GROUNDWATER ANALYTICAL

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October 3, 2005

Mr. Kevin Trainer
GeoInsight, Inc.
5 Lan Drive
Second Floor
Westford, MA 01886

LABORATORY REPORT

Project: **Buzzards Bay/3871-002**
Lab ID: **87072**
Received: **09-01-05**

Dear Kevin:

Enclosed are the analytical results for the above referenced project. The project was processed for Standard turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

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

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/kh
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **Buzzards Bay/3871-002**
Client: **GeoInsight, Inc.**
Lab ID: **87072**

Delivery: **Hand**
Airbill: **n/a**
Lab Receipt: **09-01-05**

Temperature: **6.8'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-1	W1E02-P2-SUB-02		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C641983	500 mL Amber Glass	Proline	BX17255	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-2	W1E02-P2-SUB-02 MS		Soil	8/31/05 0:00	MA DEP EPH				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664612	500 mL Amber Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-3	W1E02-P2-SUB-02 MS		Soil	8/31/05 0:00	PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664613	500 mL Amber Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-4	W1E02-P2-SUB-02 MSD		Soil	8/31/05 0:00	MA DEP EPH				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664614	500 mL Amber Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-5	W1E02-P2-SUB-02 MSD		Soil	8/31/05 0:00	PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664615	500 mL Amber Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-6	W1E02-P2-M-01		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668339	120 mL Amber Glass	Industrial	BX17922	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-7	W1E02-P2-M-02		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668617	120 mL Amber Glass	Industrial	BX17916	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-8	W1E02-P2-M-03		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668341	120 mL Amber Glass	Industrial	BX17922	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-9	W1E02-P2-M-04		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668323	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-10	W1E02-P2-M-05		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668344	120 mL Amber Glass	Industrial	BX17922	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **Buzzards Bay/3871-002**
Client: **GeoInsight, Inc.**
Lab ID: **87072**

Delivery: **Hand**
Airbill: **n/a**
Lab Receipt: **09-01-05**

Temperature: **6.8'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-11	W1E02-P2-SUB-01		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668319	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-12	W1E04-P2-UIT-01		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668347	120 mL Amber Glass	Industrial	BX17922	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-13	W1E04-P2-LIT-01		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668310	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-14	W1E03-P2-SUB-01		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668348	120 mL Amber Glass	Industrial	BX17922	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-15	W1E03-P2-SUB-02		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668326	120 mL Amber Glass	Industrial	BX17922	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87072-16	DDD-P2-03		Soil	8/31/05 0:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668321	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Matrix Spike and Matrix Spike Duplicate
MA DEP Extractable Petroleum Hydrocarbons by GC/FID

			Parent Sample	Matrix Spike	Spike Duplicate
Field ID:	W1E02-P2-SUB-2	Laboratory ID:	87072-01	87702-02	87702-04
Project:	Buzzards Bay/3871-002	Sampled:	08-31-05 00:00	08-31-05 00:00	08-31-05 00:00
Client:	GeoInsight, Inc.	Received:	09-01-05 21:15	09-01-05 21:15	09-01-05 21:15
Matrix:	Soil	Extracted:	09-14-05 12:00	09-14-05 12:00	09-14-05 12:00
Container:	250 mL Glass	Analyzed (AL):	09-26-05 11:11	09-26-05 12:35	09-26-05 15:33
Preservation:	Cool	Analyzed (AR):	09-26-05 11:51	09-26-05 13:20	09-26-05 16:18
		Analyst:	MM	MM	MM
		QC Batch ID:	EP-2146-M	EP-2146-M	EP-2146-M
		Instrument ID:	GC-7 HP 5890	GC-7 HP 5890	GC-7 HP 5890
		Sample Weight:	16 g	16 g	16 g
		Final Volume:	1 mL	1 mL	1 mL
		% Solids:	97	97	97
		Aliphatic Dilution Factor:	1	1	1
		Aromatic Dilution Factor:	1	1	1

CAS Number	Analyte	Unspiked Sample (mg/Kg)	MS Spiked (mg/Kg)	MS Measured (mg/Kg)	MS Recovery	MSD Spiked (mg/Kg)	MSD Measured (mg/Kg)	MSD Recovery	RPD	QC Limits Spike	QC Limits RPD
111-84-2	*n*-Nonane (C_9)	BRL	5.8	2.6	**44 %**	6.0	2.6	**44 %**	1 %	40 - 140%	50 %
124-18-5	*n*-Decane (C_{10})	BRL	5.8	3.1	**54 %**	6.0	3.2	**53 %**	2 %	40 - 140%	50 %
112-40-3	*n*-Dodecane (C_{12})	BRL	5.8	3.4	**59 %**	6.0	3.5	**58 %**	2 %	40 - 140%	50 %
629-59-4	*n*-Tetradecane (C_{14})	BRL	5.8	3.8	**66 %**	6.0	3.8	**63 %**	5 %	40 - 140%	50 %
544-76-3	*n*-Hexadecane (C_{16})	BRL	5.8	4.3	**74 %**	6.0	4.2	**69 %**	6 %	40 - 140%	50 %
593-45-3	*n*-Octadecane (C_{18})	BRL	5.8	4.6	**80 %**	6.0	4.5	**75 %**	4 %	40 - 140%	50 %
n/a	*n*-C9 to *n*-C18 Group	BRL	35	22	**63 %**	36	22	**61 %**	6 %	40 - 140%	50 %
629-92-5	*n*-Nonadecane (C_{19})	BRL	5.8	4.6	**80 %**	6.0	4.6	**76 %**	5 %	40 - 140%	50 %
112-95-8	*n*-Eicosane (C_{20})	BRL	5.8	4.7	**81 %**	6.0	4.7	**77 %**	4 %	40 - 140%	50 %
629-97-0	*n*-Docosane (C_{22})	BRL	5.8	4.7	**82 %**	6.0	4.8	**79 %**	3 %	40 - 140%	50 %
646-31-1	*n*-Tetracosane (C_{24})	BRL	5.8	4.8	**83 %**	6.0	4.9	**81 %**	3 %	40 - 140%	50 %
630-01-3	*n*-Hexacosane (C_{26})	BRL	5.8	4.8	**83 %**	6.0	4.8	**80 %**	3 %	40 - 140%	50 %
630-02-4	*n*-Octacosane (C_{28})	BRL	5.8	4.7	**82 %**	6.0	4.8	**79 %**	3 %	40 - 140%	50 %
638-68-6	*n*-Triacontane (C_{30})	BRL	5.8	4.7	**82 %**	6.0	4.8	**79 %**	3 %	40 - 140%	50 %
630-06-8	*n*-Hexatriacontane (C_{36})	BRL	5.8	4.4	**75 %**	6.0	4.4	**74 %**	2 %	40 - 140%	50 %
n/a	*n*-C19 to *n*-C36 Group	BRL	46	38	**83 %**	48	38	**79 %**	3 %	40 - 140%	50 %
91-20-3	Naphthalene	BRL	5.8	3.2	**55 %**	6.0	3.8	**63 %**	13 %	40 - 140%	50 %
91-57-6	2-Methylnaphthalene	BRL	5.8	3.7	**64 %**	6.0	4.3	**72 %**	12 %	40 - 140%	50 %
208-96-8	Acenaphthylene	BRL	5.8	4.1	**72 %**	6.0	4.7	**79 %**	10 %	40 - 140%	50 %
83-32-9	Acenaphthene	BRL	5.8	3.8	**66 %**	6.0	4.4	**74 %**	10 %	40 - 140%	50 %
86-73-7	Fluorene	BRL	5.8	4.4	**75 %**	6.0	4.8	**80 %**	6 %	40 - 140%	50 %
85-01-8	Phenanthrene	BRL	5.8	5.1	**87 %**	6.0	5.4	**91 %**	3 %	40 - 140%	50 %
120-12-7	Anthracene	BRL	5.8	5.4	**93 %**	6.0	5.8	**96 %**	3 %	40 - 140%	50 %
206-44-0	Fluoranthene	BRL	5.8	5.3	**92 %**	6.0	5.8	**96 %**	4 %	40 - 140%	50 %
129-00-0	Pyrene	BRL	5.8	5.3	**91 %**	6.0	5.7	**95 %**	3 %	40 - 140%	50 %
56-55-3	Benzo[a]anthracene	BRL	5.8	5.4	**93 %**	6.0	5.8	**97 %**	3 %	40 - 140%	50 %
218-01-9	Chrysene	BRL	5.8	5.4	**93 %**	6.0	5.7	**94 %**	1 %	40 - 140%	50 %
205-99-2	Benzo[b]fluoranthene	BRL	5.8	5.3	**92 %**	6.0	5.8	**97 %**	4 %	40 - 140%	50 %
207-08-9	Benzo[k]fluoranthene	BRL	5.8	5.2	**90 %**	6.0	5.5	**92 %**	2 %	40 - 140%	50 %
50-32-8	Benzo[a]pyrene	BRL	5.8	5.4	**93 %**	6.0	5.7	**94 %**	2 %	40 - 140%	50 %
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	5.8	5.7	**98 %**	6.0	6.1	**100 %**	3 %	40 - 140%	50 %
53-70-3	Dibenzo[a,h]anthracene	BRL	5.8	5.3	**91 %**	6.0	5.5	**92 %**	1 %	40 - 140%	50 %
191-24-2	Benzo[g,h,i]perylene	BRL	5.8	5.5	**95 %**	6.0	5.7	**95 %**	0 %	40 - 140%	50 %
n/a	PAH Group	BRL	99	84	**85 %**	100	91	**91 %**	4 %	40 - 140%	50 %

QC Surrogate Compound		Surrogate Recovery								QC Limits
Fractionation:	2-Fluorobiphenyl	**60%**	4.6	3.7	**79%**	4.8	4.2	**87%**		40 - 140 %
	2-Bromonaphthalene	**47%**	4.6	3.6	**79%**	4.8	3.3	**68%**		40 - 140 %
Extraction:	Chloro-octadecane	**78%**	4.6	3.4	**73%**	4.8	3.5	**73%**		40 - 140 %
	ortho-Terphenyl	**68%**	4.6	3.8	**82%**	4.8	4.1	**85%**		40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998).
Sample extraction performed by microwave accelerated solvent extraction. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W1E02-P2-SUB-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**500 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-01**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-26-05 11:11**	% Solids:	**55**
Analyzed (AR):	**09-26-05 11:51**	Aliphatic Dilution Factor:	**1**
Analyst:	**MM**	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	52
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	52
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	52
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	52

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	4.6	2.7	**60** %	40 - 140 %
	2-Bromonaphthalene	4.6	2.1	**47** %	40 - 140 %
Extraction:	Chloro-octadecane	4.6	3.6	**78** %	40 - 140 %
	ortho-Terphenyl	4.6	3.1	**68** %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	W1E02-P2-SUB-02	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	500 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87072-01	QC Batch ID:	EP-2146-M
Sampled:	08-31-05 00:00	Instrument ID:	MS-6 HP 6890
Received:	09-01-05 21:15	Sample Volume:	16 g
Extracted:	09-14-05 12:00	Final Volume:	1 mL
Analyzed:	09-26-05 13:11	Percent Solids:	55
Analyst:	CMM	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	19
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	19
208-96-8	Acenaphthylene	BRL		ug/Kg	19
83-32-9	Acenaphthene	BRL		ug/Kg	19
86-73-7	Fluorene	BRL		ug/Kg	19
85-01-8	Phenanthrene	BRL		ug/Kg	19
120-12-7	Anthracene	BRL		ug/Kg	19
206-44-0	Fluoranthene	BRL		ug/Kg	19
129-00-0	Pyrene	BRL		ug/Kg	19
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	19
218-01-9	Chrysene	BRL		ug/Kg	19
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	19
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	19
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	19
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	19
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	19
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	19

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	4,600	3,300	72 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Matrix Spike and Matrix Spike Duplicate
EPA Method 8270C

Field ID:	**W1E02-P2-SUB-02**
Project:	**Buzzards Bay/3871-002**
Client:	**GeoInsight, Inc.**
Matrix:	**Soil**
Container:	**500 mL Amber Glass**
Preservation:	**Cool**

	Parent Sample	Matrix Spike	Spike Duplicate
Laboratory ID:	87072-01	87072-03	87072-05
Sampled:	08-31-05 00:00	08-31-05 00:00	08-31-05 00:00
Received:	09-01-05 21:15	09-01-05 21:15	09-01-05 21:15
Extracted:	09-14-05 12:00	09-14-05 12:00	09-14-05 12:00
Analyzed:	09-13-05 21:58	09-15-05 16:11	09-15-05 16:51
Analyst:	CMM	CMM	CMM
QC Batch ID:	EP-2146-M	EP-2146-M	EP-2146-M
Instrument ID:	MS 6 HP 6890	MS 6 HP 6890	MS 6 HP 6890
Sample Weight:	15 g	16 g	15 g
Final Volume:	1 mL	1 mL	1 mL
Percent Solids:	55	55	55
Dilution Factor:	1	1	1

CAS Number	Analyte	Unspiked Sample (ug/Kg)	MS Spiked (ug/Kg)	MS Measured (ug/Kg)	MS Recovery	MSD Spiked (ug/Kg)	MSD Measured (ug/Kg)	MSD Recovery	RPD	QC Limits Spike	QC Limits RPD
91-20-3	Naphthalene	BRL	590	330	55 %	590	260	44 %	14 %	40 - 140%	50 %
91-57-6	2-Methylnaphthalene	BRL	590	370	62 %	590	310	53 %	11 %	40 - 140%	50 %
208-96-8	Acenaphthylene	BRL	590	440	75 %	590	350	60 %	15 %	40 - 140%	50 %
83-32-9	Acenaphthene	BRL	590	480	80 %	590	390	66 %	13 %	40 - 140%	50 %
86-73-7	Fluorene	BRL	590	450	76 %	590	380	65 %	10 %	40 - 140%	50 %
85-01-8	Phenanthrene	BRL	590	440	73 %	590	380	64 %	9 %	40 - 140%	50 %
120-12-7	Anthracene	BRL	590	450	75 %	590	390	66 %	9 %	40 - 140%	50 %
206-44-0	Fluoranthene	BRL	590	520	87 %	590	480	81 %	5 %	40 - 140%	50 %
129-00-0	Pyrene	BRL	590	490	82 %	590	440	74 %	7 %	40 - 140%	50 %
56-55-3	Benzo[a]anthracene	BRL	590	500	83 %	590	470	81 %	3 %	40 - 140%	50 %
218-01-9	Chrysene	BRL	590	500	83 %	590	460	79 %	4 %	40 - 140%	50 %
205-99-2	Benzo[b]fluoranthene	BRL	590	460	78 %	590	450	77 %	1 %	40 - 140%	50 %
207-08-9	Benzo[k]fluoranthene	BRL	590	490	82 %	590	480	81 %	2 %	40 - 140%	50 %
50-32-8	Benzo[a]pyrene	BRL	590	480	82 %	590	480	82 %	1 %	40 - 140%	50 %
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	590	470	80 %	590	450	78 %	3 %	40 - 140%	50 %
53-70-3	Dibenzo[a,h]anthracene	BRL	590	440	75 %	590	440	75 %	1 %	40 - 140%	50 %
191-24-2	Benzo[g,h,i]perylene	BRL	590	500	84 %	590	490	83 %	1 %	40 - 140%	50 %

QC Surrogate Compound	Surrogate Recovery								QC Limits
ortho-Terphenyl	72%	4,800	3,300	68%	4,800	2,800	60%		40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W1E02-P2-M-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-06**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-26-05 19:16**	% Solids:	**4**
Analyzed (AR):	**09-26-05 20:00**	Aliphatic Dilution Factor:	**1**
Analyst:	**MM**	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	660
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	660
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	660
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	660

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	59	49	**83** %	40 - 140 %
	2-Bromonaphthalene	59	29	**48** %	40 - 140 %
Extraction:	Chloro-octadecane	59	42	**72** %	40 - 140 %
	ortho -Terphenyl	59	46	**79** %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	**W1E02-P2-M-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-06**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed:	**09-26-05 16:28**	Percent Solids:	**4.4**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	220
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	220
208-96-8	Acenaphthylene	BRL		ug/Kg	220
83-32-9	Acenaphthene	BRL		ug/Kg	220
86-73-7	Fluorene	BRL		ug/Kg	220
85-01-8	Phenanthrene	BRL		ug/Kg	220
120-12-7	Anthracene	BRL		ug/Kg	220
206-44-0	Fluoranthene	BRL		ug/Kg	220
129-00-0	Pyrene	BRL		ug/Kg	220
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	220
218-01-9	Chrysene	BRL		ug/Kg	220
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	220
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	220
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	220
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	220
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	220
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	220

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho- Terphenyl	59,000	35,000	**59 %**	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W1E02-P2-M-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-07**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-26-05 20:45**	% Solids:	**86**
Analyzed (AR):	**09-26-05 21:29**	Aliphatic Dilution Factor:	**1**
Analyst:	**MM**	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	33
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	33
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	33
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	33

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.0	2.2	76 %	40 - 140 %
	2-Bromonaphthalene	3.0	1.3	43 %	40 - 140 %
Extraction:	Chloro-octadecane	3.0	2.1	71 %	40 - 140 %
	ortho-Terphenyl	3.0	2.2	73 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	W1E02-P2-M-02	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87072-07	QC Batch ID:	EP-2146-M
Sampled:	08-31-05 00:00	Instrument ID:	MS-6 HP 6890
Received:	09-01-05 21:15	Sample Volume:	16 g
Extracted:	09-14-05 12:00	Final Volume:	1 mL
Analyzed:	09-26-05 17:08	Percent Solids:	86
Analyst:	CMM	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	11
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	11
208-96-8	Acenaphthylene	BRL		ug/Kg	11
83-32-9	Acenaphthene	BRL		ug/Kg	11
86-73-7	Fluorene	BRL		ug/Kg	11
85-01-8	Phenanthrene	BRL		ug/Kg	11
120-12-7	Anthracene	BRL		ug/Kg	11
206-44-0	Fluoranthene	BRL		ug/Kg	11
129-00-0	Pyrene	BRL		ug/Kg	11
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	11
218-01-9	Chrysene	BRL		ug/Kg	11
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	11
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	11
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	11
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	11
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	11
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	11

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	3,000	1,800	59 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	W1E02-P2-M-03	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87072-08	QC Batch ID:	EP-2146-M
Sampled:	08-31-05 00:00	Instrument ID:	GC-7 HP 5890
Received:	09-01-05 21:15	Sample Weight:	15 g
Extracted:	09-14-05 12:00	Final Volume:	1 mL
Analyzed (AL):	09-26-05 22:14	% Solids:	84
Analyzed (AR):	09-26-05 22:58	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	35
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	35
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	35
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	35

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.1	2.8	89 %	40 - 140 %
	2-Bromonaphthalene	3.1	2.9	93 %	40 - 140 %
Extraction:	Chloro-octadecane	3.1	2.4	75 %	40 - 140 %
	ortho-Terphenyl	3.1	2.7	86 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	W1E02-P2-M-03	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87072-08	QC Batch ID:	EP-2146-M
Sampled:	08-31-05 00:00	Instrument ID:	MS-6 HP 6890
Received:	09-01-05 21:15	Sample Volume:	15 g
Extracted:	09-14-05 12:00	Final Volume:	1 mL
Analyzed:	09-26-05 17:47	Percent Solids:	84
Analyst:	CMM	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	17
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	17
208-96-8	Acenaphthylene	BRL		ug/Kg	17
83-32-9	Acenaphthene	BRL		ug/Kg	17
86-73-7	Fluorene	BRL		ug/Kg	17
85-01-8	Phenanthrene	BRL		ug/Kg	17
120-12-7	Anthracene	BRL		ug/Kg	17
206-44-0	Fluoranthene	BRL		ug/Kg	17
129-00-0	Pyrene	BRL		ug/Kg	17
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	17
218-01-9	Chrysene	BRL		ug/Kg	17
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	17
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	17
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	17
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	17
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	17
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	17

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho- Terphenyl	3,100	2,000	64 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	W1E02-P2-M-04	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87072-09	QC Batch ID:	EP-2146-M
Sampled:	08-31-05 00:00	Instrument ID:	GC-7 HP 5890
Received:	09-01-05 21:15	Sample Weight:	15 g
Extracted:	09-14-05 12:00	Final Volume:	1 mL
Analyzed (AL):	09-26-05 23:42	% Solids:	86
Analyzed (AR):	09-27-05 00:27	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	34
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	34
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	34
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	34

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.1	2.4	79 %	40 - 140 %
	2-Bromonaphthalene	3.1	1.6	54 %	40 - 140 %
Extraction:	Chloro-octadecane	3.1	2.3	76 %	40 - 140 %
	ortho-Terphenyl	3.1	2.5	82 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	W1E02-P2-M-04	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87072-09	QC Batch ID:	EP-2146-M
Sampled:	08-31-05 00:00	Instrument ID:	MS-6 HP 6890
Received:	09-01-05 21:15	Sample Volume:	15 g
Extracted:	09-14-05 12:00	Final Volume:	1 mL
Analyzed:	09-26-05 18:27	Percent Solids:	86
Analyst:	CMM	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	11
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	11
208-96-8	Acenaphthylene	BRL		ug/Kg	11
83-32-9	Acenaphthene	BRL		ug/Kg	11
86-73-7	Fluorene	BRL		ug/Kg	11
85-01-8	Phenanthrene	BRL		ug/Kg	11
120-12-7	Anthracene	BRL		ug/Kg	11
206-44-0	Fluoranthene	BRL		ug/Kg	11
129-00-0	Pyrene	BRL		ug/Kg	11
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	11
218-01-9	Chrysene	BRL		ug/Kg	11
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	11
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	11
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	11
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	11
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	11
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	11

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	3,100	2,100	68 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W1E02-P2-M-05**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-10**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-27-05 01:11**	% Solids:	**89**
Analyzed (AR):	**09-27-05 01:56**	Aliphatic Dilution Factor:	**1**
Analyst:	**MM**	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	32
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	32
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	32
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	32

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.8	2.4	**85** %	40 - 140 %
	2-Bromonaphthalene	2.8	1.4	**51** %	40 - 140 %
Extraction:	Chloro-octadecane	2.8	2.1	**73** %	40 - 140 %
	ortho-Terphenyl	2.8	2.5	**88** %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	**W1E02-P2-M-05**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-10**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed:	**09-26-05 20:26**	Percent Solids:	**89**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	13
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	13
208-96-8	Acenaphthylene	BRL		ug/Kg	13
83-32-9	Acenaphthene	BRL		ug/Kg	13
86-73-7	Fluorene	BRL		ug/Kg	13
85-01-8	Phenanthrene	BRL		ug/Kg	13
120-12-7	Anthracene	BRL		ug/Kg	13
206-44-0	Fluoranthene	BRL		ug/Kg	13
129-00-0	Pyrene	BRL		ug/Kg	13
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	13
218-01-9	Chrysene	BRL		ug/Kg	13
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	13
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	13
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	13
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	13
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	13
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	13

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,800	1,900	**68 %**	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W1E02-P2-SUB-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-11**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-27-05 03:24**	% Solids:	**84**
Analyzed (AR):	**09-27-05 04:09**	Aliphatic Dilution Factor:	**1**
Analyst:	MM	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	36
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	36
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	36
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	36

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.2	2.5	**78** %	40 - 140 %
	2-Bromonaphthalene	3.2	2.1	**67** %	40 - 140 %
Extraction:	Chloro-octadecane	3.2	2.4	**77** %	40 - 140 %
	ortho-Terphenyl	3.2	2.6	**81** %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	**W1E02-P2-SUB-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-11**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed:	**09-26-05 21:05**	Percent Solids:	**84**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	12
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	12
208-96-8	Acenaphthylene	BRL		ug/Kg	12
83-32-9	Acenaphthene	BRL		ug/Kg	12
86-73-7	Fluorene	BRL		ug/Kg	12
85-01-8	Phenanthrene	BRL		ug/Kg	12
120-12-7	Anthracene	BRL		ug/Kg	12
206-44-0	Fluoranthene	BRL		ug/Kg	12
129-00-0	Pyrene	BRL		ug/Kg	12
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	12
218-01-9	Chrysene	BRL		ug/Kg	12
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	12
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	12
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	12
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	12
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	12
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	12

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	3,200	2,100	**65 %**	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	W1E04-P2-UIT-01	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87072-12	QC Batch ID:	EP-2146-M
Sampled:	08-31-05 00:00	Instrument ID:	GC-7 HP 5890
Received:	09-01-05 21:15	Sample Weight:	15 g
Extracted:	09-14-05 12:00	Final Volume:	1 mL
Analyzed (AL):	09-27-05 04:53	% Solids:	100
Analyzed (AR):	09-27-05 05:37	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	30
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	30
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	30
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	30

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.6	2.2	85 %	40 - 140 %
	2-Bromonaphthalene	2.6	1.5	58 %	40 - 140 %
Extraction:	Chloro-octadecane	2.6	2.0	75 %	40 - 140 %
	ortho-Terphenyl	2.6	2.0	74 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	**W1E04-P2-UIT-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-12**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed:	**09-26-05 21:45**	Percent Solids:	**100**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	5	j	ug/Kg	10
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	10
208-96-8	Acenaphthylene	BRL		ug/Kg	10
83-32-9	Acenaphthene	BRL		ug/Kg	10
86-73-7	Fluorene	BRL		ug/Kg	10
85-01-8	Phenanthrene	BRL		ug/Kg	10
120-12-7	Anthracene	BRL		ug/Kg	10
206-44-0	Fluoranthene	6	j	ug/Kg	10
129-00-0	Pyrene	5	j	ug/Kg	10
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	10
218-01-9	Chrysene	BRL		ug/Kg	10
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	10
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	10
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	10
193-39-5	Indeno[1,2,3-c,d]pyrene	7	j	ug/Kg	10
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	10
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	10

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho- Terphenyl	2,600	1,700	63 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

j Indicates an estimated value detected below the reporting limit for the analyte.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W1E04-P2-LIT-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-13**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-24-05 23:35**	% Solids:	**79**
Analyzed (AR):	**09-25-05 00:19**	Aliphatic Dilution Factor:	**1**
Analyst:	**MM**	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	37
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	37
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	37
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	37

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.3	2.3	**69 %**	40 - 140 %
	2-Bromonaphthalene	3.3	2.4	**73 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.3	2.2	**69 %**	40 - 140 %
	ortho-Terphenyl	3.3	2.3	**70 %**	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	**W1E04-P2-LIT-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-13**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 22:01**	Percent Solids:	**79**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	7	j	ug/Kg	12
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	12
208-96-8	Acenaphthylene	BRL		ug/Kg	12
83-32-9	Acenaphthene	BRL		ug/Kg	12
86-73-7	Fluorene	BRL		ug/Kg	12
85-01-8	Phenanthrene	8	j	ug/Kg	12
120-12-7	Anthracene	BRL		ug/Kg	12
206-44-0	Fluoranthene	23		ug/Kg	12
129-00-0	Pyrene	20		ug/Kg	12
56-55-3	Benzo[a]anthracene	14		ug/Kg	12
218-01-9	Chrysene	15		ug/Kg	12
205-99-2	Benzo[b]fluoranthene	7	j	ug/Kg	12
207-08-9	Benzo[k]fluoranthene	7	j	ug/Kg	12
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	12
193-39-5	Indeno[1,2,3-c,d]pyrene	13		ug/Kg	12
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	12
191-24-2	Benzo[g,h,i]perylene	7	j	ug/Kg	12

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	3,300	2,200	69 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations:
BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
j Indicates an estimated value detected below the reporting limit for the analyte.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W1E03-P2-SUB-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-14**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-25-05 01:03**	% Solids:	**86**
Analyzed (AR):	**09-25-05 01:47**	Aliphatic Dilution Factor:	**1**
Analyst:	**MM**	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	35
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	35
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	35
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	35

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.1	2.0	**65 %**	40 - 140 %
	2-Bromonaphthalene	3.1	2.1	**68 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.1	2.1	**67 %**	40 - 140 %
	ortho-Terphenyl	3.1	2.4	**77 %**	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	**W1E03-P2-SUB-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-14**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 22:40**	Percent Solids:	**86**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	12
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	12
208-96-8	Acenaphthylene	BRL		ug/Kg	12
83-32-9	Acenaphthene	BRL		ug/Kg	12
86-73-7	Fluorene	BRL		ug/Kg	12
85-01-8	Phenanthrene	BRL		ug/Kg	12
120-12-7	Anthracene	BRL		ug/Kg	12
206-44-0	Fluoranthene	BRL		ug/Kg	12
129-00-0	Pyrene	BRL		ug/Kg	12
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	12
218-01-9	Chrysene	BRL		ug/Kg	12
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	12
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	12
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	12
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	12
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	12
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	12

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho- Terphenyl	3,100	2,300	75 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W1E03-P2-SUB-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-15**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-25-05 02:31**	% Solids:	**87**
Analyzed (AR):	**09-25-05 03:15**	Aliphatic Dilution Factor:	**1**
Analyst:	**MM**	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	33
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	33
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	33
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	33

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.0	2.4	**80 %**	40 - 140 %
	2-Bromonaphthalene	3.0	2.4	**82 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.0	2.1	**71 %**	40 - 140 %
	ortho-Terphenyl	3.0	2.2	**76 %**	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1? No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	**W1E03-P2-SUB-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-15**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 23:19**	Percent Solids:	**87**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	**10**	j	ug/Kg	11
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	11
208-96-8	Acenaphthylene	BRL		ug/Kg	11
83-32-9	Acenaphthene	BRL		ug/Kg	11
86-73-7	Fluorene	BRL		ug/Kg	11
85-01-8	Phenanthrene	**10**	j	ug/Kg	11
120-12-7	Anthracene	BRL		ug/Kg	11
206-44-0	Fluoranthene	BRL		ug/Kg	11
129-00-0	Pyrene	**6**	j	ug/Kg	11
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	11
218-01-9	Chrysene	BRL		ug/Kg	11
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	11
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	11
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	11
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	11
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	11
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	11

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	3,000	2,600	**87 %**	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

j Indicates an estimated value detected below the reporting limit for the analyte.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**DDD-P2-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87072-16**	QC Batch ID:	**EP-2146-M**
Sampled:	**08-31-05 00:00**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-14-05 12:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-25-05 03:59**	% Solids:	**37**
Analyzed (AR):	**09-25-05 04:43**	Aliphatic Dilution Factor:	**1**
Analyst:	**MM**	Aromatic Dilution Factor:	**1**

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	77
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	77
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	77
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	77

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	6.8	5.6	**82 %**	40 - 140 %
	2-Bromonaphthalene	6.8	5.9	**86 %**	40 - 140 %
Extraction:	Chloro-octadecane	6.8	4.9	**71 %**	40 - 140 %
	ortho-Terphenyl	6.8	5.3	**78 %**	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified)
MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID:	DDD-P2-03	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87072-16	QC Batch ID:	EP-2146-M
Sampled:	08-31-05 00:00	Instrument ID:	MS-6 HP 6890
Received:	09-01-05 21:15	Sample Volume:	16 g
Extracted:	09-14-05 12:00	Final Volume:	1 mL
Analyzed:	09-27-05 23:58	Percent Solids:	37
Analyst:	CMM	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	15	j	ug/Kg	26
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	26
208-96-8	Acenaphthylene	BRL		ug/Kg	26
83-32-9	Acenaphthene	BRL		ug/Kg	26
86-73-7	Fluorene	BRL		ug/Kg	26
85-01-8	Phenanthrene	BRL		ug/Kg	26
120-12-7	Anthracene	BRL		ug/Kg	26
206-44-0	Fluoranthene	BRL		ug/Kg	26
129-00-0	Pyrene	BRL		ug/Kg	26
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	26
218-01-9	Chrysene	BRL		ug/Kg	26
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	26
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	26
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	26
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	26
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	26
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	26

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	6,800	5,000	74 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

j Indicates an estimated value detected below the reporting limit for the analyte.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**Buzzards Bay/3871-002**	Lab ID:	**87072**
Client:	**GeoInsight, Inc.**	Received:	**09-01-05 21:15**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. Project Non-conformance. Project 87072 was received at a temperature of 6.8'C. This measurement is outside the recommended range of 2-6'C.
2. MA DEP EPH Note: Samples 87072-01 through -16. Polynuclear aromatic hydrocarbon (PAH) target analytes were identified and quantified by GC/MS-SIM, in accordance with the method provision for alternate determinative methodologies. GC/MS-SIM was used to achieve low quantification limits necessary for regulatory compliance. Target analytes were determined utilizing the same sample extract used for carbon range determination by GC/FID.
3. Samples 87072-01 through -16 for analysis by MA DEP EPH with PAH's by 8270C Mod SIM were composited upon receipt by the laboratory, as indicated on the chain of custody.

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www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 084673

Project Name:	Firm:
Buzzards Bay	GeoInsight
Project Number:	**Address:**
3871-002	5 Lan Drive
Sampler Name:	**City / State / Zip:**
AW/LC/KZ/AP	Westford, MA 01886
Project Manager:	**Telephone:**
Kevin Trainer	978-692-1114

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- [X] STANDARD (10 Business Days)
- [ ] PRIORITY (5 Business Days)
- [ ] RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- [X] Please Email to: pdf to ktrainer@geoinc.com
- [ ] Please FAX to: _____

BILLING

- [ ] Purchase Order No.: _____
- [ ] Third Party Billing: _____
- [ ] GWA Quote: _____

ANALYSIS REQUEST

OPTIONS | SDWA | NPDES | RCRA/21E

Volatiles: [ ] TIC Search; [ ] 524.2+MTBE; [ ] 624; [ ] 8260B TCL+MTBE; [ ] 8260B NH PETROLEUM; [ ] 8260B
Volatiles: [ ] 602+MTBE; [ ] 601; [ ] 8021B Aromatics; [ ] 8021B Halocarbons; [ ] 8021B
Volatiles: [ ] 601/602+MTBE; [ ] 8270C
Semivolatiles: [ ] Acid Only; [ ] B/N Only; [ ] TIC Search; [ ] 525.2; [ ] 625; [X] 8270C PAHs only SIM
Pest/Herb/PCBs Extractable: [ ] 505; [ ] 508; [ ] 608 Pesticides; [ ] 608 PCBs; [ ] 8081A Pesticides; [ ] 8082 PCBs; [ ] 8151A Herbicides; [ ] 8011 EDB/DBCP
Pest/Herb/PCBs Vol.: [ ] 504.1 EDB/DBCP; [ ] 515.1; [ ] 515.1; [ ] 615
Metals: Specify for Water Samples: [ ] Total [ ] Dissolved; [ ] Lead and Copper; [ ] 13 Priority Pollutant; [ ] 8 RCRA; [ ] 5 RCRA; [ ] MA List Metals; [ ] 23 TAL; [ ] Specify:
Petroleum Hydrocarbon Ext. TPH: [ ] TPH-HR; [ ] Diesel Range Organics (DRO); [ ] CT ETPH; [ ] MA DEP EPH w/all targets + LEPH; [ ] Hydrocarbon Fingerprint (EGC/FID) by ASTM D3328-00+Mod.; [ ] TPH by GC/FID (8015B Mod) Quantitative Only; [ ] Gasoline Range Organics (GRO); [ ] MA DEP VPH w/all targets
Petroleum Hydrocarbon Vol. TPH: [ ] ME GRO; [ ] ME DRO; [X] EPH w/4 PAHs; [ ] Carbon Ranges only
Haz. Waste: [ ] TCLP; [ ] SPLP; [ ] 8 Metals; [ ] Pb only; [ ] VOA; [ ] Semi VOA; [ ] Pesticides; [ ] Herbicides; [ ] Corrosivity (as pH); [ ] Reactivity; [ ] Ignitability (as Flashpoint); [ ] Paint Filter; [ ] MA Basic Disposal Criteria: 8260B, TPH by GC, PCBs, 5 Metals, Corrosivity, Ignitability, Reactivity
General Chemistry: [ ] Nitrate; [ ] Nitrite; [ ] Chloride; [ ] Fluoride; [ ] Sulfate; [ ] Dissolved Phosphorus; [ ] Ammonia; [ ] TKN; [ ] Total Phosphorus; [ ] Total N (as NO2/NO3/TKN); [ ] Oil & Grease; [ ] COD; [ ] TOC; [ ] BOD; [ ] TDS; [ ] TSS; [ ] TS; [ ] Alkalinity; [ ] Cyanide, Total; [ ] Cyanide, Physiologically Available; [ ] pH; [ ] Dissolved Oxygen; [ ] Turbidity
Other: [ ] Total Coliform; [ ] Fecal Coliform; [ ] HPC

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
8/31/05	12:11	WIE03-P2-SUB-02C	SOIL/Sediment	GRAB	3 × 250mL/8 oz Glass	ICE	NO	1
	12:06	WIE03-P2-SUB-02B	SOIL/Sediment	GRAB	3 × 250mL/8 oz Glass	ICE	NO	
	12:02	WIE03-P2 SUB-02A	SOIL/Sediment	GRAB	3 × 250mL/8 oz Glass	ICE	NO	

REMARKS / SPECIAL INSTRUCTIONS

1) Composite the A, B, + C Sample aliquots
2) After compositing, freeze the A, B, + C aliquots remaining soil and send to STB Labs for archiving or disposal.
3) PAH analyzed for 8270 w/ SIM Selected Ion Monitoring.

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
[ ] CT	[X] MCP GW-1/S-1	[ ] PWS Form
[ ] ME	[X] MCP GW-2/S-2	[ ] MWRA
[X] MA	[ ] NY STARS	[ ] _____
[ ] NH	[ ] Drinking Water	
[ ] NY	[ ] Wastewater	
[ ] RI	[ ] Waste Disposal	
[ ] VT	[ ] Dredge Material	
[ ] ___	[ ] _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required	Selection of QC Sample
[ ] Sample Duplicate	[X] Please use sample: Composite of WIE03-P2-SUB-02C WIE03-P2-SUB-02B WIE03-P2-SUB-02A
[X] Matrix Spike	
[ ] Matrix Spike Duplicate	

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

	Date	Time		
Relinquished by Sampler:	9-1-05	0115	Received by:	Receipt Temperature: [ ] Ice [ ] Refrigerated 2-6°C Recommended 6
Relinquished by:			Received by:	Container Count:
Relinquished by:			Received by Laboratory:	Shipping/Airbill Number:

Method of Shipment: [ ] GWA Courier [ ] Express Mail [ ] Federal Express [ ] UPS [ ] Hand [ ] _____

Custody Seal Number:

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CHAIN-OF-CUSTODY AND WORK ORDER

..2 084670

Project Name: BUZZARDS BAY	Firm: GeoInsight
Project Number: 3871-002	Address: 5 Lan Drive
Sampler Name: KZ, LC, AP, AW	City / State / Zip: Westford, MA 01886
Project Manager: KEVIN TRAINER	Telephone: 978-692-1114

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- [X] STANDARD (10 Business Days)
- [ ] PRIORITY (5 Business Days)
- [ ] RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- [X] Please Email to: pdf to ktrainer@geoinsight.com
- [ ] Please FAX to: _____

BILLING

- [ ] Purchase Order No.: _____
- [ ] Third Party Billing: _____
- [ ] GWA Quote: _____

ANALYSIS REQUEST

OPTIONS / SDWA / NPDES / RCRA21E

Volatiles: [ ] TIC Search; [ ] 524.2-MTBE; [ ] 624; [ ] 602+MTBE; [ ] 601; [ ] 601/602+MTBE; [ ] 8260B TCL+MTBE; [ ] 8260B NH PETROLEUM; [ ] 8260B

Semivolatiles: [ ] Acid Only; [ ] B/N Only; [ ] TIC Search; [ ] 525.2; [ ] 625; [ ] 8270C PAHs only (SIM); [ ] 8270C PAHs only; [ ] 8081A Pesticides; [ ] 8082 PCBs; [ ] 8151A Herbicides; [ ] 8011 EDB/DBCP; [ ] 8270C

Pest/Herb/PCBs Extractable: [ ] 505; [ ] 508; [ ] 608 Pesticides; [ ] 608 PCBs; [ ] 8081A Pesticides; [ ] 8082 PCBs; [ ] 8151A Herbicides; [ ] 8011 EDB/DBCP

Pest/Herb/PCBs Vol.: [ ] 1331.1; [ ] 1515.1; [ ] 504.1 EDB/DBCP; [ ] 615

Metals: Specify For Water Samples [ ] Total [ ] Dissolved; [ ] Lead and Copper; [ ] 13 Priority Pollutant; [ ] 8 RCRA; [ ] 5 RCRA; [ ] MA List Metals; [ ] 23 TAL; [ ] Specify

Petroleum Hydrocarbon Ext. TPH: [ ] TPH-IR; [ ] Diesel Range Organics (DRO); [ ] ME DRO; [ ] CT ETPH; [ ] MA DEP EPH w/all targets; [X] EPH Carbon Ranges only; [ ] EPH w/4 PAHs; [ ] Hydrocarbon Fingerprint (GC/FID by ASTM D3328-00 Mod.); [ ] TPH by GC/FID (8015B Mod) Quantitative Only

Petroleum Hydrocarbon Vol. TPH: [ ] Gasoline Range Organics (GRO); [ ] ME GRO; [ ] MA DEP VPH w/all targets; [ ] VPH Carbon ranges only

Haz. Waste: [ ] TCLP: [ ] 1SPLP 1; [ ] 8 Metals; [ ] Pb only; [ ] VOA; [ ] Semi VOA; [ ] Pesticides; [ ] Herbicides; [ ] Corrosivity (as pH); [ ] Reactivity; [ ] Ignitability (as Flashpoint); [ ] Paint Filter; [ ] MA Basic Disposal Criteria: 9060B, TPH by GC, PCBs, 5 Metals, Corrosivity, Ignitability, Reactivity

General Chemistry: [ ] Nitrate; [ ] Nitrite; [ ] Chloride; [ ] Fluoride; [ ] Sulfate; [ ] Dissolved Phosphorus; [ ] Ammonia; [ ] TKN; [ ] Total Phosphorus; [ ] Total N (as NH3/NO3/TKN); [ ] Oil & Grease; [ ] COD; [ ] TOC; [ ] BOD; [ ] TDS; [ ] TSS; [ ] TS; [ ] Alkalinity; [ ] Cyanide, Total; [ ] Cyanide, Physiologically Available; [ ] pH; [ ] Dissolved Oxygen; [ ] Turbidity; [ ] Total Coliform; [ ] Fecal Coliform; [ ] HPC

Other

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
8/31/05	10:40	WIE02-P2-M-01-A	SOIL/Sediment	COMPOSITE	40mL VOA Vial	HCl	ICE	6
	10:42	WIE02-P2-M-01-B		GRAB	60mL/2 oz Glass	HNO3	YES	
	10:44	WIE02-P2-M-01-C			120mL/4 oz Amber Glass	H2SO4	NO	
	10:52	WIE02-P2-M-02-A			250mL/8 oz Amber Glass	NaOH		7
	10:54	WIE02-P2-M-02-B			500mL/16 oz Glass	Methanol		
	10:56	WIE02-P2-M-02-C			1L/32 oz Amber Glass	Sodium Bisulfate		
	11:30	WIE02-P2-M-03-A			250mL/8 oz Plastic			8
	11:32	WIE02-P2-M-03-B			500mL/16 oz Plastic			
	11:34	WIE02-P2-M-03-C			1L/32 oz Plastic			
	11:42	WIE02-P2-M-04-A			125mL Sterile			9
	11:44	WIE02-P2-M-04-B						
	11:46	WIE02-P2-M-04-C						

REMARKS / SPECIAL INSTRUCTIONS

1) Composite the A, B, & C sample aliquots.
2) After compositing, freeze the A, B, & C aliquots remaining soil and send to B&B LABS for archiving on dry ice.
3) PAH analyzed for 8270 w/ (SIM) Selected Ion Monitoring.

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
[ ] CT	[X] MCP GW-1/S-1	[ ] PWS Form
[ ] ME	[X] MCP GW-2/S-2	[ ] MWRA
[X] MA	[ ] NY STARS	[ ] _____
[ ] NH	[ ] Drinking Water	
[ ] NY	[ ] Wastewater	
[ ] RI	[ ] Waste Disposal	
[ ] VT	[ ] Dredge Material	
[ ] ___	[ ] _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required
- [ ] Sample Duplicate
- [ ] Matrix Spike
- [ ] Matrix Spike Duplicate

Selection of QC Sample
- [ ] Please use sample: _____

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by Sampler:	Date: 9-1-05 Time: 2115	Received by:	Receipt Temperature: [ ] Ice [ ] Refrigerated 2-6 C Recommended 6.5
Relinquished by:	Date: Time:	Received by:	Container Count:
Relinquished by:	Date: Time:	Received by Laboratory: JE	Shipping/Airbill Number:
Method of Shipment: [ ] GWA Courier [ ] Express Mail [ ] Federal Express [ ] UPS [ ] Hand [ ] _____			Custody Seal Number:

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 084672

Project Name: BUZZARDS BAY
Firm: GeoInsight
Project Number: 3871-002
Address: 5 LAN DRIVE
Sampler Name: KZ, LC, AW, AP
City / State / Zip: WESTFORD, MA 01886
Project Manager: KEVIN TRAINER
Telephone: 978-692-1114

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- [X] STANDARD (10 Business Days)
- [ ] PRIORITY (5 Business Days)
- [ ] RUSH (RAN-) (Rush requires Rush Authorization Number)
- [X] Please Email to: pdf to Kdtrainer@geoinc.com
- [ ] Please FAX to:

BILLING

- [ ] Purchase Order No.:
- [ ] Third Party Billing:
- [ ] GWA Quote:

Date	Time	Sample Identification	Matrix: Soil (Sediment)	Type: Grab	Container: 250mL/8 oz Glass	Container: 250mL/8 oz Plastic	Preservation: Ice	Filtered: No	Laboratory Number (Lab Use Only)	8270C PAHs only SIM	MA DEP EPH Carbon Ranges only
8/31/05	10:49	WIE02-P2-M-05-A	X	X	X	X	X	X	10	X	X
	10:53	WIE02-P2-M-05-B	X	X	X	X	X	X	10	X	X
	10:57	WIE02-P2-M-05-C	X	X	X	X	X	X	10	X	X
	11:04	WIE02-P2-Sub-01-A	X	X	X	X	X	X	11	X	X
	11:06	WIE02-P2-Sub-01-B	X	X	X	X	X	X	11	X	X
	11:08	WIE02-P2-Sub-01-C	X	X	X	X	X	X	11	X	X
	14:10	WIE04-P2-UIT-01-B	X	X	X	X	X	X	12	X	X
	14:18	WIE04-P2-UIT-01-C	X	X	X	X	X	X	12	X	X
	14:20	WIE04-P2-LIT-01-A	X	X	X	X	X	X	13	X	X
	14:22	WIE04-P2-LIT-01-B	X	X	X	X	X	X	13	X	X

REMARKS / SPECIAL INSTRUCTIONS

1) Composite A, B, + C sample aliquots.
2) After compositing, freeze the A, B, + C aliquots remaining soil and send to B + B Labs for archiving on dry ice.
3) PAH analyzed for 8270 w/SIM Selected Ion Monitoring

DATA QUALITY OBJECTIVES

Regulatory Program

State: [X] MA
Standard: [X] MCP GW-1/S-1, [X] MCP GW-2/S-2

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required: [ ] Sample Duplicate [ ] Matrix Spike [ ] Matrix Spike Duplicate
Selection of QC Sample: [ ] Please use sample:

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by	Date	Time	Received by	
Relinquished by Sampler: [signature]	9-1-05	2115	Received by:	Receipt Temperature: 6.8 (Ice / Refrigerated, 2-6°C Recommended)
Relinquished by:			Received by:	Container Count:
Relinquished by:			Received by Laboratory: [signature]	Shipping/Airbill Number:

Method of Shipment: [ ] GWA Courier [ ] Express Mail [ ] Federal Express [ ] UPS [ ] Hand [ ]
Custody Seal Number:

GROUNDWATER ANALYTICAL

228 Main Street, P.O. Box 1200
Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

.2 084671

Project Name: Buzzards Bay	Firm: GeoInsight
Project Number: 3871-002	Address: 5 Lan Drive
Sampler Name: AW/LC/AP/KZ	City / State / Zip: Westford, MA 01886
Project Manager: Kevin Thiner	Telephone: 978-692-1114

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- ☑ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☒ Please Email to: KdTrainer@geo.nc.com (PDF)
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS / SDWA / NPDES / RCRA/21E

Volatiles: ☐ TIC Search; ☐ 524.2+MTBE; ☐ 624; ☐ 602+MTBE; ☐ 601; ☐ 601/602+MTBE; ☐ 8260B TCL+MTBE; ☐ 8260B NH PETROLEUM; ☐ 8260B

Semivolatiles: ☐ Acid Only; ☐ BN Only; ☐ TIC Search; ☐ 525.2; ☐ 625; ☐ 625 PAHs only; ☐ 8270C; ☐ 8270C PAHs only SIM

Pest/Herb/PCBs Extractable: ☐ 505; ☐ 508; ☐ 608 Pesticides; ☐ 608 PCBs; ☐ 8081A Pesticides; ☐ 8082 PCBs

Pest/Herb/PCBs Vol.: ☐ 504.1 EDB/DBCP; ☐ 8011 EDB/DBCP; ☐ 8151A Herbicides

Metals: Specify for Water Samples ☐ Total ☐ Dissolved; ☐ Lead and Copper; ☐ 13 Priority Pollutant; ☐ 8 RCRA; ☐ 5 RCRA; ☐ MA List Metals; ☐ 23 TAL; ☐ Specify

Petroleum Hydrocarbon Ext. TPH: ☐ TPH-IR; ☐ Diesel Range Organics (DRO); ☐ ME DRO; ☐ CT ETPH; ☐ MA DEP EPH w/all targets; ☐ EPH Carbon Ranges only; ☐ EPH w/4 PAHs; ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-00 Mod.); ☐ TPH by GC/FID (8015B Mod) Quantitative Only

Petroleum Hydrocarbon Vol. TPH: ☐ Gasoline Range Organics (GRO); ☐ ME GRO; ☐ MA DEP VPH w/all targets; ☐ VPH Carbon ranges only

Haz. Waste: ☐ TCLP; ☐ SPLP; ☐ 8 Metals; ☐ Pb only; ☐ VOA; ☐ Semi VOA; ☐ Pesticides; ☐ Herbicides; ☐ Corrosivity (as pH); ☐ Reactivity; ☐ Ignitability (as Flashpoint); ☐ Paint Filter; ☐ MA Basic Disposal Criteria: 8260B, TPH by GC, PCBs, 5 Metals: Corrosivity, Ignitability, Reactivity

General Chemistry: ☐ Nitrate; ☐ Nitrite; ☐ Chloride; ☐ Fluoride; ☐ Sulfate; ☐ Dissolved Phosphorus; ☐ Ammonia; ☐ TKN; ☐ Total Phosphorus; ☐ Total N (as NO2/NO3/TKN); ☐ Oil & Grease; ☐ COD; ☐ TOC; ☐ BOD; ☐ TDS; ☐ TSS; ☐ TS; ☐ Alkalinity; ☐ Cyanide, Total; ☐ Cyanide, Physiologically Available; ☐ Dissolved Oxygen; ☐ Turbidity; ☐ pH; ☐ Total Coliform; ☐ Fecal Coliform; ☐ HPC

Other

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix: GROUNDWATER	DRINKING WATER	WASTEWATER	SOIL / SEDIMENT	OTHER SOLID	OIL/ORGANIC LIQUID	Type: COMPOSITE	GRAB	Container(s): NUMBER	40mL VOA Vial	60mL/2 oz Glass	120mL/4 oz Amber Glass	250mL/8 oz Glass	500mL/16 oz Glass	1L/32 oz Amber Glass	250mL/8 oz Plastic	500mL/16 oz Plastic	1L/32 oz Plastic	120mL Sterile	Preservation: HCl	HNO3	H2SO4	NaOH	Methanol	Sodium Bisulfate	ICE	Filtered: YES	NO	LABORATORY NUMBER (Lab Use Only)
8/31/05	13:18	WIE03-P2-Sb-01B				X				X	1				X												X		X	
	12:46	WIE03-P2-Sb-02A									1																				
	12:48	WIE03-P2-Sb-02B									1																				
	13:16	WIE03-P2-Sb-01A									1																				
	13:20	WIE03-P2-Sb-01C									1																				
	12:50	WIE03-P2-Sb-02C									1																				
	14:25	WIE04-P2-UT-01-C									1																				
	14:15	WIE04-P2-UT-01-A									1																			13 12	
	23:40	DDD-P2-03A									1																				
	23:44	DDD-P2-03C									1																				
	23:42	DDD-P2-03B									1																				
~~9/2/05~~	~~11:11~~	~~WIE02-P2-Sb-02C~~																													

REMARKS / SPECIAL INSTRUCTIONS

1) Composite the A, B, + C sample aliquots
2) After composing, freeze the A, B, + C aliquots remaining soil and send to B+B Labs for archiving on dry ice.
3) PAH analyzed for 8270 w/ SIM selected ion monitoring.

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☒ MCP GW-1/S-1	☐ PWS Form
☐ ME	☒ MCP GW-2/S-2	☐ MWRA
☒ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. **Each MS, MSD and Sample Duplicate requires an additional sample aliquot.**

Project Specific QC Required	Selection of QC Sample
☐ Sample Duplicate	☐ Please use sample:
☐ Matrix Spike	_____
☐ Matrix Spike Duplicate	

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by Sampler:	Date: 9.1.05 Time: 2115	Received by:	Receipt Temperature: ☐ Ice ☐ Refrigerated 2-6°C Recommended 6.8
Relinquished by:	Date: Time:	Received by:	Container Count:
Relinquished by:	Date: Time:	Received by Laboratory:	Shipping/Airbill Number:
Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ _____			Custody Seal Number:

GROUNDWATER ANALYTICAL

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA 8270C Modified	Instrument ID:	MS-6 HP 6890	Instrument ID:	MS-6 HP 6890
QC Batch ID:	EP-2146-M	Extracted:	09-14-05 12:00	Extracted:	09-14-05 12:00
Matrix:	Soil	Analyzed:	09-27-05 18:46	Analyzed:	09-27-05 19:25
Units:	ug/Kg	Analyst:	CMM	Analyst:	CMM

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
91-20-3	Naphthalene	330	200	61 %	330	200	61 %	0 %	40 - 140 %	20%
91-57-6	2-Methylnaphthalene	330	220	67 %	330	220	67 %	0 %	40 - 140 %	20%
85-01-8	Phenanthrene	330	260	79 %	330	270	82 %	4 %	40 - 140 %	20%
83-32-9	Acenaphthene	330	270	82 %	330	270	82 %	0 %	40 - 140 %	20%
208-96-8	Acenaphthylene	330	250	76 %	330	250	76 %	0 %	40 - 140 %	20%
86-73-7	Fluorene	330	260	79 %	330	260	79 %	0 %	40 - 140 %	20%
120-12-7	Anthracene	330	270	82 %	330	280	85 %	4 %	40 - 140 %	20%
206-44-0	Fluoranthene	330	320	97 %	330	330	100 %	3 %	40 - 140 %	20%
129-00-0	Pyrene	330	300	91 %	330	310	94 %	3 %	40 - 140 %	20%
56-55-3	Benzo[a]anthracene	330	310	94 %	330	320	97 %	3 %	40 - 140 %	20%
218-01-9	Chrysene	330	300	91 %	330	320	97 %	6 %	40 - 140 %	20%
205-99-2	Benzo[b]fluoranthene	330	290	88 %	330	300	91 %	3 %	40 - 140 %	20%
207-08-9	Benzo[k]fluoranthene	330	300	91 %	330	320	97 %	6 %	40 - 140 %	20%
50-32-8	Benzo[a]pyrene	330	300	91 %	330	320	97 %	6 %	40 - 140 %	20%
193-39-5	Indeno[1,2,3-c,d]pyrene	330	280	85 %	330	290	88 %	4 %	40 - 140 %	20%
53-70-3	Dibenzo[a,h]anthracene	330	260	79 %	330	270	82 %	4 %	40 - 140 %	20%
191-24-2	Benzo[g,h,i]perylene	330	300	91 %	330	310	94 %	3 %	40 - 140 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery	QC Limits
ortho -Terphenyl	2,700	2,100	78 %	2,700	2,100	78 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

The LCS and LCSD are prepared from separate source standards than those used for calibration.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	EPA Method 8270C (Mod.) - EPH PAHs by GC/MS-SIM	Instrument ID:	MS-6 HP 6890
QC Batch ID:	EP-2146-M	Extracted:	09-14-05 12:00
Matrix:	Soil	Analyzed:	09-27-05 18:07
		Analyst:	CMM

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	11
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	11
208-96-8	Acenaphthylene	BRL		ug/Kg	11
83-32-9	Acenaphthene	BRL		ug/Kg	11
86-73-7	Fluorene	BRL		ug/Kg	11
85-01-8	Phenanthrene	BRL		ug/Kg	11
120-12-7	Anthracene	BRL		ug/Kg	11
206-44-0	Fluoranthene	BRL		ug/Kg	11
129-00-0	Pyrene	BRL		ug/Kg	11
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	11
218-01-9	Chrysene	BRL		ug/Kg	11
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	11
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	11
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	11
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	11
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	11
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	11

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2700	1800	69 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3546.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP EPH Method	Instrument ID:	GC-9 Agilent 6890	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-2146-M	Extracted:	09-14-05 12:00	Extracted:	09-14-05 12:00
Matrix:	Soil	Analyzed (AL):	09-15-05 18:50	Analyzed (AL):	09-15-05 20:19
Units:	mg/Kg	Analyzed (AR):	09-15-05 19:34	Analyzed (AR):	09-15-05 21:03
		Analyst:	MM	Analyst:	MM

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
111-84-2	*n*-Nonane (C_9)	3.3	1.6	48 %	3.3	1.7	53 %	8 %	30 - 140 %	25%
124-18-5	*n*-Decane (C_{10})	3.3	1.8	56 %	3.3	2.1	62 %	11 %	40 - 140 %	25%
112-40-3	*n*-Dodecane (C_{12})	3.3	1.9	57 %	3.3	2.1	65 %	12 %	40 - 140 %	25%
629-59-4	*n*-Tetradecane (C_{14})	3.3	2.0	60 %	3.3	2.2	66 %	11 %	40 - 140 %	25%
544-76-3	*n*-Hexadecane (C_{16})	3.3	2.5	75 %	3.3	2.5	76 %	1 %	40 - 140 %	25%
593-45-3	*n*-Octadecane (C_{18})	3.3	3.0	90 %	3.3	2.8	86 %	5 %	40 - 140 %	25%
n/a	*n*-C9 to *n*-C18 Group	20	13	64 %	20	13	68 %	5 %	40 - 140 %	25%
629-92-5	*n*-Nonadecane (C_{19})	3.3	3.0	90 %	3.3	2.8	85 %	6 %	40 - 140 %	25%
112-95-8	*n*-Eicosane (C_{20})	3.3	3.1	94 %	3.3	2.9	89 %	6 %	40 - 140 %	25%
629-97-0	*n*-Docosane (C_{22})	3.3	3.1	93 %	3.3	2.9	88 %	6 %	40 - 140 %	25%
646-31-1	*n*-Tetracosane (C_{24})	3.3	3.1	94 %	3.3	3.0	90 %	5 %	40 - 140 %	25%
630-01-3	*n*-Hexacosane (C_{26})	3.3	3.0	91 %	3.3	2.9	87 %	5 %	40 - 140 %	25%
630-02-4	*n*-Octacosane (C_{28})	3.3	3.0	91 %	3.3	2.8	86 %	5 %	40 - 140 %	25%
638-68-6	*n*-Triacontane (C_{30})	3.3	3.0	90 %	3.3	2.8	85 %	5 %	40 - 140 %	25%
630-06-8	*n*-Hexatriacontane (C_{36})	3.3	2.5	75 %	3.3	2.3	71 %	5 %	40 - 140 %	25%
n/a	*n*-C19 to *n*-C36 Group	26	24	90 %	26	22	85 %	5 %	40 - 140 %	25%
91-20-3	Naphthalene	3.3	1.8	56 %	3.3	2.0	62 %	10 %	40 - 140 %	25%
91-57-6	2-Methylnaphthalene	3.3	1.9	59 %	3.3	2.2	67 %	12 %	40 - 140 %	25%
208-96-8	Acenaphthylene	3.3	2.1	64 %	3.3	2.4	73 %	13 %	40 - 140 %	25%
83-32-9	Acenaphthene	3.3	2.0	61 %	3.3	2.3	69 %	13 %	40 - 140 %	25%
86-73-7	Fluorene	3.3	2.3	70 %	3.3	2.6	78 %	11 %	40 - 140 %	25%
85-01-8	Phenanthrene	3.3	2.7	82 %	3.3	2.9	88 %	7 %	40 - 140 %	25%
120-12-7	Anthracene	3.3	3.0	92 %	3.3	3.2	96 %	5 %	40 - 140 %	25%
206-44-0	Fluoranthene	3.3	3.2	96 %	3.3	3.3	101 %	6 %	40 - 140 %	25%
129-00-0	Pyrene	3.3	3.1	95 %	3.3	3.3	101 %	6 %	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	3.3	3.3	101 %	3.3	3.5	106 %	5 %	40 - 140 %	25%
218-01-9	Chrysene	3.3	3.5	105 %	3.3	3.5	107 %	3 %	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	3.3	3.1	95 %	3.3	3.3	101 %	6 %	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	3.3	3.3	99 %	3.3	3.4	104 %	4 %	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	3.3	3.2	96 %	3.3	3.3	100 %	5 %	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	3.3	2.8	84 %	3.3	2.9	89 %	6 %	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	3.3	3.0	91 %	3.3	3.1	94 %	4 %	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	3.3	2.6	80 %	3.3	2.7	83 %	5 %	40 - 140 %	25%
n/a	PAH Group	56	47	84 %	56	50	89 %	6 %	40 - 140 %	25%

QC Surrogate Compound		Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.1	78 %	2.7	2.1	78 %		40 - 140 %
	2-Bromonaphthalene	2.7	2.0	74 %	2.7	1.9	70 %		40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.4	89 %	2.7	2.2	81 %		40 - 140 %
	ortho-Terphenyl	2.7	2.2	81 %	2.7	2.3	85 %		40 - 140 %

Fractionation Breakthrough Evaluation						QC Limits
91-20-3	Naphthalene	LCS	1 %	LCSD	1 %	5%
91-57-6	2-Methylnaphthalene	LCS	1 %	LCSD	1 %	5%

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Method modified by use of microwave accelerated solvent extraction technique.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

The LCS and LCSD are prepared from separate source standards than those used for calibration.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	MA DEP EPH	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-2146-M	Extracted:	09-14-05 12:00
Matrix:	Soil	Analyzed (AL):	09-15-05 16:37
		Analyzed (AR):	09-15-05 17:22
		Analyst:	MM

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	30
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	30
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	30
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	30

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.0	76 %	40 - 140 %
	2-Bromonaphthalene	2.7	1.8	68 %	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.1	79 %	40 - 140 %
	ortho-Terphenyl	2.7	1.9	73 %	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by microwave accelerated solvent extraction technique.

Report Notations:

BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT, Department of Health Services, PH-0586

Categories: Potable Water, Wastewater, Solid Waste and Soil
http://www.dph.state.ct.us/BRS/Environmental_Lab/OutStateLabList.htm

FLORIDA, Department of Health, Bureau of Laboratories, E87643

Categories: SDWA, CWA, RCRA/CERCLA
http://www.floridadep.org/labs/qa/dohforms.htm

MAINE, Department of Human Services, MA103

Categories: Drinking Water and Wastewater
http://www.state.me.us/dhs/eng/water/Compliance.htm

MASSACHUSETTS, Department of Environmental Protection, M-MA-103

Categories: Potable Water and Non-Potable Water
http://www.state.ma.us/dep/bspt/wes/files/certlabs.pdf

NEW HAMPSHIRE, Department of Environmental Services, 202703

Categories: Drinking Water and Wastewater
http://www.des.state.nh.us/asp/NHELAP/labsview.asp

NEW YORK, Department of Health, 11754

Categories: Potable Water, Non-Potable Water and Solid Waste
http://www.wadsworth.org/labcert/elap/comm.html

PENNSYLVANIA, Department of Environmental Protection, 68-665

Environmental Laboratory Registration (Non-drinking water and Non-wastewater)
http://www.dep.state.pa.us/Labs/Registered/

RHODE ISLAND, Department of Health, 54

Categories: Surface Water, Air, Wastewater, Potable Water, Sewage
http://www.healthri.org/labs/labsCT_MA.htm

U.S. Department of Agriculture, Soil Permit, S-53921

Foreign soil import permit

VERMONT, Department of Environmental Conservation, Water Supply Division

Category: Drinking Water
http://www.vermontdrinkingwater.org/wsops/labtable.PDF