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: **87109**
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: **87109**

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
87109-1	W3C-04-P2-LIT 01		Soil	9/1/05 12:05	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668320	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-2	W1D01-P2-M-02		Soil	9/1/05 15:20	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668179	120 mL Amber Glass	Industrial	BX17912	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-3	W1D01-P2-M-01		Soil	9/1/05 15:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668159	120 mL Amber Glass	Industrial	BX17912	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-4	W3C04-P2-LIT-03		Soil	9/1/05 11:15	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668161	120 mL Amber Glass	Industrial	BX17912	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-5	W3C04-P2-UIT-01		Soil	9/1/05 11:50	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C641980	500 mL Amber Glass	Proline	BX17255	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-6	W3C04-P2-UIT-01 MS		Soil	9/1/05 11:50	MA DEP EPH				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664619	500 mL Amber Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-7	W3C04-P2-UIT-01 MS		Soil	9/1/05 11:50	PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664620	500 mL Amber Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-8	W3C04-P2-UIT-02		Soil	9/1/05 11:35	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668168	120 mL Amber Glass	Industrial	BX17912	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-9	W3C04-P2-LIT-02		Soil	9/1/05 11:41	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668335	120 mL Amber Glass	Industrial	BX17922	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-10	W3C04-P2-UIT-03		Soil	9/1/05 11:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668165	120 mL Amber Glass	Industrial	BX17912	None	n/a	n/a	n/a		

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Sample Receipt Report (Continued)

Project: **Buzzards Bay/3871-002**
Client: **GeoInsight, Inc.**
Lab ID: **87109**

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
87109-11	W1F05-P2-M-01		Soil	9/1/05 14:40	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668332	120 mL Amber Glass	Industrial	BX17922	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-12	W1E04-P2-UIT-02		Soil	9/1/05 12:52	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668318	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-13	W1E04-P2-LIT-02		Soil	9/1/05 12:59	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668180	120 mL Amber Glass	Industrial	BX17912	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-14	W1F05-P2-M-03		Soil	9/1/05 14:00	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668175	120 mL Amber Glass	Industrial	BX17912	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-15	W1F05-P2-M-02		Soil	9/1/05 14:25	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668171	120 mL Amber Glass	Industrial	BX17912	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-16	DDD-P2-04		Soil	9/1/05 23:50	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668633	120 mL Amber Glass	Industrial	BX17916	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-17	DDD-P2-05		Soil	9/1/05 23:56	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668314	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-18	W3A05-P2-UIT-01		Soil	9/1/05 10:30	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668308	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-19	W3A05-P2-LIT-01		Soil	9/1/05 10:37	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C641986	500 mL Amber Glass	Proline	BX17255	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-22	W3A05-P2-UIT-02		Soil	9/1/05 10:48	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C668322	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

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Sample Receipt Report (Continued)

Project: **Buzzards Bay/3871-002**
Client: **GeoInsight, Inc.**
Lab ID: **87109**

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
87109-23	W3A05-P2-LIT-02		Soil	9/1/05 10:53	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668315	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-24	W3A05-P2-UIT-03		Soil	9/1/05 11:24	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668316	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-25	W3A05-P2-LIT-03		Soil	9/1/05 11:30	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C668312	120 mL Amber Glass	Industrial	BX17923	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-26	W3C04-P2-UIT-01 MSD		Soil	9/1/05 11:50	MA DEP EPH				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664772	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-27	W3C04-P2-UIT-01 MSD		Soil	9/1/05 11:50	PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664773	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-28	W3C-04-P2-LIT-01 MS		Soil	9/1/05 12:05	MA DEP EPH				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664774	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-29	W3C-04-P2-LIT-01 MS		Soil	9/1/05 12:05	PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664777	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-30	W3C-04-P2-LIT-01 MSD		Soil	9/1/05 12:05	MA DEP EPH				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664778	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
87109-31	W3C-04-P2-LIT-01 MSD		Soil	9/1/05 12:05	PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C664779	250 mL Glass	n/a	n/a	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W3C-04-P2-LIT 01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-01**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 12:05**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-23-05 22:15**	% Solids:	**88**
Analyzed (AR):	**09-23-05 22:59**	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	2.0	**68 %**	40 - 140 %
	2-Bromonaphthalene	3.0	2.2	**74 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.0	1.9	**65 %**	40 - 140 %
	ortho-Terphenyl	3.0	2.1	**71 %**	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.

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

			Parent Sample	Matrix Spike	Spike Duplicate
Field ID:	W3C-04-P2-LIT 01	Laboratory ID:	87109-01	87109-28	87109-30
Project:	Buzzards Bay/3871-002	Sampled:	09-01-05 12:05	09-01-05 12:05	09-01-05 12:05
Client:	GeoInsight, Inc.	Received:	09-01-05 21:15	09-01-05 21:15	09-01-05 21:15
Matrix:	Soil	Extracted:	09-15-05 07:00	09-15-05 07:00	09-15-05 07:00
Container:	250 mL Glass	Analyzed (AL):	09-24-05 22:15	09-28-05 16:39	09-28-05 18:07
Preservation:	Cool	Analyzed (AR):	09-24-05 22:59	09-28-05 17:23	09-28-05 18:52
		Analyst:	MM	MM	MM
		QC Batch ID:	EP-2147-M	EP-2148-M	EP-2148-M
		Instrument ID:	GC-7 HP 5890	GC-9 Agilent 6890	GC-9 Agilent 6890
		Sample Weight:	15 g	15 g	16 g
		Final Volume:	1 mL	1 mL	1 mL
		% Solids:	88	88	88
		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	3.7	1.8	49 %	3.6	2.0	55 %	10 %	40 - 140%	50 %
124-18-5	*n*-Decane (C_{10})	BRL	3.7	2.2	60 %	3.6	2.4	66 %	9 %	40 - 140%	50 %
112-40-3	*n*-Dodecane (C_{12})	BRL	3.7	2.2	59 %	3.6	2.4	67 %	12 %	40 - 140%	50 %
629-59-4	*n*-Tetradecane (C_{14})	BRL	3.7	2.3	61 %	3.6	2.5	68 %	11 %	40 - 140%	50 %
544-76-3	*n*-Hexadecane (C_{16})	BRL	3.7	2.5	68 %	3.6	2.6	72 %	7 %	40 - 140%	50 %
593-45-3	*n*-Octadecane (C_{18})	BRL	3.7	2.9	79 %	3.6	3.0	83 %	9 %	40 - 140%	50 %
n/a	*n*-C9 to *n*-C18 Group	BRL	22	14	64 %	22	15	68 %	5 %	40 - 140%	50 %
629-92-5	*n*-Nonadecane (C_{19})	BRL	3.7	3.0	81 %	3.6	3.1	86 %	6 %	40 - 140%	50 %
112-95-8	*n*-Eicosane (C_{20})	BRL	3.7	3.0	81 %	3.6	3.2	86 %	6 %	40 - 140%	50 %
629-97-0	*n*-Docosane (C_{22})	BRL	3.7	3.0	81 %	3.6	3.2	87 %	7 %	40 - 140%	50 %
646-31-1	*n*-Tetracosane (C_{24})	BRL	3.7	3.0	81 %	3.6	3.2	87 %	7 %	40 - 140%	50 %
630-01-3	*n*-Hexacosane (C_{26})	BRL	3.7	3.0	80 %	3.6	3.1	86 %	7 %	40 - 140%	50 %
630-02-4	*n*-Octacosane (C_{28})	BRL	3.7	2.9	78 %	3.6	3.1	84 %	8 %	40 - 140%	50 %
638-68-6	*n*-Triacontane (C_{30})	BRL	3.7	2.9	77 %	3.6	3.0	83 %	8 %	40 - 140%	50 %
630-06-8	*n*-Hexatriacontane (C_{36})	BRL	3.7	2.3	61 %	3.6	2.4	65 %	7 %	40 - 140%	50 %
n/a	*n*-C19 to *n*-C36 Group	BRL	30	23	77 %	29	24	83 %	7 %	40 - 140%	50 %
91-20-3	Naphthalene	BRL	3.7	2.0	54 %	3.6	2.4	66 %	20 %	40 - 140%	50 %
91-57-6	2-Methylnaphthalene	BRL	3.7	2.1	57 %	3.6	2.5	70 %	21 %	40 - 140%	50 %
208-96-8	Acenaphthylene	BRL	3.7	2.3	63 %	3.6	2.7	75 %	18 %	40 - 140%	50 %
83-32-9	Acenaphthene	BRL	3.7	2.1	58 %	3.6	2.5	70 %	16 %	40 - 140%	50 %
86-73-7	Fluorene	BRL	3.7	2.4	65 %	3.6	2.7	73 %	12 %	40 - 140%	50 %
85-01-8	Phenanthrene	BRL	3.7	2.7	74 %	3.6	2.9	79 %	7 %	40 - 140%	50 %
120-12-7	Anthracene	BRL	3.7	3.1	84 %	3.6	3.2	89 %	6 %	40 - 140%	50 %
206-44-0	Fluoranthene	BRL	3.7	3.2	86 %	3.6	3.3	91 %	7 %	40 - 140%	50 %
129-00-0	Pyrene	BRL	3.7	3.2	85 %	3.6	3.3	91 %	7 %	40 - 140%	50 %
56-55-3	Benzo[a]anthracene	BRL	3.7	3.2	87 %	3.6	3.4	94 %	8 %	40 - 140%	50 %
218-01-9	Chrysene	BRL	3.7	3.5	95 %	3.6	3.8	100 %	9 %	40 - 140%	50 %
205-99-2	Benzo[b]fluoranthene	BRL	3.7	2.9	77 %	3.6	3.0	83 %	8 %	40 - 140%	50 %
207-08-9	Benzo[k]fluoranthene	BRL	3.7	3.3	89 %	3.6	3.6	98 %	9 %	40 - 140%	50 %
50-32-8	Benzo[a]pyrene	BRL	3.7	3.0	81 %	3.6	3.2	88 %	8 %	40 - 140%	50 %
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	3.7	2.1	56 %	3.6	2.2	61 %	8 %	40 - 140%	50 %
53-70-3	Dibenzo[a,h]anthracene	BRL	3.7	2.6	71 %	3.6	2.8	77 %	9 %	40 - 140%	50 %
191-24-2	Benzo[g,h,i]perylene	BRL	3.7	1.9	52 %	3.6	2.1	56 %	9 %	40 - 140%	50 %
n/a	PAH Group	BRL	63	46	73 %	61	50	82 %	10 %	40 - 140%	50 %

QC Surrogate Compound		Surrogate Recovery								QC Limits
Fractionation:	2-Fluorobiphenyl	68%	3.0	2.1	72%	2.9	2.3	79%		40 - 140 %
	2-Bromonaphthalene	74%	3.0	2.0	66%	2.9	2.3	78%		40 - 140 %
Extraction:	Chloro-octadecane	65%	3.0	2.3	77%	2.9	2.4	83%		40 - 140 %
	ortho-Terphenyl	71%	3.0	2.2	73%	2.9	2.2	77%		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

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

Field ID:	**W3C-04-P2-LIT 01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-01**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 12:05**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed:	**09-21-05 13:46**	Percent Solids:	**88**
Analyst:	**JJT**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	7	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	13		ug/Kg	11
120-12-7	Anthracene	10	j	ug/Kg	11
206-44-0	Fluoranthene	25		ug/Kg	11
129-00-0	Pyrene	21		ug/Kg	11
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	11
218-01-9	Chrysene	12		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	10	j	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	2,300	79 %	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

Matrix Spike and Matrix Spike Duplicate
EPA Method 8270C

			Parent Sample	Matrix Spike	Spike Duplicate
Field ID:	W3C-04-P2-LIT-01	Laboratory ID:	87109-01	87109-29	87109-31
Project:	Buzzards Bay/3871-002	Sampled:	09-01-05 11:50	09-01-05 11:50	09-01-05 11:50
Client:	GeoInsight, Inc.	Received:	09-01-05 21:15	09-01-05 21:15	09-01-05 21:15
Matrix:	Soil	Extracted:	09-15-05 07:00	09-15-05 23:00	09-15-05 23:00
Container:	250 mL Glass	Analyzed:	09-21-05 13:46	10-05-05 12:55	10-05-05 13:34
Preservation:	Cool	Analyst:	CMM	CMM	CMM
		QC Batch ID:	EP-2147-M	EP-2148-M	EP-2148-M
		Instrument ID:	MS 6 HP 6890	MS 6 HP 6890	MS 6 HP 6890
		Sample Weight:	15 g	16g	15 g
		Final Volume:	1 mL	1 mL	1 mL
		Percent Solids:	88	88	88
		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	RPD
91-20-3	Naphthalene	7	360	200	55 %	370	200	55 %	1 %	40 - 140%	50 %
91-57-6	2-Methylnaphthalene	BRL	360	230	63 %	370	230	62 %	1 %	40 - 140%	50 %
208-96-8	Acenaphthylene	BRL	360	250	69 %	370	250	67 %	1 %	40 - 140%	50 %
83-32-9	Acenaphthene	BRL	360	270	74 %	370	260	72 %	1 %	40 - 140%	50 %
86-73-7	Fluorene	BRL	360	260	71 %	370	250	67 %	3 %	40 - 140%	50 %
85-01-8	Phenanthrene	13	360	260	67 %	370	230	64 %	3 %	40 - 140%	50 %
120-12-7	Anthracene	10	360	260	71 %	370	250	67 %	3 %	40 - 140%	50 %
206-44-0	Fluoranthene	25	360	310	79 %	370	290	79 %	0 %	40 - 140%	50 %
129-00-0	Pyrene	21	360	290	75 %	370	280	76 %	1 %	40 - 140%	50 %
56-55-3	Benzo[a]anthracene	BRL	360	300	82 %	370	300	82 %	1 %	40 - 140%	50 %
218-01-9	Chrysene	12	360	300	78 %	370	290	79 %	2 %	40 - 140%	50 %
205-99-2	Benzo[b]fluoranthene	BRL	360	300	81 %	370	300	82 %	1 %	40 - 140%	50 %
207-08-9	Benzo[k]fluoranthene	BRL	360	310	83 %	370	310	85 %	2 %	40 - 140%	50 %
50-32-8	Benzo[a]pyrene	BRL	360	300	83 %	370	300	83 %	1 %	40 - 140%	50 %
193-39-5	Indeno[1,2,3-c,d]pyrene	10	360	230	61 %	370	230	63 %	2 %	40 - 140%	50 %
53-70-3	Dibenzo[a,h]anthracene	BRL	360	220	60 %	370	230	62 %	3 %	40 - 140%	50 %
191-24-2	Benzo[g,h,i]perylene	BRL	360	220	60 %	370	230	62 %	3 %	40 - 140%	50 %

QC Surrogate Compound							Surrogate Recovery		QC Limits
ortho-Terphenyl	79%	2,900	2,000	67%	2,900	1,900	65%		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:	**W1D01-P2-M-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-02**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 15:20**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-23-05 23:42**	% Solids:	**81**
Analyzed (AR):	**09-24-05 00:26**	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	2.0	**62 %**	40 - 140 %
	2-Bromonaphthalene	3.2	2.1	**67 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.2	1.9	**59 %**	40 - 140 %
	ortho-Terphenyl	3.2	2.0	**62 %**	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:	**W1D01-P2-M-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-02**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 15:20**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed:	**09-21-05 14:25**	Percent Solids:	**81**
Analyst:	**JJT**	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	**7**	j	ug/Kg	12
206-44-0	Fluoranthene	**6**	j	ug/Kg	12
129-00-0	Pyrene	**11**	j	ug/Kg	12
56-55-3	Benzo[a]anthracene	**10**	j	ug/Kg	12
218-01-9	Chrysene	**10**	j	ug/Kg	12
205-99-2	Benzo[b]fluoranthene	**10**	j	ug/Kg	12
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	12
50-32-8	Benzo[a]pyrene	**10**	j	ug/Kg	12
193-39-5	Indeno[1,2,3-c,d]pyrene	**13**		ug/Kg	12
53-70-3	Dibenzo[a,h]anthracene	**18**		ug/Kg	12
191-24-2	Benzo[g,h,i]perylene	**8**	j	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.

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:	**W1D01-P2-M-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-03**	QC Batch ID:	**EP-2157-M**
Sampled:	**09-01-05 15:00**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-26-05 13:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-28-05 06:30**	% Solids:	**79**
Analyzed (AR):	**09-28-05 07:14**	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	2.4	**74 %**	40 - 140 %
	2-Bromonaphthalene	3.2	2.4	**73 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.2	2.6	**80 %**	40 - 140 %
	ortho-Terphenyl	3.2	2.6	**80 %**	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:	**W1D01-P2-M-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-03**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 15:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed:	**09-28-05 00:37**	Percent Solids:	**79**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	6	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	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	2,500	77 %	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:	W3C04-P2-LIT-03	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87109-04	QC Batch ID:	EP-2147-M
Sampled:	09-01-05 11:15	Instrument ID:	GC-7 HP 5890
Received:	09-01-05 21:15	Sample Weight:	16 g
Extracted:	09-15-05 07:00	Final Volume:	1 mL
Analyzed (AL):	09-24-05 01:54	% Solids:	87
Analyzed (AR):	09-24-05 02:38	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	2.1	72 %	40 - 140 %
	2-Bromonaphthalene	3.0	2.3	76 %	40 - 140 %
Extraction:	Chloro-octadecane	3.0	1.8	61 %	40 - 140 %
	ortho-Terphenyl	3.0	1.9	64 %	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:	**W3C04-P2-LIT-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-04**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 11:15**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed:	**09-21-05 15:04**	Percent Solids:	**87**
Analyst:	**JJT**	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	2,000	67 %	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:	W3C04-P2-UIT-01	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	500 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87109-05	QC Batch ID:	EP-2147-M
Sampled:	09-01-05 11:50	Instrument ID:	GC-7 HP 5890
Received:	09-01-05 21:15	Sample Weight:	15 g
Extracted:	09-15-05 07:00	Final Volume:	1 mL
Analyzed (AL):	09-24-05 03:22	% Solids:	76
Analyzed (AR):	09-24-05 04:06	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	39
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	39
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	39
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	39

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.5	2.5	72 %	40 - 140 %
	2-Bromonaphthalene	3.5	2.7	78 %	40 - 140 %
Extraction:	Chloro-octadecane	3.5	2.3	66 %	40 - 140 %
	ortho-Terphenyl	3.5	2.5	71 %	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

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

Field ID:	W3C04-P2-UIT-01
Project:	Buzzards Bay/3871-002
Client:	GeoInsight, Inc.
Matrix:	Soil
Container:	250 mL Glass
Preservation:	Cool

	Parent Sample	Matrix Spike	Spike Duplicate
Laboratory ID:	87109-05	87109-06	87109-26
Sampled:	09-01-05 11:50	09-01-05 11:50	09-01-05 11:50
Received:	09-01-05 21:15	09-01-05 21:15	09-01-05 21:15
Extracted:	09-15-05 07:00	09-15-05 07:00	09-15-05 22:00
Analyzed (AL):	09-24-05 03:22	09-24-05 04:50	09-28-05 05:02
Analyzed (AR):	09-24-05 04:06	09-24-05 05:34	09-25-05 05:46
Analyst:	MM	MM	MM
QC Batch ID:	EP-2147-M	EP-2147-M	EP-2148-M
Instrument ID:	GC-7 HP 5890	GC-7 HP 5890	GC-9 Agilenmt 6890
Sample Weight:	15 g	16 g	16 g
Final Volume:	1 mL	1 mL	1 mL
% Solids:	76	97	76
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	4.2	1.7	40 %	4.2	2.2	53 %	28 %	40 - 140%	50 %
124-18-5	*n*-Decane (C_{10})	BRL	4.2	2.0	48 %	4.2	2.7	65 %	30 %	40 - 140%	50 %
112-40-3	*n*-Dodecane (C_{12})	BRL	4.2	2.2	53 %	4.2	2.9	68 %	25 %	40 - 140%	50 %
629-59-4	*n*-Tetradecane (C_{14})	BRL	4.2	2.4	56 %	4.2	3.0	70 %	22 %	40 - 140%	50 %
544-76-3	*n*-Hexadecane (C_{16})	BRL	4.2	2.6	61 %	4.2	3.1	73 %	18 %	40 - 140%	50 %
593-45-3	*n*-Octadecane (C_{18})	BRL	4.2	2.9	68 %	4.2	3.4	80 %	22 %	40 - 140%	50 %
n/a	*n*-C9 to *n*-C18 Group	BRL	25	14	56 %	25	17	68 %	16 %	40 - 140%	50 %
629-92-5	*n*-Nonadecane (C_{19})	BRL	4.2	2.9	69 %	4.2	3.5	83 %	19 %	40 - 140%	50 %
112-95-8	*n*-Eicosane (C_{20})	BRL	4.2	2.9	70 %	4.2	3.4	81 %	14 %	40 - 140%	50 %
629-97-0	*n*-Docosane (C_{22})	BRL	4.2	3.0	71 %	4.2	3.5	83 %	15 %	40 - 140%	50 %
646-31-1	*n*-Tetracosane (C_{24})	BRL	4.2	3.1	73 %	4.2	3.4	80 %	10 %	40 - 140%	50 %
630-01-3	*n*-Hexacosane (C_{26})	BRL	4.2	3.1	73 %	4.2	3.3	79 %	7 %	40 - 140%	50 %
630-02-4	*n*-Octacosane (C_{28})	BRL	4.2	3.1	73 %	4.2	3.3	79 %	7 %	40 - 140%	50 %
638-68-6	*n*-Triacontane (C_{30})	BRL	4.2	3.1	74 %	4.2	3.3	79 %	7 %	40 - 140%	50 %
630-06-8	*n*-Hexatriacontane (C_{36})	BRL	4.2	3.0	72 %	4.2	3.0	72 %	0 %	40 - 140%	50 %
n/a	*n*-C19 to *n*-C36 Group	BRL	34	24	71 %	34	27	79 %	10 %	40 - 140%	50 %
91-20-3	Naphthalene	BRL	4.2	2.0	47 %	4.2	2.8	67 %	35 %	40 - 140%	50 %
91-57-6	2-Methylnaphthalene	BRL	4.2	2.3	54 %	4.2	3.0	71 %	27 %	40 - 140%	50 %
208-96-8	Acenaphthylene	BRL	4.2	2.4	57 %	4.2	3.2	75 %	27 %	40 - 140%	50 %
83-32-9	Acenaphthene	BRL	4.2	2.2	53 %	4.2	2.9	70 %	28 %	40 - 140%	50 %
86-73-7	Fluorene	BRL	4.2	2.4	57 %	4.2	3.1	74 %	25 %	40 - 140%	50 %
85-01-8	Phenanthrene	BRL	4.2	2.8	66 %	4.2	3.3	79 %	16 %	40 - 140%	50 %
120-12-7	Anthracene	BRL	4.2	3.0	72 %	4.2	3.6	86 %	16 %	40 - 140%	50 %
206-44-0	Fluoranthene	BRL	4.2	3.0	71 %	4.2	3.7	89 %	23 %	40 - 140%	50 %
129-00-0	Pyrene	BRL	4.2	2.9	70 %	4.2	3.7	88 %	23 %	40 - 140%	50 %
56-55-3	Benzo[a]anthracene	BRL	4.2	3.1	74 %	4.2	3.8	90 %	20 %	40 - 140%	50 %
218-01-9	Chrysene	BRL	4.2	3.3	78 %	4.2	3.8	90 %	14 %	40 - 140%	50 %
205-99-2	Benzo[b]fluoranthene	BRL	4.2	2.9	70 %	4.2	3.8	90 %	25 %	40 - 140%	50 %
207-08-9	Benzo[k]fluoranthene	BRL	4.2	3.1	73 %	4.2	3.7	88 %	18 %	40 - 140%	50 %
50-32-8	Benzo[a]pyrene	BRL	4.2	3.0	73 %	4.2	3.7	89 %	20 %	40 - 140%	50 %
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	4.2	3.1	75 %	4.2	3.6	86 %	14 %	40 - 140%	50 %
53-70-3	Dibenzo[a,h]anthracene	BRL	4.2	3.2	77 %	4.2	3.8	90 %	16 %	40 - 140%	50 %
191-24-2	Benzo[g,h,i]perylene	BRL	4.2	2.9	70 %	4.2	3.5	83 %	17 %	40 - 140%	50 %
n/a	PAH Group	BRL	71	48	68 %	71	59	83 %	21 %	40 - 140%	50 %

QC Surrogate Compound		Surrogate Recovery								QC Limits
Fractionation:	2-Fluorobiphenyl	72%	3.4	2.1	63%	3.4	2.7	79%		40 - 140 %
	2-Bromonaphthalene	78%	3.4	2.3	69%	3.4	2.6	76%		40 - 140 %
Extraction:	Chloro-octadecane	66%	3.4	1.9	56%	3.4	2.6	76%		40 - 140 %
	ortho-Terphenyl	71%	3.4	2.1	63%	3.4	2.6	78%		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

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

Field ID:	**W3C04-P2-UIT-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**500 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-05**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 11:50**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed:	**09-21-05 15:44**	Percent Solids:	**76**
Analyst:	**JJT**	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	3,500	2,500	**71 %**	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

			Parent Sample	Matrix Spike	Spike Duplicate
Field ID:	W3C04-P2-UIT-01	Laboratory ID:	87109-05	87109-07	87109-27
Project:	Buzzards Bay/3871-002	Sampled:	09-01-05 11:50	09-01-05 11:50	09-01-05 11:50
Client:	GeoInsight, Inc.	Received:	09-01-05 21:15	09-01-05 21:15	09-01-05 21:15
Matrix:	Soil	Extracted:	09-15-05 07:00	09-15-05 07:00	09-15-05 23:00
Container:	500 mL Amber Glass	Analyzed:	09-28-05 18:05	09-28-05 10:43	10-05-05 12:15
Preservation:	Cool	Analyst:	CMM	CMM	CMM
		QC Batch ID:	EP-2147-M	EP-2147-M	EP-2148-M
		Instrument ID:	MS 6 HP 6890	MS 6 HP 6890	MS 6 HP 6890
		Sample Weight:	15 g	16 g	16 g
		Final Volume:	1 mL	1 mL	1 mL
		Percent Solids:	76	76	76
		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	410	270	65 %	420	230	54 %	10 %	40 - 140%	50 %
91-57-6	2-Methylnaphthalene	BRL	410	300	73 %	420	270	64 %	7 %	40 - 140%	50 %
208-96-8	Acenaphthylene	BRL	410	350	84 %	420	300	70 %	10 %	40 - 140%	50 %
83-32-9	Acenaphthene	BRL	410	380	92 %	420	320	77 %	10 %	40 - 140%	50 %
86-73-7	Fluorene	BRL	410	340	84 %	420	310	73 %	8 %	40 - 140%	50 %
85-01-8	Phenanthrene	BRL	410	330	80 %	420	300	72 %	6 %	40 - 140%	50 %
120-12-7	Anthracene	BRL	410	330	81 %	420	310	75 %	4 %	40 - 140%	50 %
206-44-0	Fluoranthene	BRL	410	410	100 %	420	380	90 %	6 %	40 - 140%	50 %
129-00-0	Pyrene	BRL	410	390	94 %	420	350	82 %	7 %	40 - 140%	50 %
56-55-3	Benzo[a]anthracene	BRL	410	390	95 %	420	370	88 %	3 %	40 - 140%	50 %
218-01-9	Chrysene	BRL	410	390	95 %	420	360	87 %	5 %	40 - 140%	50 %
205-99-2	Benzo[b]fluoranthene	BRL	410	380	93 %	420	370	88 %	2 %	40 - 140%	50 %
207-08-9	Benzo[k]fluoranthene	BRL	410	380	93 %	420	380	91 %	0 %	40 - 140%	50 %
50-32-8	Benzo[a]pyrene	BRL	410	390	94 %	420	380	91 %	1 %	40 - 140%	50 %
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	410	360	88 %	420	290	70 %	13 %	40 - 140%	50 %
53-70-3	Dibenzo[a,h]anthracene	BRL	410	340	82 %	420	280	66 %	12 %	40 - 140%	50 %
191-24-2	Benzo[g,h,i]perylene	BRL	410	390	94 %	420	280	67 %	20 %	40 - 140%	50 %

QC Surrogate Compound							Surrogate Recovery		QC Limits
ortho-Terphenyl	62%	3,300	2,600	78%	3,400	2,300	69%		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:	W3C04-P2-UIT-02	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87109-08	QC Batch ID:	EP-2147-M
Sampled:	09-01-05 11:35	Instrument ID:	GC-7 HP 5890
Received:	09-01-05 21:15	Sample Weight:	16 g
Extracted:	09-15-05 15:00	Final Volume:	1 mL
Analyzed (AL):	09-24-05 07:45	% Solids:	90
Analyzed (AR):	09-24-05 08:29	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	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	2.1	74 %	40 - 140 %
	2-Bromonaphthalene	2.8	2.3	80 %	40 - 140 %
Extraction:	Chloro-octadecane	2.8	1.8	65 %	40 - 140 %
	ortho-Terphenyl	2.8	2.1	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:	**W3C04-P2-UIT-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-08**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 11:35**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed:	**09-21-05 16:23**	Percent Solids:	**90**
Analyst:	**JJT**	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	2,800	2,200	77 %	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:	W3C04-P2-LIT-02	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87109-09	QC Batch ID:	EP-2147-M
Sampled:	09-01-05 11:41	Instrument ID:	GC-9 Agilent 6890
Received:	09-01-05 21:15	Sample Weight:	16 g
Extracted:	09-15-05 15:00	Final Volume:	1 mL
Analyzed (AL):	09-27-05 16:27	% Solids:	76
Analyzed (AR):	09-27-05 17:08	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	2.4	72 %	40 - 140 %
	2-Bromonaphthalene	3.3	2.3	70 %	40 - 140 %
Extraction:	Chloro-octadecane	3.3	2.7	81 %	40 - 140 %
	ortho-Terphenyl	3.3	2.5	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:	**W3C04-P2-LIT-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-09**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 11:41**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed:	**09-26-05 22:24**	Percent Solids:	**76**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	**13**		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	**9**	j	ug/Kg	12
129-00-0	Pyrene	**8**	j	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	**8**	j	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	3,300	2,500	**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

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**W3C04-P2-UIT-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-10**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 11:00**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-27-05 17:52**	% Solids:	**96**
Analyzed (AR):	**09-27-05 18:36**	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	**84** %	40 - 140 %
	2-Bromonaphthalene	2.6	2.2	**83** %	40 - 140 %
Extraction:	Chloro-octadecane	2.6	2.3	**90** %	40 - 140 %
	ortho-Terphenyl	2.6	2.6	**98** %	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:	**W3C04-P2-UIT-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-10**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 11:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed:	**09-26-05 23:04**	Percent Solids:	**96**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	**6**	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	**31**		ug/Kg	10
120-12-7	Anthracene	**7**	j	ug/Kg	10
206-44-0	Fluoranthene	**61**		ug/Kg	10
129-00-0	Pyrene	**45**		ug/Kg	10
56-55-3	Benzo[a]anthracene	**26**		ug/Kg	10
218-01-9	Chrysene	**25**		ug/Kg	10
205-99-2	Benzo[b]fluoranthene	**22**		ug/Kg	10
207-08-9	Benzo[k]fluoranthene	**12**		ug/Kg	10
50-32-8	Benzo[a]pyrene	**11**		ug/Kg	10
193-39-5	Indeno[1,2,3-c,d]pyrene	**19**		ug/Kg	10
53-70-3	Dibenzo[a,h]anthracene	**14**		ug/Kg	10
191-24-2	Benzo[g,h,i]perylene	**12**		ug/Kg	10

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,700	2,400	**86** %	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:	**W1F05-P2-M-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-11**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 14:40**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-27-05 19:20**	% Solids:	**63**
Analyzed (AR):	**09-27-05 20:05**	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	47
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	47
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	47
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	47

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	4.2	2.7	**64 %**	40 - 140 %
	2-Bromonaphthalene	4.2	2.8	**67 %**	40 - 140 %
Extraction:	Chloro-octadecane	4.2	3.3	**80 %**	40 - 140 %
	ortho-Terphenyl	4.2	3.3	**80 %**	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:	W1F05-P2-M-01	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87109-11	QC Batch ID:	EP-2147-M
Sampled:	09-01-05 14:40	Instrument ID:	MS-6 HP 6890
Received:	09-01-05 21:15	Sample Volume:	15 g
Extracted:	09-15-05 15:00	Final Volume:	1 mL
Analyzed:	09-26-05 23:43	Percent Solids:	63
Analyst:	CMM	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	16
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	16
208-96-8	Acenaphthylene	BRL		ug/Kg	16
83-32-9	Acenaphthene	BRL		ug/Kg	16
86-73-7	Fluorene	BRL		ug/Kg	16
85-01-8	Phenanthrene	BRL		ug/Kg	16
120-12-7	Anthracene	BRL		ug/Kg	16
206-44-0	Fluoranthene	BRL		ug/Kg	16
129-00-0	Pyrene	BRL		ug/Kg	16
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	16
218-01-9	Chrysene	BRL		ug/Kg	16
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	16
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	16
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	16
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/Kg	16
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	16
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	16

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	4,200	2,900	70 %	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-02	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87109-12	QC Batch ID:	EP-2147-M
Sampled:	09-01-05 12:52	Instrument ID:	GC-9 Agilent 6890
Received:	09-01-05 21:15	Sample Weight:	15 g
Extracted:	09-15-05 15:00	Final Volume:	1 mL
Analyzed (AL):	09-27-05 20:49	% Solids:	98
Analyzed (AR):	09-27-05 21:33	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	31
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	31
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	31
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	31

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.2	82 %	40 - 140 %
	2-Bromonaphthalene	2.7	2.3	84 %	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.2	80 %	40 - 140 %
	ortho-Terphenyl	2.7	2.4	90 %	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-02	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87109-12	QC Batch ID:	EP-2147-M
Sampled:	09-01-05 12:52	Instrument ID:	MS-6 HP 6890
Received:	09-01-05 21:15	Sample Volume:	15 g
Extracted:	09-15-05 15:00	Final Volume:	1 mL
Analyzed:	09-27-05 00:23	Percent Solids:	98
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	2,700	2,200	**80** %	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-LIT-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-13**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 12:59**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-27-05 22:17**	% Solids:	**85**
Analyzed (AR):	**09-27-05 23:02**	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	2.5	**81** %	40 - 140 %
	2-Bromonaphthalene	3.1	2.5	**81** %	40 - 140 %
Extraction:	Chloro-octadecane	3.1	2.5	**81** %	40 - 140 %
	ortho-Terphenyl	3.1	2.4	**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:	**W1E04-P2-LIT-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-13**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 12:59**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 01:02**	Percent Solids:	**85**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	6	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	6	j	ug/Kg	11
85-01-8	Phenanthrene	37		ug/Kg	11
120-12-7	Anthracene	BRL		ug/Kg	11
206-44-0	Fluoranthene	23		ug/Kg	11
129-00-0	Pyrene	25		ug/Kg	11
56-55-3	Benzo[a]anthracene	11		ug/Kg	11
218-01-9	Chrysene	11		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	8	j	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	2,200	71 %	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:	**W1F05-P2-M-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-14**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 14:00**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-28-05 00:30**	% Solids:	**85**
Analyzed (AR):	**09-28-05 01:14**	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	3.0	2.1	**71** %	40 - 140 %
	2-Bromonaphthalene	3.0	2.0	**66** %	40 - 140 %
Extraction:	Chloro-octadecane	3.0	2.6	**88** %	40 - 140 %
	ortho-Terphenyl	3.0	2.6	**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:	**W1F05-P2-M-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-14**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 14:00**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 01:42**	Percent Solids:	**85**
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	8	j	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	2,300	76 %	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:	**W1F05-P2-M-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-15**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 14:25**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-28-05 01:59**	% Solids:	**68**
Analyzed (AR):	**09-28-05 02:43**	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	44
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	44
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	44
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	44

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.9	3.2	**81 %**	40 - 140 %
	2-Bromonaphthalene	3.9	3.3	**84 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.9	3.1	**79 %**	40 - 140 %
	ortho-Terphenyl	3.9	3.5	**90 %**	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:	**W1F05-P2-M-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-15**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 14:25**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 02:21**	Percent Solids:	**68**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/Kg	15
91-57-6	2-Methylnaphthalene	BRL		ug/Kg	15
208-96-8	Acenaphthylene	BRL		ug/Kg	15
83-32-9	Acenaphthene	BRL		ug/Kg	15
86-73-7	Fluorene	BRL		ug/Kg	15
85-01-8	Phenanthrene	BRL		ug/Kg	15
120-12-7	Anthracene	BRL		ug/Kg	15
206-44-0	Fluoranthene	BRL		ug/Kg	15
129-00-0	Pyrene	BRL		ug/Kg	15
56-55-3	Benzo[a]anthracene	BRL		ug/Kg	15
218-01-9	Chrysene	**8**	j	ug/Kg	15
205-99-2	Benzo[b]fluoranthene	BRL		ug/Kg	15
207-08-9	Benzo[k]fluoranthene	BRL		ug/Kg	15
50-32-8	Benzo[a]pyrene	BRL		ug/Kg	15
193-39-5	Indeno[1,2,3-c,d]pyrene	**12**	j	ug/Kg	15
53-70-3	Dibenzo[a,h]anthracene	**19**		ug/Kg	15
191-24-2	Benzo[g,h,i]perylene	BRL		ug/Kg	15

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	3,900	3,000	**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 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-P2-04	Matrix:	Soil
Project:	Buzzards Bay/3871-002	Container:	120 mL Amber Glass
Client:	GeoInsight, Inc.	Preservation:	Cool
Laboratory ID:	87109-16	QC Batch ID:	EP-2147-M
Sampled:	09-01-05 23:50	Instrument ID:	GC-9 Agilent 6890
Received:	09-01-05 21:15	Sample Weight:	16 g
Extracted:	09-15-05 15:00	Final Volume:	1 mL
Analyzed (AL):	09-28-05 03:27	% Solids:	96
Analyzed (AR):	09-28-05 04:11	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	2.1	78 %	40 - 140 %
	2-Bromonaphthalene	2.6	1.8	70 %	40 - 140 %
Extraction:	Chloro-octadecane	2.6	2.1	78 %	40 - 140 %
	ortho-Terphenyl	2.6	2.3	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:	**DDD-P2-04**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-16**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 23:50**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 03:00**	Percent Solids:	**96**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		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	**28**		ug/Kg	10
120-12-7	Anthracene	**5**	j	ug/Kg	10
206-44-0	Fluoranthene	**63**		ug/Kg	10
129-00-0	Pyrene	**47**		ug/Kg	10
56-55-3	Benzo[a]anthracene	**28**		ug/Kg	10
218-01-9	Chrysene	**24**		ug/Kg	10
205-99-2	Benzo[b]fluoranthene	**25**		ug/Kg	10
207-08-9	Benzo[k]fluoranthene	**13**		ug/Kg	10
50-32-8	Benzo[a]pyrene	**13**		ug/Kg	10
193-39-5	Indeno[1,2,3-c,d]pyrene	**19**		ug/Kg	10
53-70-3	Dibenzo[a,h]anthracene	**13**		ug/Kg	10
191-24-2	Benzo[g,h,i]perylene	**13**		ug/Kg	10

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,600	2,000	**76** %	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-P2-05**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-17**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 23:56**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 22:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-27-05 20:55**	% Solids:	**80**
Analyzed (AR):	**09-27-05 21:39**	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	2.8	**86** %	40 - 140 %
	2-Bromonaphthalene	3.3	3.0	**90** %	40 - 140 %
Extraction:	Chloro-octadecane	3.3	2.8	**84** %	40 - 140 %
	ortho-Terphenyl	3.3	2.9	**87** %	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-P2-05**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-17**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 23:56**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 23:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 03:40**	Percent Solids:	**80**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	**8**	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	BRL		ug/Kg	12
120-12-7	Anthracene	BRL		ug/Kg	12
206-44-0	Fluoranthene	**10**	j	ug/Kg	12
129-00-0	Pyrene	**8**	j	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	**11**	j	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	3,300	2,700	**82 %**	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:	**W3A05-P2-UIT-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-18**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 10:30**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-28-05 04:56**	% Solids:	**98**
Analyzed (AR):	**09-28-05 05:40**	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	2.7	2.1	77 %	40 - 140 %
	2-Bromonaphthalene	2.7	1.9	72 %	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.3	84 %	40 - 140 %
	ortho-Terphenyl	2.7	2.5	92 %	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:	**W3A05-P2-UIT-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-18**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 10:30**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed:	**09-27-05 04:19**	Percent Solids:	**98**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	6	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	6	j	ug/Kg	10
85-01-8	Phenanthrene	19		ug/Kg	10
120-12-7	Anthracene	13		ug/Kg	10
206-44-0	Fluoranthene	35		ug/Kg	10
129-00-0	Pyrene	29		ug/Kg	10
56-55-3	Benzo[a]anthracene	27		ug/Kg	10
218-01-9	Chrysene	27		ug/Kg	10
205-99-2	Benzo[b]fluoranthene	20		ug/Kg	10
207-08-9	Benzo[k]fluoranthene	23		ug/Kg	10
50-32-8	Benzo[a]pyrene	16		ug/Kg	10
193-39-5	Indeno[1,2,3-c,d]pyrene	25		ug/Kg	10
53-70-3	Dibenzo[a,h]anthracene	25		ug/Kg	10
191-24-2	Benzo[g,h,i]perylene	21		ug/Kg	10

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,700	2,100	77 %	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:	**W3A05-P2-LIT-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**500 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-19**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 10:37**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 15:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-28-05 06:24**	% Solids:	**85**
Analyzed (AR):	**09-28-05 07:08**	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	2.5	**80** %	40 - 140 %
	2-Bromonaphthalene	3.1	2.4	**79** %	40 - 140 %
Extraction:	Chloro-octadecane	3.1	2.5	**81** %	40 - 140 %
	ortho-Terphenyl	3.1	2.6	**85** %	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:	**W3A05-P2-LIT-01**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**500 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-19**	QC Batch ID:	**EP-2147-M**
Sampled:	**09-01-05 10:37**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 07:00**	Final Volume:	**1 mL**
Analyzed:	**09-28-05 01:16**	Percent Solids:	**85**
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:	**W3A05-P2-UIT-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-22**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 10:48**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-15-05 22:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-27-05 22:24**	% Solids:	**95**
Analyzed (AR):	**09-27-05 23:08**	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	2.0	77 %	40 - 140 %
	2-Bromonaphthalene	2.6	1.7	66 %	40 - 140 %
Extraction:	Chloro-octadecane	2.6	2.1	81 %	40 - 140 %
	ortho-Terphenyl	2.6	2.1	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:	**W3A05-P2-UIT-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-22**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 10:48**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 23:00**	Final Volume:	**1 mL**
Analyzed:	**09-28-05 01:55**	Percent Solids:	**95**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		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	32		ug/Kg	10
120-12-7	Anthracene	6	j	ug/Kg	10
206-44-0	Fluoranthene	65		ug/Kg	10
129-00-0	Pyrene	47		ug/Kg	10
56-55-3	Benzo[a]anthracene	20		ug/Kg	10
218-01-9	Chrysene	23		ug/Kg	10
205-99-2	Benzo[b]fluoranthene	22		ug/Kg	10
207-08-9	Benzo[k]fluoranthene	12		ug/Kg	10
50-32-8	Benzo[a]pyrene	9	j	ug/Kg	10
193-39-5	Indeno[1,2,3-c,d]pyrene	17		ug/Kg	10
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/Kg	10
191-24-2	Benzo[g,h,i]perylene	11		ug/Kg	10

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,600	2,000	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 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:	**W3A05-P2-LIT-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-23**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 10:53**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-15-05 22:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-28-05 00:36**	% Solids:	**91**
Analyzed (AR):	**09-28-05 01:21**	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	31
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	31
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	31
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	31

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.1	**76 %**	40 - 140 %
	2-Bromonaphthalene	2.7	2.1	**77 %**	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.2	**80 %**	40 - 140 %
	ortho-Terphenyl	2.7	2.1	**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:	**W3A05-P2-LIT-02**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-23**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 10:53**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 23:00**	Final Volume:	**1 mL**
Analyzed:	**09-28-05 02:34**	Percent Solids:	**91**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	**11**		ug/Kg	10
91-57-6	2-Methylnaphthalene	**8**	j	ug/Kg	10
208-96-8	Acenaphthylene	**6**	j	ug/Kg	10
83-32-9	Acenaphthene	**31**		ug/Kg	10
86-73-7	Fluorene	**38**		ug/Kg	10
85-01-8	Phenanthrene	**250**		ug/Kg	10
120-12-7	Anthracene	**93**		ug/Kg	10
206-44-0	Fluoranthene	**280**		ug/Kg	10
129-00-0	Pyrene	**210**		ug/Kg	10
56-55-3	Benzo[a]anthracene	**120**		ug/Kg	10
218-01-9	Chrysene	**92**		ug/Kg	10
205-99-2	Benzo[b]fluoranthene	**100**		ug/Kg	10
207-08-9	Benzo[k]fluoranthene	**42**		ug/Kg	10
50-32-8	Benzo[a]pyrene	**79**		ug/Kg	10
193-39-5	Indeno[1,2,3-c,d]pyrene	**50**		ug/Kg	10
53-70-3	Dibenzo[a,h]anthracene	**19**		ug/Kg	10
191-24-2	Benzo[g,h,i]perylene	**40**		ug/Kg	10

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,700	2,500	**92 %**	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:	**W3A05-P2-UIT-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-24**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 11:24**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**15 g**
Extracted:	**09-15-05 22:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-28-05 02:05**	% Solids:	**91**
Analyzed (AR):	**09-28-05 02:49**	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	2.9	2.3	**79 %**	40 - 140 %
	2-Bromonaphthalene	2.9	2.0	**70 %**	40 - 140 %
Extraction:	Chloro-octadecane	2.9	2.3	**81 %**	40 - 140 %
	ortho-Terphenyl	2.9	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:	**W3A05-P2-UIT-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-24**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 11:24**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**15 g**
Extracted:	**09-15-05 23:00**	Final Volume:	**1 mL**
Analyzed:	**09-28-05 03:13**	Percent Solids:	**91**
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	2,900	2,200	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 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:	**W3A05-P2-LIT-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-25**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 11:30**	Instrument ID:	**GC-9 Agilent 6890**
Received:	**09-01-05 21:15**	Sample Weight:	**16 g**
Extracted:	**09-15-05 22:00**	Final Volume:	**1 mL**
Analyzed (AL):	**09-28-05 03:33**	% Solids:	**89**
Analyzed (AR):	**09-28-05 04:18**	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	2.1	75 %	40 - 140 %
	2-Bromonaphthalene	2.8	2.1	76 %	40 - 140 %
Extraction:	Chloro-octadecane	2.8	2.2	79 %	40 - 140 %
	ortho-Terphenyl	2.8	2.2	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:	**W3A05-P2-LIT-03**	Matrix:	**Soil**
Project:	**Buzzards Bay/3871-002**	Container:	**120 mL Amber Glass**
Client:	**GeoInsight, Inc.**	Preservation:	**Cool**
Laboratory ID:	**87109-25**	QC Batch ID:	**EP-2148-M**
Sampled:	**09-01-05 11:30**	Instrument ID:	**MS-6 HP 6890**
Received:	**09-01-05 21:15**	Sample Volume:	**16 g**
Extracted:	**09-15-05 23:00**	Final Volume:	**1 mL**
Analyzed:	**09-28-05 03:52**	Percent Solids:	**89**
Analyst:	**CMM**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	**6**	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	**6**	j	ug/Kg	11
85-01-8	Phenanthrene	**61**		ug/Kg	11
120-12-7	Anthracene	**26**		ug/Kg	11
206-44-0	Fluoranthene	**130**		ug/Kg	11
129-00-0	Pyrene	**97**		ug/Kg	11
56-55-3	Benzo[a]anthracene	**53**		ug/Kg	11
218-01-9	Chrysene	**44**		ug/Kg	11
205-99-2	Benzo[b]fluoranthene	**50**		ug/Kg	11
207-08-9	Benzo[k]fluoranthene	**23**		ug/Kg	11
50-32-8	Benzo[a]pyrene	**35**		ug/Kg	11
193-39-5	Indeno[1,2,3-c,d]pyrene	**30**		ug/Kg	11
53-70-3	Dibenzo[a,h]anthracene	**15**		ug/Kg	11
191-24-2	Benzo[g,h,i]perylene	**23**		ug/Kg	11

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,800	2,200	77 %	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:	**87109**
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 87109 was received at a temperature of 6.8'C. This measurement is outside the recommended range of 2-6'C.
2. Samples 87109-01 through -31 for analysis by MA DEP EPH with PAHs by 8270C-Mod SIM were composited upon receipt by the laboratory, as indicated on the Chain of Custody.
3. MA DEP EPH Note: Samples 87109-01 through -31. 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.

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

No. 184675

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

TURNAROUND

- ☒ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN-________) (Rush requires Rush Authorization Number)
- ☒ Please Email to: kdtrainer@geoinc.com (pdf to)
- ☐ Please FAX to: ________

BILLING

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

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

Date	Time	Sample Identification	Matrix: Soil (Sediment)	Type: Grab	Number	250mL/8 oz Glass	Preservation: Ice	Filtered: No	Laboratory Number (Lab Use Only)	8270C PAHs only (SIM)	MA DEP EPH w/all targets / EPH Carbon Ranges only
9-1-05	1205	W3C04-P2-LIT-01A	X	X	3	X	X	X	1	X	X
	1210	W3C04-P2-LIT-01B	X	X	3	X	X	X	1	X	X
	1215	W3C04-P2-LIT-01C	X	X	3	X	X	X	1	X	X
	1520	W1D01-P2-M-02A	X	X	1	X	X	X	2	X	X
	1525	W1D01-P2-M-02B	X	X	1	X	X	X	2	X	X
	1530	W1D01-P2-M-02C	X	X	1	X	X	X	2	X	X
	1500	W1D01-P2-M-01A			1				3		
	1505	W1D01-P2-M-01B			1				3		
	1510	W1D01-P2-M-01C			1				3		
	11:15	W3C04-P2-LIT-03A			1				4	X	
	11:20	W3C04-P2-LIT-03B			1				4		
	11:25	W3C04-P2-LIT-03C			1				4		

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 on dry ice for archiving
3. PAH analyzed for 8270 w/SIM Selected Ion Monitoring

DATA QUALITY OBJECTIVES

Regulatory Program

State: ☐ CT ☐ ME ☒ MA ☐ NH ☐ NY ☐ RI ☐ VT ☐

Standard: ☒ MCP GW-1/S-1 ☒ MCP GW-2/S-2 ☐ NY STARS ☐ Drinking Water ☐ Wastewater ☐ Waste Disposal ☐ Dredge Material ☐

Deliverables: ☐ PWS Form ☐ MWRA ☐

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: composite of W3C04-P2-LIT-01A, W3C04-P2-LIT-01B, W3C04-P2-LIT-01C

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	9:15	Received by:	Receipt Temperature: 6.8 (☐ Ice ☐ Refrigerated 2-6°C Recommended)
Relinquished by: [signature]			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:

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 084674

Project Name: Buzzards Bay
Project Number: 3871-002
Sampler Name: LC/AW
Project Manager: Kevin Trainer
Firm: GeoInsight
Address: 5 Lan Drive
City / State / Zip: Westford, MA 01886
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: kdtrainer@geoinc.com
- [ ] Please FAX to: _____

BILLING

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

ANALYSIS REQUEST

OPTIONS: Volatiles: [ ] TIC Search; Semivolatiles: [ ] 1 Acid Only [ ] B/N Only [ ] 1 TIC Search
SDWA: Volatiles: [ ] 524.2-MTBE; Semivolatiles: [ ] 525.2; Pest/Herb/PCBs Extractable: [ ] 505 [ ] 508; Vol.: [ ] 531.1 [ ] 515.1 [ ] 504.1 EDB/DBCP; Metals: Specify For Water Samples [ ] Lead and Copper [ ] Total [ ] Dissolved
NPDES: Volatiles: [ ] 624 [ ] 602-MTBE [ ] 601 [ ] 601/602-MTBE; Semivolatiles: [ ] 625 [ ] 625 PAHs only; Pest/Herb/PCBs Extractable: [ ] 608 Pesticides [ ] 608 PCBs; Vol.: [ ] 615; Metals: [ ] 13 Priority Pollutant
RCRA/21E: Volatiles: [ ] 8260B TCL+MTBE [ ] 8260B HW PETROLEUM [ ] 8260B; [ ] 8021B Aromatics [ ] 8021B Halocarbons [ ] 8021B; [ ] 8270C; Semivolatiles: [X] 8270C PAHs only [ ] 8081A Pesticides [ ] 8082 PCBs [ ] 8151A Herbicides [ ] 8011 EDB/DBCP; Metals: [ ] 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 [ ] Gasoline Range Organics (GRO) [ ] ME GRO [ ] MA DEP VPH w/all targets [ ] VPH Carbon ranges only
Petroleum Hydrocarbon Vol. TPH
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: 82608, 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 [ ] 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)
11-05	1150	W3C04-PB-U1T-01A				X				X	3				X												X	X		
	1155	W3C04-PB-U1T-01B				X				X	3				X												X	X		
	1200	W3C04-PB-U1T-01C				X				X	3				X												X	X		
	11:35	W3C04-PB-U1T-02A				X				X	1				X												X	X		
	11:37	W3C04-PB-U1T-02B				X				X	1				X												X	X		
	11:39	W3C04-PB-U1T-02C				X				X	1				X												X	X		
	11:41	W3C04-PB-LIT-03A				X				X	1				X												X	X		
	11:43	W3C04-PB-LIT-03B				X				X	1				X												X	X		
	11:45	W3C04-PB-LIT-03C				X				X	1				X												X	X		
	11:00	W3C04-PB-U1T-03A				X				X	1				X												X	X		
	11:05	W3C04-PB-U1T-03B				X				X	1				X												X	X		
V	1110	W3C04-PB-U1T-03C				X				X	1				X												X	X		

REMARKS / SPECIAL INSTRUCTIONS

Composite the A, B, & C Sample aliquots.

After compositing, freeze the A, B, & C aliquots remaining soil and send to B&B Labs on dry ice for archiving

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
- [X] Matrix Spike
- [ ] Matrix Spike Duplicate

Selection of QC Sample

[X] Please use sample:
Composite of
~~W3C04-PB-U1T-01A~~
W3C04-PB-U1T-01B
W3C04-PB-U1T-01C

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 915	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:

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

084676

Project Name: BUZZARDS BAY	Firm: GEOINSIGHT
Project Number: 3871-002	Address: 5 LAN DRIVE
Sampler Name: KZ/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: ~~kdt~~ pdf to Kdtrainer@geoinc.com
- ☐ Please FAX to:

BILLING

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

ANALYSIS REQUEST

Volatiles: OPTIONS [ ] TIC Search; SDWA [ ] 524.2+MTBE; NPDES [ ] 624, [ ] 602+MTBE, [ ] 601, [ ] 601/602+MTBE; RCRA/21E [ ] 8260B TCL+MTBE, [ ] 8260B NH PETROLEUM, [ ] 8260B, [ ] 8021B Aromatics, [ ] 8021B Halocarbons, [ ] 8021B

Semivolatiles: OPTIONS [ ] Acid Only, [ ] B/N Only, [ ] TIC Search; SDWA [ ] 525.2; NPDES [ ] 625, [ ] 625 PAHs only; RCRA/21E [ ] 8270C, [X] 8270C PAHs only SIM

Pest/Herb/PCBs (Extractable, Vol.): SDWA [ ] 505 [ ] 508, [ ] 531.1, [ ] 515.1, [ ] 504.1 EDB/DBCP; NPDES [ ] 608 Pesticides, [ ] 608 PCBs, [ ] 615; RCRA/21E [ ] 8081A Pesticides, [ ] 8082 PCBs, [ ] 8151A Herbicides, [ ] 8011 EDB/DBCP

Metals: OPTIONS Specify For Water Samples [ ] Total [ ] Dissolved; SDWA [ ] Lead and Copper; NPDES [ ] 13 Priority Pollutant; RCRA/21E [ ] 8 RCRA, [ ] 5 RCRA, [ ] MA List Metals, [ ] 23 TAL, [ ] Specify:

Petroleum Hydrocarbon (Ext. TPH, Vol. 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) Qualitative Only; [ ] 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; [ ] pH [ ] Dissolved Oxygen [ ] Turbidity; [ ] Total Coliform [ ] Fecal Coliform [ ] HPC

Other

Samples

Date	Time	Sample Identification	Matrix: Soil/Sediment	Type: Grab	Number	Container: 250mL/8 oz Glass	Preservation: Ice	Filtered: No	8270C PAHs only SIM	EPH Carbon Ranges only	Laboratory Number (Lab Use Only)
9/1/05	23:50	DDD-P2-04-A	X	X	1	X	X	X	X	X	
	23:52	DDD-P2-04-B									
	23:54	DDD-P2-04-C									
	23:56	DDD-P2-05-A									
	23:58	DDD-P2-05-B									
	24:00	DDD-P2-05-C									
	10:30	W3A05-P2-UIT-01-A									
	10:32	W3A05-P2-UIT-01-B									
	10:34	W3A05-P2-UIT-01-C									
	10:37	W3A05-P2-LIT-01-A									
	10:39	W3A05-P2-LIT-01-B									
	10:41	W3A05-P2-LIT-01-C									

Matrix options: Groundwater, Drinking Water, Wastewater, Soil, 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, HNO_3, H_2SO_4, NaOH, Methanol, Sodium Bisulfate, Ice. Filtered: Yes, No.

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 on dry ice for archiving.
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	Date	Time	Received by	
Relinquished by Sampler: [signature]	9/1/05	9:15	Received by:	Receipt Temperature: 6.8 ☐ Ice ☐ Refrigerated 2-6°C Recommended
Relinquished by:	Date	Time	Received by:	Container Count:
Relinquished by:	Date	Time	Received by Laboratory: [signature]	Shipping/Airbill Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ ____

Custody Seal Number:

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Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 084678

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

TURNAROUND

- ☒ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- ____________) (Rush requires Rush Authorization Number)
- ☒ Please Email to: pdf to ktrainer@geoinc.com
- ☐ Please FAX to: ____________

BILLING

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

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

Sampling Date	Sampling Time	Sample Identification	Matrix	Type	Container(s)	Preservation	Filtered	Laboratory Number (Lab Use Only)	Analysis Request
05	14:40	W1FD5-P2-M-01-A	Soil/Sediment X		250mL/8 oz Glass X	Ice X	No X		RCRA/21E: 8270C PAHs only X (by SIM); Petroleum Hydrocarbon Ext. TPH: MA DEP EPH Carbon Ranges only X
↓	14:42	W1FD5-P2-M-01-B	↓		↓	↓	↓		↓
↓	14:44	W1FD5-P2-M-01-C	↓		↓	↓	↓		↓

Matrix options: Groundwater, Drinking Water, Wastewater, Soil, 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, HNO_3, H_2SO_4, NaOH, Methanol, Sodium Bisulfate, Ice. Filtered: Yes, No.

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; [ ] 8021B Aromatics; [ ] 8021B Halocarbons; [ ] 8021B
Semivolatiles	[ ] Acid Only; [ ] B/N Only; [ ] TIC Search	[ ] 525.2	[ ] 625; [ ] 625 PAHs only	[ ] 8270C; [X] 8270C PAHs only
Pest/Herb/PCBs		[ ] 505 [ ] 508; [ ] 531.1; [ ] 515.1; [ ] 504.1 EDB/DBCP	[ ] 608 Pesticides; [ ] 608 PCBs; [ ] 615	[ ] 8081A Pesticides; [ ] 8082 PCBs; [ ] 8151A Herbicides; [ ] 8011 EDB/DBCP
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 / Vol. 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; [ ] 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; [ ] pH [ ] Dissolved Oxygen [ ] Turbidity; [ ] Total Coliform [ ] Fecal Coliform [ ] HPC

Other

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	☒ 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
- ☐ 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: ☐ Ice ☐ Refrigerated 2-6°C Recommended 6.8
Relinquished by:	Date	Time	Received by:	Container Count:
Relinquished by:	Date	Time	Received by Laboratory: 28	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

No. 72869

Project Name: BUZZARDS BAY	Firm: GeoInsight
Project Number: 3871-002	Address: 5 Lan Drive
Sampler Name: KZ / AP	City / State / Zip: Westford, Ma 01886
Project Manager: Kevin Trainer	Telephone: 978-692-1114

TURNAROUND

- ☒ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- ______) (Rush requires Rush Authorization Number)
- ☒ Please Email to: pdf to ktrainer@gcoinc.com
- ☐ Please FAX to:

BILLING

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

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

Date	Time	Sample Identification	Matrix: Soil/Sed	Type: Grab	Number	250mL/8 oz Glass	Preservation: ICE	Filtered: NO	Semivolatiles: 8270C PAHs only (SIM)	Petroleum Hydrocarbon: EPH Carbon Ranges only	Laboratory Number (Lab Use Only)
9/1/05	1252	WIE04-P2-UIT-02-A	X	X	1	X	X	X	X	X	
"	1254	WIE04-P2-UIT-02-B	"	"	"	"	"	"	"	"	
"	1256	WIE04-P2-UIT-02-C	"	"	"	"	"	"	"	"	
"	1259	WIE04-P2-LIT-02-A	"	"	"	"	"	"	"	"	
"	1301	WIE04-P2-LIT-02-B	"	"	"	"	"	"	"	"	
"	1303	WIE04-P2-LIT-02-C	"	"	"	"	"	"	"	"	
"	1400	WIF05-P2-M-03-A	"	"	"	"	"	"	"	"	
"	1404	WIF05-P2-M-03-B	"	"	"	"	"	"	"	"	
"	1409	WIF05-P2-M-03-C	"	"	"	"	"	"	"	"	
"	1425	WIF05-P2-M-02-A	"	"	"	"	"	"	"	"	
"	1428	WIF05-P2-M-02-B	"	"	"	"	"	"	"	"	
"	1430	WIF05-P2-M-02-C	"	"	"	"	"	"	"	"	

Other printed columns (not marked): Matrix: Groundwater, Drinking Water, Wastewater, Other Solid, Oil/Organic Liquid; Type: Composite; Container(s): 40mL VOA Vial, 60mL/2 oz Glass, 120mL/4 oz Amber 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, HNO_3, H_2SO_4, NaOH, Methanol, Sodium Bisulfate; Filtered: YES.

ANALYSIS REQUEST

- Volatiles — RCRA/21E: ☐ 8260B TCL+MTBE ☐ 8260B ☐ 8021B Aromatics ☐ 8021B Halocarbons ☐ 8021B; NPDES: ☐ 624 ☐ 602+MTBE ☐ 601 ☐ 601/602+MTBE; SDWA: ☐ 524.2+MTBE; Options: ☐ TIC Search
- Semivolatiles — RCRA/21E: ☐ 8270C ☒ 8270C PAHs only (SIM); NPDES: ☐ 625 ☐ 625 PAHs only; SDWA: ☐ 525.2; Options: ☐ Acid Only ☐ B/N Only ☐ TIC Search
- Pest/Herb/PCBs — ☐ 8081A Pesticides ☐ 8082 PCBs ☐ 8151A Herbicides ☐ 8011 EDB/DBCP ☐ 608 Pesticides ☐ 608 PCBs ☐ 615 ☐ 505 ☐ 508 ☐ 531.1 ☐ 515.1 ☐ 504.1 EDB/DBCP
- Metals — ☐ 8 RCRA ☐ 5 RCRA ☐ MA List Metals ☐ 23 TAL ☐ Specify: ☐ 13 Priority Pollutant ☐ Lead and Copper; Specify For Water Samples: ☐ Total ☐ Dissolved
- Petroleum Hydrocarbon — ☐ TPH-IR ☐ Diesel Range Organics (DRO) ☐ MA DEP EPH w/all targets (marked "Not this") ☒ EPH Carbon Ranges only ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-90-Mod.) ☐ TPH by GC/FID (8100 Mod) Quantitative Only ☐ Gasoline Range Organics (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 ☐ pH ☐ Dissolved Oxygen ☐ Turbidity ☐ Total Coliform ☐ Fecal Coliform ☐ HPC
- Other

REMARKS / SPECIAL INSTRUCTIONS

1. Composite A, B & C sample aliquots
2. After compositing, freeze the A, B & C aliquots remaining soil & send to B&B labs on dry ice for archiving
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-1	☐ ______
☒ 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	Date	Time	Received	
Relinquished by Sampler: [signature]	9.1.05	2115	Received by:	Receipt Temperature: ☐ Ice ☐ Refrigerated 2-6°C Recommended 6.8
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

№ 084677

Project Name: BUZZARDS BAY	Firm: GEOINSIGHT
Project Number: 3871 - 002	Address: 5 LAN DRIVE
Sampler Name: KZ + 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: ktrainer@geoinc.com
- [ ] Please FAX to: _____

BILLING

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

ANALYSIS REQUEST

OPTIONS: (1) TIC Search
Volatiles
SDWA: (1) 524.2-MTBE
NPDES: (1) 624
RCRA/TE: (1) 8260B TCL+MTBE; (1) 8260B NH PETROLEUM; (1) 8260B
(1) 602+MTBE
(1) 8021B Aromatics
(1) 8021B Halocarbons
(1) 601
(1) 8021B
(1) 601/602+MTBE
(1) 8270C
Semivolatiles
OPTIONS: (1) Acid Only; (1) B/N Only; (1) TIC Search
SDWA: (1) 525.2
NPDES: (1) 625
(1) 8270C PAHs only
Pest/Herb/PCBs Extractable Vol.
NPDES: (1) 608 Pesticides; (1) 608 PCBs
(1) 8081A Pesticides
(1) 8082 PCBs
(1) 8151A Herbicides
(1) 8011 EDB/DBCP
SDWA: (1) 505; (1) 508; (1) 531.1; (1) 515.1; (1) 504.1 EDB/DBCP
Metals
Specify for Water Samples: (1) Lead and Copper
NPDES: (1) 13 Priority Pollutant
RCRA: (1) 8 RCRA; (1) 5 RCRA; (1) MA List Metals; (1) 23 TAL
Specify for Water Samples: (1) Total; (1) Dissolved
Petroleum Hydrocarbon
Ext. TPH: (1) TPH-IR; (1) Diesel Range Organics (DRO); (1) ME DRO; (1) CT ETPH; (1) MA DEP EPH w/all targets + APH Carbon Ranges only; (1) Hydrocarbon Fingerprint (GC/FID by ASTM D3328-05 Mod.); (1) TPH by GC/FID (8015B Mod) Quantitative Only; (1) Gasoline Range Organics (GRO); (1) ME GRO; (1) MA DEP VPH w/all targets + VPH Carbon ranges only
Vol. TPH
Haz Waste: (1) TCLP; (1) SPLP; (1) 8 Metals; (1) Pb only; (1) VOA; (1) Semi VOA; (1) Pesticides; (1) Herbicides; (1) Corrosivity (as pH); (1) Reactivity; (1) Ignitability (as Flashpoint); (1) Paint Filter; (1) MA Biotc Disposal Criteria: 8260B, TPH by GC, PCBs; (1) Metals, Corrosivity, Ignitability, Reactivity
General Chemistry: (1) Nitrate; (1) Nitrite; (1) Chloride; (1) Fluoride; (1) Sulfate; (1) Dissolved Phosphorus; (1) Ammonia; (1) TKN; (1) Total Phosphorus; (1) Total N (as NO2/NO3/TKN); (1) Oil & Grease; (1) COD; (1) TOC; (1) BOD; (1) TDS; (1) TSS; (1) TS; (1) Alkalinity; (1) Cyanide, Total; (1) Cyanide, Physiologically Available; (1) pH; (1) Dissolved Oxygen; (1) Turbidity; (1) Total Coliform; (1) Fecal Coliform; (1) 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 / 250mL/8 oz Amber 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)
10/5	10:48	W3A05-P2-UIT-02-A	SOIL	GRAB	1	ICE	NO	
	10:50	W3A05-P2-UIT-02-B	SOIL	GRAB	1	ICE	NO	
	10:51	W3A05-P2-UIT-02-C	SOIL	GRAB	1	ICE	NO	
	10:53	W3A05-P2-LIT-02-A	SOIL	GRAB	1	ICE	NO	
	10:54	W3A05-P2-LIT-02-B	SOIL	GRAB	1	ICE	NO	
	10:56	W3A05-P2-LIT-02-C	SOIL	GRAB	1	ICE	NO	
	11:24	W3A05-P2-UIT-03-A	SOIL	GRAB	1	ICE	NO	
	11:26	W3A05-P2-UIT-03-B	SOIL	GRAB	1	ICE	NO	
	11:28	W3A05-P2-UIT-03-C	SOIL	GRAB	1	ICE	NO	
	11:30	W3A05-P2-LIT-03-A	SOIL	GRAB	1	ICE	NO	
	11:32	W3A05-P2-LIT-03-B	SOIL	GRAB	1	ICE	NO	
	11:35	W3A05-P2-LIT-03-C	SOIL	GRAB	1	ICE	NO	

REMARKS / SPECIAL INSTRUCTIONS

Composite A, B, + C sample aliquots.
) After compositing, freeze A, B, + C aliquots remaing soil and send to B&B Labs on dry ice for archiving.
) 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

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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 9:15	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:	MA DEP EPH Method	Instrument ID:	GC-9 Agilent 6890	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-2157-M	Extracted:	09-26-05 13:00	Extracted:	09-26-05 13:00
Matrix:	Soil	Analyzed (AL):	09-27-05 10:03	Analyzed (AL):	09-27-05 11:28
Units:	mg/Kg	Analyzed (AR):	09-27-05 10:43	Analyzed (AR):	09-27-05 12:12
		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	1.8	55 %	3.3	1.8	54 %	2 %	30 - 140 %	25%
124-18-5	*n*-Decane (C_{10})	3.3	2.2	65 %	3.3	2.1	63 %	3 %	40 - 140 %	25%
112-40-3	*n*-Dodecane (C_{12})	3.3	2.2	66 %	3.3	2.1	63 %	5 %	40 - 140 %	25%
629-59-4	*n*-Tetradecane (C_{14})	3.3	2.2	65 %	3.3	2.1	63 %	4 %	40 - 140 %	25%
544-76-3	*n*-Hexadecane (C_{16})	3.3	2.4	73 %	3.3	2.3	71 %	2 %	40 - 140 %	25%
593-45-3	*n*-Octadecane (C_{18})	3.3	2.7	83 %	3.3	2.8	86 %	4 %	40 - 140 %	25%
n/a	*n*-C9 to *n*-C18 Group	20	13	68 %	20	13	67 %	2 %	40 - 140 %	25%
629-92-5	*n*-Nonadecane (C_{19})	3.3	2.7	83 %	3.3	2.9	87 %	5 %	40 - 140 %	25%
112-95-8	*n*-Eicosane (C_{20})	3.3	2.8	85 %	3.3	3.0	90 %	6 %	40 - 140 %	25%
629-97-0	*n*-Docosane (C_{22})	3.3	2.8	84 %	3.3	3.0	91 %	7 %	40 - 140 %	25%
646-31-1	*n*-Tetracosane (C_{24})	3.3	2.8	84 %	3.3	3.0	90 %	7 %	40 - 140 %	25%
630-01-3	*n*-Hexacosane (C_{26})	3.3	2.7	82 %	3.3	2.9	88 %	8 %	40 - 140 %	25%
630-02-4	*n*-Octacosane (C_{28})	3.3	2.7	81 %	3.3	2.9	87 %	8 %	40 - 140 %	25%
638-68-6	*n*-Triacontane (C_{30})	3.3	2.6	80 %	3.3	2.8	86 %	8 %	40 - 140 %	25%
630-06-8	*n*-Hexatriacontane (C_{36})	3.3	1.8	54 %	3.3	2.0	60 %	10 %	40 - 140 %	25%
n/a	*n*-C19 to *n*-C36 Group	26	21	79 %	26	22	85 %	7 %	40 - 140 %	25%
91-20-3	Naphthalene	3.3	2.0	62 %	3.3	2.0	61 %	1 %	40 - 140 %	25%
91-57-6	2-Methylnaphthalene	3.3	2.2	66 %	3.3	2.1	64 %	3 %	40 - 140 %	25%
208-96-8	Acenaphthylene	3.3	2.4	72 %	3.3	2.3	71 %	1 %	40 - 140 %	25%
83-32-9	Acenaphthene	3.3	2.2	67 %	3.3	2.2	67 %	1 %	40 - 140 %	25%
86-73-7	Fluorene	3.3	2.4	74 %	3.3	2.4	72 %	2 %	40 - 140 %	25%
85-01-8	Phenanthrene	3.3	2.8	84 %	3.3	2.7	83 %	1 %	40 - 140 %	25%
120-12-7	Anthracene	3.3	3.2	96 %	3.3	3.1	94 %	1 %	40 - 140 %	25%
206-44-0	Fluoranthene	3.3	3.2	96 %	3.3	3.3	99 %	3 %	40 - 140 %	25%
129-00-0	Pyrene	3.3	3.2	96 %	3.3	3.3	99 %	3 %	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	3.3	3.2	98 %	3.3	3.2	98 %	1 %	40 - 140 %	25%
218-01-9	Chrysene	3.3	3.5	106 %	3.3	3.4	104 %	2 %	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	3.3	2.9	89 %	3.3	3.0	92 %	3 %	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	3.3	3.3	101 %	3.3	3.3	99 %	2 %	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	3.3	3.1	93 %	3.3	3.1	93 %	0 %	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	3.3	2.3	69 %	3.3	2.2	68 %	1 %	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	3.3	2.7	83 %	3.3	2.6	79 %	5 %	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	3.3	2.2	66 %	3.3	2.0	61 %	7 %	40 - 140 %	25%
n/a	PAH Group	56	47	83 %	56	46	83 %	1 %	40 - 140 %	25%

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

Fractionation Breakthrough Evaluation						QC Limits
91-20-3	Naphthalene	LCS	0 %	LCSD	0 %	5%
91-57-6	2-Methylnaphthalene	LCS	1 %	LCSD	0 %	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-2157-M	Extracted:	09-26-05 13:00
Matrix:	Soil	Analyzed (AL):	09-27-05 10:05
		Analyzed (AR):	09-27-05 10:49
		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	1.8	68 %	40 - 140 %
	2-Bromonaphthalene	2.7	1.8	68 %	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.0	74 %	40 - 140 %
	ortho-Terphenyl	2.7	1.7	63 %	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

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-2147-M	Extracted:	09-15-05 07:00	Extracted:	09-15-05 07:00
Matrix:	Soil	Analyzed (AL):	09-19-05 19:57	Analyzed (AL):	09-19-05 21:26
Units:	mg/Kg	Analyzed (AR):	09-19-05 20:41	Analyzed (AR):	09-19-05 22:10
		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	2.0	59 %	3.3	2.0	61 %	3 %	30 - 140 %	25%
124-18-5	*n*-Decane (C_{10})	3.3	2.3	69 %	3.3	2.4	72 %	4 %	40 - 140 %	25%
112-40-3	*n*-Dodecane (C_{12})	3.3	2.4	74 %	3.3	2.5	76 %	3 %	40 - 140 %	25%
629-59-4	*n*-Tetradecane (C_{14})	3.3	2.6	80 %	3.3	2.7	81 %	2 %	40 - 140 %	25%
544-76-3	*n*-Hexadecane (C_{16})	3.3	2.9	88 %	3.3	2.9	88 %	0 %	40 - 140 %	25%
593-45-3	*n*-Octadecane (C_{18})	3.3	3.1	95 %	3.3	3.1	95 %	0 %	40 - 140 %	25%
n/a	*n*-C9 to *n*-C18 Group	20	15	77 %	20	16	79 %	2 %	40 - 140 %	25%
629-92-5	*n*-Nonadecane (C_{19})	3.3	3.1	94 %	3.3	3.1	94 %	1 %	40 - 140 %	25%
112-95-8	*n*-Eicosane (C_{20})	3.3	3.2	96 %	3.3	3.2	96 %	0 %	40 - 140 %	25%
629-97-0	*n*-Docosane (C_{22})	3.3	3.1	95 %	3.3	3.2	97 %	2 %	40 - 140 %	25%
646-31-1	*n*-Tetracosane (C_{24})	3.3	3.2	96 %	3.3	3.2	96 %	0 %	40 - 140 %	25%
630-01-3	*n*-Hexacosane (C_{26})	3.3	3.1	94 %	3.3	3.1	94 %	0 %	40 - 140 %	25%
630-02-4	*n*-Octacosane (C_{28})	3.3	3.1	93 %	3.3	3.1	94 %	0 %	40 - 140 %	25%
638-68-6	*n*-Triacontane (C_{30})	3.3	3.1	93 %	3.3	3.1	93 %	0 %	40 - 140 %	25%
630-06-8	*n*-Hexatriacontane (C_{36})	3.3	2.8	85 %	3.3	2.8	85 %	0 %	40 - 140 %	25%
n/a	*n*-C19 to *n*-C36 Group	26	25	93 %	26	25	94 %	0 %	40 - 140 %	25%
91-20-3	Naphthalene	3.3	2.3	68 %	3.3	2.2	67 %	2 %	40 - 140 %	25%
91-57-6	2-Methylnaphthalene	3.3	2.4	74 %	3.3	2.4	73 %	1 %	40 - 140 %	25%
208-96-8	Acenaphthylene	3.3	2.6	80 %	3.3	2.6	78 %	2 %	40 - 140 %	25%
83-32-9	Acenaphthene	3.3	2.5	75 %	3.3	2.4	73 %	2 %	40 - 140 %	25%
86-73-7	Fluorene	3.3	2.6	80 %	3.3	2.6	78 %	3 %	40 - 140 %	25%
85-01-8	Phenanthrene	3.3	2.8	84 %	3.3	2.7	81 %	4 %	40 - 140 %	25%
120-12-7	Anthracene	3.3	3.0	92 %	3.3	2.9	89 %	3 %	40 - 140 %	25%
206-44-0	Fluoranthene	3.3	3.0	92 %	3.3	2.9	88 %	4 %	40 - 140 %	25%
129-00-0	Pyrene	3.3	3.0	91 %	3.3	2.9	88 %	4 %	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	3.3	3.2	96 %	3.3	3.1	93 %	3 %	40 - 140 %	25%
218-01-9	Chrysene	3.3	3.2	97 %	3.3	3.1	94 %	3 %	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	3.3	3.0	92 %	3.3	2.9	89 %	3 %	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	3.3	3.1	95 %	3.3	3.0	91 %	4 %	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	3.3	3.0	92 %	3.3	2.9	89 %	4 %	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	3.3	2.9	88 %	3.3	2.8	85 %	4 %	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	3.3	3.1	93 %	3.3	2.9	89 %	4 %	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	3.3	2.9	87 %	3.3	2.8	84 %	3 %	40 - 140 %	25%
n/a	PAH Group	56	49	87 %	56	47	84 %	3 %	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	1.8	67 %	2.7	1.4	52 %		40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.5	93 %	2.7	2.4	89 %		40 - 140 %
	ortho-Terphenyl	2.7	2.2	81 %	2.7	2.1	78 %		40 - 140 %

Fractionation Breakthrough Evaluation						QC Limits
91-20-3	Naphthalene	LCS	2 %	LCSD	5 %	5%
91-57-6	2-Methylnaphthalene	LCS	0 %	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-2147-M	Extracted:	09-15-05 07:00
Matrix:	Soil	Analyzed (AL):	09-19-05 18:28
		Analyzed (AR):	09-19-05 19:13
		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	2.2	82 %	40 - 140 %
	2-Bromonaphthalene	2.7	1.4	53 %	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.4	89 %	40 - 140 %
	ortho-Terphenyl	2.7	2.2	83 %	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

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-2147-M	Extracted:	09-15-05 07:00	Extracted:	09-15-05 07:00
Matrix:	Soil	Analyzed:	09-21-05 11:10	Analyzed:	09-21-05 19:38
Units:	ug/Kg	Analyst:	JJT	Analyst:	JJT

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	190	58 %	5 %	40 - 140 %	20%
91-57-6	2-Methylnaphthalene	330	210	64 %	330	210	64 %	0 %	40 - 140 %	20%
85-01-8	Phenanthrene	330	240	73 %	330	240	73 %	0 %	40 - 140 %	20%
83-32-9	Acenaphthene	330	260	79 %	330	250	76 %	4 %	40 - 140 %	20%
208-96-8	Acenaphthylene	330	230	70 %	330	230	70 %	0 %	40 - 140 %	20%
86-73-7	Fluorene	330	240	73 %	330	240	73 %	0 %	40 - 140 %	20%
120-12-7	Anthracene	330	250	76 %	330	250	76 %	0 %	40 - 140 %	20%
206-44-0	Fluoranthene	330	300	91 %	330	300	91 %	0 %	40 - 140 %	20%
129-00-0	Pyrene	330	290	88 %	330	290	88 %	0 %	40 - 140 %	20%
56-55-3	Benzo[a]anthracene	330	290	88 %	330	290	88 %	0 %	40 - 140 %	20%
218-01-9	Chrysene	330	290	88 %	330	290	88 %	0 %	40 - 140 %	20%
205-99-2	Benzo[b]fluoranthene	330	280	85 %	330	280	85 %	0 %	40 - 140 %	20%
207-08-9	Benzo[k]fluoranthene	330	290	88 %	330	290	88 %	0 %	40 - 140 %	20%
50-32-8	Benzo[a]pyrene	330	280	85 %	330	280	85 %	0 %	40 - 140 %	20%
193-39-5	Indeno[1,2,3-c,d]pyrene	330	250	76 %	330	250	76 %	0 %	40 - 140 %	20%
53-70-3	Dibenzo[a,h]anthracene	330	240	73 %	330	240	73 %	0 %	40 - 140 %	20%
191-24-2	Benzo[g,h,i]perylene	330	260	79 %	330	250	76 %	4 %	40 - 140 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,700	1,800	67 %	2,700	1,800	67 %	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-2147-M	Extracted:	09-15-05 07:00
Matrix:	Soil	Analyzed:	09-21-05 10:31
		Analyst:	JJT

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		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	BRL		ug/Kg	10
129-00-0	Pyrene	BRL		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	BRL		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	2,700	2,100	79 %	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.

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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-2148-M	Extracted:	09-15-05 23:00	Extracted:	09-15-05 23:00
Matrix:	Soil	Analyzed:	09-28-05 15:29	Analyzed:	09-28-05 16:08
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	180	55 %	330	210	64 %	15 %	40 - 140 %	20%
91-57-6	2-Methylnaphthalene	330	200	61 %	330	230	70 %	14 %	40 - 140 %	20%
85-01-8	Phenanthrene	330	240	73 %	330	280	85 %	15 %	40 - 140 %	20%
83-32-9	Acenaphthene	330	230	70 %	330	280	85 %	20 %	40 - 140 %	20%
208-96-8	Acenaphthylene	330	220	67 %	330	260	79 %	17 %	40 - 140 %	20%
86-73-7	Fluorene	330	230	70 %	330	270	82 %	16 %	40 - 140 %	20%
120-12-7	Anthracene	330	250	76 %	330	290	88 %	15 %	40 - 140 %	20%
206-44-0	Fluoranthene	330	310	94 %	330	340	103 %	9 %	40 - 140 %	20%
129-00-0	Pyrene	330	300	91 %	330	320	97 %	6 %	40 - 140 %	20%
56-55-3	Benzo[a]anthracene	330	310	94 %	330	340	103 %	9 %	40 - 140 %	20%
218-01-9	Chrysene	330	310	94 %	330	340	103 %	9 %	40 - 140 %	20%
205-99-2	Benzo[b]fluoranthene	330	300	91 %	330	330	100 %	10 %	40 - 140 %	20%
207-08-9	Benzo[k]fluoranthene	330	320	97 %	330	340	103 %	6 %	40 - 140 %	20%
50-32-8	Benzo[a]pyrene	330	310	94 %	330	340	103 %	9 %	40 - 140 %	20%
193-39-5	Indeno[1,2,3-c,d]pyrene	330	290	88 %	330	310	94 %	7 %	40 - 140 %	20%
53-70-3	Dibenzo[a,h]anthracene	330	270	82 %	330	300	91 %	11 %	40 - 140 %	20%
191-24-2	Benzo[g,h,i]perylene	330	300	91 %	330	330	100 %	10 %	40 - 140 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	2,700	2,000	74 %	2,700	2,200	81 %	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.

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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-2148-M	Extracted:	09-15-05 23:00
Matrix:	Soil	Analyzed:	09-27-05 17:28
		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	2,700	2,200	82 %	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

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