-110		

Analyte	Column	% Breakdown	Limit

Notes and Definitions

CAL2	Analyte percent drift/percent difference is greater than 30%, data is accepted due to all CCC analytes passing within the 20% Drift/Difference criteria
QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM2	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
QR2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR5	RPD out of acceptance range.
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.
R01	The Reporting Limit has been raised to account for matrix interference.
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).
ClHT	The method for residual chlorine indicates that samples should be analyzed immediately. 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous residual chlorine samples not analyzed in the field are considered out of hold time at the time of sample receipt.

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.

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

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

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

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

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

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

SB00263 EM

SPECTRUM ANALYTICAL, INC.
Fostering
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 9/4/09 - A.M
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: GeoHydroCycle, Inc.
151 B California St
Newton, MA 02458
Project Mgr.: KAR
Telephone #: 6175278074

Invoice To: -SAME-
P.O. No.: _____ RQN: _____

Project No.: 09029
Site Name: Needham Drain
Location: Needham State: MA
Sampler(s): SWS

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8=$NaHSO_4$ 9=_____ 10=_____ 11=_____

List preservative code below: 2 | 1 | 2 | 3 | 4

QA/QC Reporting Notes: (check as needed)

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

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials*	# of Amber Glass	# of Clear Glass	# of Plastic	RCP EPA 608	Analyses: VOC SW846 8260	SVOC EPA 625	EDB SOP 1	TPH 1664	TSS, TRC, CrVI	Cyanide	Cu, Pb, Hg, Ni, Se, Cr+3, Zn, Fe, Sb, Ag, Cd	Ag
00263-01	GHC-3	9/2/09	10:40	G	GW	8	3		3	X	X	X	X	X	X	X	X	X
↓ 02	TB					1					X							
↓ 03	RB					1							X					

☒ Provide MA DEP MCP CAM Report
☐ Provide CT DPH RCP Report

QA/QC Reporting Level
☒ Standard ☐ No QC
☐ Other _____

State specific reporting standards: MCP GW-1, GW-2, GW-3

*Total Metals:
Cu, Pb, Hg, Ni, Se
Cr^{+3}, Ag, Fe, Sb, Ag
Cd.
*Please Filter in LAB.

EDD Format _____
☐ E-mail to _____

Condition upon receipt: ☐ Iced ☐ Ambient ☐ °C 8.0 (KM)

Relinquished by:	Received by:	Date:	Time:
		9/2/09	1435
		9/2/09	1706

3.4

SB00263 EM

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 9/4/09 - A.M
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: GeoHydroCycle, Inc.
151B California St
Newton, MA 02458
Project Mgr.: EAR
Telephone #: 6175278074

Invoice To: -SAME-
P.O. No.: _____ RQN: _____

Project No.: 09029
Site Name: Needham Drain
Location: Needham State: MA
Sampler(s): SWS

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8=$NaHSO_4$ 9=_____ 10=_____ 11=_____

List preservative code below: 2 | 1 | 2 | 4 | 3 | 4

QA/QC Reporting Notes: (check as needed)
☒ No CAM Needed.
☐ Provide MA DEP MCP CAM Report
☐ Provide CT DPH RCP Report
QA/QC Reporting Level
☒ Standard ☐ No QC
☐ Other _____
State specific reporting standards: _____

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

G=Grab C=Composite

Containers: # of VOA Vials*, # of Amber Glass, # of Clear Glass, # of Plastic, RCB EPA 608
Analyses: VOC SW846-8260, SVOC EPA 625, EDB SOP 1, TPH-1664, TSS, TRC, Cr+6, Cyanide, Cu, Pb, Hg, Ni, Se, Ag, Zn, Fe, Sb, Acid

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials*	# of Amber Glass	# of Clear Glass	# of Plastic	RCB EPA 608	VOC SW846-8260	SVOC EPA 625	EDB SOP 1	TPH-1664	TSS, TRC, Cr+6	Cyanide,	Cu, Pb, Hg, Ni, Se, Ag, Zn, Fe, Sb, Acid	
00263-01	GHC-3	9/2/09	10:40	G	GW	6	3		3	X	X	X	X	X	X	X	X	X
02	TB					1					X							
03	RB					1							X					

MCP GW-1, GW-2, GW-3

*Total Metals:
Cu, Pb, Hg, Ni, Se
Cr^{+3}, Ag, Fe, Sb, Ag
Cd.

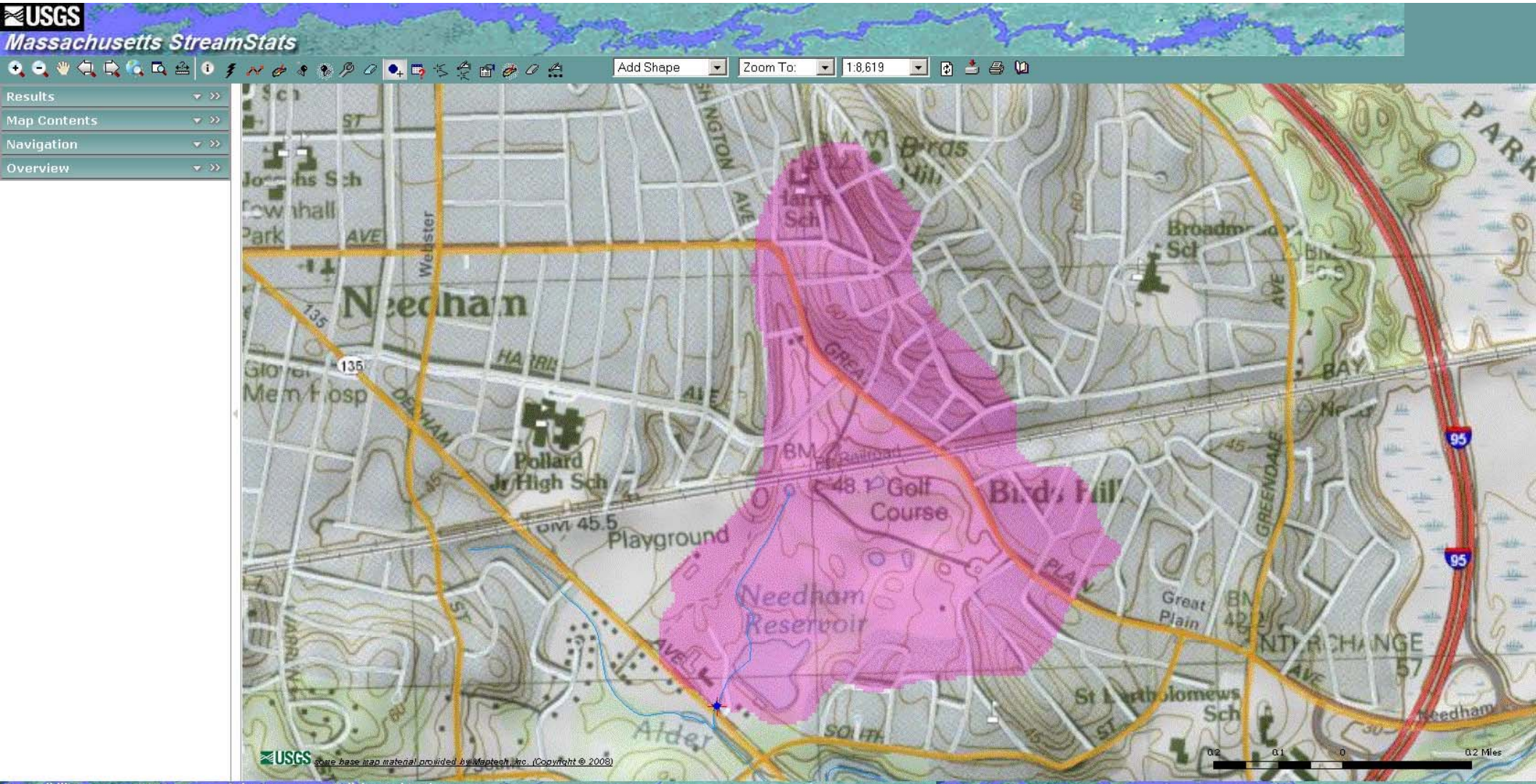
~~*Please Filter in Lab~~ Per client request

EDD Format _____
☐ E-mail to _____

Condition upon receipt: ☐ Iced ☐ Ambient ☐ °C 8.0 (EM)

Relinquished by:	Received by:	Date:	Time:
[signature]	[signature]	9/2/09	1435
[signature]	[signature]	9/2/09	1706 3:4

Enclosure 4 - Streamflow and Dilution Calculations


USGS
Massachusetts StreamStats
Add Shape
Zoom To:
1:8,619
Results
Map Contents
Navigation
Overview
Needham
Pollard Jr High Sch
Golf Course
Playground
Needham Reservoir
Great Plain
Alder
135
95
0.2
0.1
0
0.2 Miles
some base map material provided by Maptech, Inc. (Copyright © 2008)

USGS Massachusetts StreamStats

Basin Characteristics Report

Date: Sun Aug 23 2009 12:55:20 Mountain Daylight Time
NAD83 Latitude: 42.2701 (42 16 12)
NAD83 Longitude: -71.2215 (-71 13 17)
NAD27 Latitude: 42.2700 (42 16 11)
NAD27 Longitude: -71.2220 (-71 13 19)

Parameter	Value
Area in square miles	0.35
Average area slope in percent	2.91
Total stream length in miles	0.39
stratified drift per unit stream lenth	0.76
low flow region indicator for Massachusetts	0
Area of forest land (percent)	14.30
Area of sand and gravel deposits (percent)	84.81

USGS Massachusetts StreamStats

Streamstats Ungaged Site Report

Date: Sun Aug 23 2009 12:57:44 Mountain Daylight Time
Site Location: Massachusetts
NAD83 Latitude: 42.2701 (42 16 12)
NAD83 Longitude: -71.2215 (-71 13 17)
NAD27 Latitude: 42.2700 (42 16 11)
NAD27 Longitude: -71.2220 (-71 13 19)
Drainage Area: 0.35 mi2

Low Flows Basin Characteristics

100% Statewide Low Flow (0.35 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.35 (below min value 1.61)	1.61	149
Mean Basin Slope from 250K DEM (percent)	2.91	0.32	24.6
Stratified Drift per Stream Length (square mile per mile)	0.76	0	1.29
Massachusetts Region (dimensionless)	0	0	1

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

Probability of Perennial Flow Basin Characteristics

100% Perennial Flow Probability (0.35 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.35	0.01	1.99
Percent Underlain By Sand And Gravel (percent)	84.81	0	100
Percent Forest (percent)	14.30	0	100
Massachusetts Region (dimensionless)	0	0	1

Low Flows Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
D50	0.33				
D60	0.25				
D70	0.19				
D75	0.15				
D80	0.18				
D85	0.14				
D90	0.14				
D95	0.0739				
D98	0.0471				
D99	0.0327				
M7D2Y	0.0621				
AUGD50	0.14				
M7D10Y	0.0339				

Probability of Perennial Flow Streamflow Statistics

Statistic	Flow (ft^3/s)	Standard Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PROBPEREN	0.92	0.5		0.81	0.96